# DELHI PUBLIC SCHOOL, BHILAI

DATE : 06.12.2024 | PREBOARD EXAMINATION 2024-'25 | Time : 3 Hrs.

CLASS : XII | SUBJECT – ENGLISH CORE | Max. Marks : 80

Name : _____ | Roll No. : _____

**General Instructions:**

Read the following instructions very carefully and strictly follow them:

i. This question paper has 13 questions. All questions are compulsory.

ii. This question paper contains three sections:
**Section A: Reading Skills,**
**Section B: Creative Writing Skills**
**Section C: Literature**

iii. Attempt all questions based on specific instructions for each part. Write the correct question number and part thereof in your answer sheet.

iv. Separate instructions are given with each question/part, wherever necessary.

v. Adhere to the prescribed word limit while answering the questions.

## Section A : Reading Skills (22 Marks)

**1. Reading the following passage carefully.** **(12)**

1. Road safety rules are essential guidelines designed to protect the lives of motorists, pedestrians, and cyclists, ensuring safe and orderly traffic flow on our roads. These rules encompass a wide range of regulations and best practices aimed at minimising accidents, injuries and fatalities.

2. One fundamental road safety rule is obeying traffic signals and signs. Reducing speed and stopping at red lights, yielding to pedestrians at crosswalks and following directional signs contribute to orderly traffic movement and prevent collisions. Similarly, adhering to speed limits is crucial, as speeding significantly reduce the likelihood of fatalities and serious injuries.

3. Another critical aspect of road safety is wearing seat belts and helmets. Seat belts save lives by preventing occupants from being ejected during crashes, while helmets protect motorcyclist and cyclists from head injuries in the event of accidents. These simple safety measures can significantly reduce the likelihood of fatalities and serious injuries.

4. Additionally, maintaining a safe distance between vehicles is paramount for avoiding rear-end collisions. The 'two-second rule', where drivers maintain a distance equivalent to two seconds behind the vehicle in front, allows for adequate reaction time and braking distance, reducing the risk of accidents, especially in adverse weather conditions.

5. Moreover, avoiding distractions while driving, such as texting, talking on the phone, or adjusting the radio, is crucial for maintaining focus on the road. Distracted driving is a leading cause of accidents and can have devastating consequences. Therefore, drivers must prioritise their attention on driving and minimise distractions to ensure for themselves and others.

6. Furthermore, driving under the influence of alcohol or drugs is not only illegal but also extremely dangerous. Impaired drivers have reduced reaction times, impaired judgment, and compromised motor skills, posing a significant risk to themselves and other road users. Strict enforcement of laws against drunk driving and promoting public awareness campaigns about the dangers of driving under the influence are essential for preventing alcohol-related accidents.

7. In conclusion, road safety rules play a vital role in promoting safer roads and reducing the number of accidents and fatalities. By following these rules, drivers can contribute to creating a culture of safety and responsibility on our roads, ultimately saving lives and preventing injuries.

**Answer the following questions based on the above passage.**

(i) Explain the importance of obeying speed limits and wearing seat belts and helmets in ensuring road safety. (1)

(ii) What is a fundamental road safety rule mentioned in the passage? (1)

(iii) Choose the word that best describes the tone of the above passage. (1)
(a) Instructive (b) Informative

(iv) Complete the following sentence with an appropriate word. (1)
'Road safety rules play a vital role in promoting safer roads and reducing the ……..'.

(v) What is a leading cause of accidents mentioned in the passage? (1)
(a) Adhering to speed limits (b) Driving under the influence of alcohol or drugs
(c) Using seat belts and helmets (d) Following traffic signals

(vi) Why is maintaining a safe distance between vehicles important? (1)

(vii) How does distracted driving contribute to road accidents and what measures can drivers take to minimise distractions? (2)

Contd...2

(viii) Complete the analogy with ONE word from paragraph. (1)
Posing : Risk :: Play : .....
(a) Role (b) Rule (c) Reaction (d) Campaign

(ix) Which of the following does not correspond with the occurences in the above passage? (1)
(a) Wearing seat belts and helmets is essential for safety
(b) Ignoring speed limits does not increase risk of accidents
(c) Driving under the influence of alcohol is dangerous
(d) Both (b) and (c)

(x) How do road safety rules contribute to reducing accidents? (2)

**2. Reading the following passage carefully.** **10**

1. **Introduction:**In the hasty lifestyle of today's world, the choice of snacks can greatly impact one's health and well-being. This case study aims to analyse the preference for seasonal fruits compared to packaged snacks among different age groups and the implications for overall health.

2. **Methodology:**A survey was conducted among individuals across various age groups, ranging from children to seniors, to determine their snacking preferences. Participants were asked to indicate their preferred snack choices and provide reasons for their preferences. The data was then analysed to identify trends and patterns among different age demographics.

3. **Survey Examinations:**The survey encompassed a comprehensive examination of snacking habits, influences guiding these choices. Beyond mere preference, participants were encouraged to articulate the reasons behind their selections, providing invaluable insights into the multifaceted nature of snacking behaviour.

4. **Results:** The survey results revealed interesting insights into snacking preferences among different age groups.

| Age-group | % | Preferred snack | Reasons for preference |
|---|---|---|---|
| Children | 77 | Seasonal fruits | Taste, Health benefits, Parental guidance |
| Teenagers | 65 | Packaged snacks | Convenience, Taste, Peer influence |
| Young adults | 52 | Seasonal fruits and packaged snacks | Transitional lifestyle (College, beginning careers, and establishing independence), Health consciousness, Convenience |
| Middle-aged | 83 | Seasonal fruits | Freshness, Nutrition, Health consciousness |
| Elderly | 90 | Seasonal fruits | Health benefits, Digestive ease |

5. **Implications for Interventions**:By discerning the diverse preferences among different age groups, policy makers and health practitioners can tailor interventions to address specific demographic needs. For instance, targeting educational campaigns towards parents could empower them to instil healthy eating habits in their children from an early age. Concurrently, efforts to mitigate the influence of advertising and peer pressure on teenagers could involve regulatory measures and educational initiatives aimed at promoting critical thinking and informed decision-making. Furthermore, the prominence of seasonal fruits as a preferred snack choice among middle-aged adults and seniors points towards the importance of promoting access to fresh produce and nutritional education across all age demographics.

6. **Conclusion:** The survey outcomes serve as a roadmap for designing targeted interventions that not only cater to diverse demographic needs but also nurture a culture of health and well-being. By harnessing the insights gleaned from this study, stakeholders can collaboratively work towards building healthier communities and promoting sustainable practices for generations to come.

**Answer the following questions, based on the given passage.**

(i) Complete the following suitably. (1)
In the introduction, the researcher links a hasty lifestyle with the choice of snacks in the study to highlight ..... .

(ii) What would the following be classified as? (1)
To examine snacking preferences across various age groups in detail, and assess health implications.
Select the appropriate response.
(a) Primary purpose (b) Secondary objective
(c) Method of analysis (d) Research outcome

(iii) Give two points to support why it is likely that fresh fruits were given as an option to the survey participants to choose from, in the study on snacking preferences. (2)

(iv) Paragraph 3 includes words – 'motivations' and 'influences'. (1)
Classify the following sentences as 'motivation' or 'influence'
**Sentence 1** Peer pressure leads teenagers to prefer packaged snacks over healthier options.
**Sentence 2** The drive to maintain health as one ages makes middle-aged adults to choose seasonal fruits.

**Contd...3**

(v) Read the following: (1)

Seema regularly enjoys snacking on chips and cool drinks while watching movies. Mohan, her neighbour, prefers to snack on oranges and also some nuts occasionally. Arindam, who lives across, often tends to eat a mix of carrot sticks and instant noodles, in between meals.

Select the option that identifies the correct demographic. Seema, Mohan and Arindam belong to:

(a) Seema – young adult; Mohan – teenager; Arindam – middle-age
(b) Seema – teenager; Mohan – middle=age; Arindam – child
(c) Seema – young adult; Mohan – child; Arindam – teengager
(d) Seema – teenager, Mohan – elderly; Arindam – yound adult

(vi) Although children, middle-aged, and elderly groups all prefer seasonal fruits, why is the preference percentage highest among the elderly? (1)

(vii) Analyse how targeted interventions based on the diverse snacking preferences of different age groups can lead to improved health outcomes. (Paragraph 5) (2)

(viii) What is the ultimate goal for stakeholders, based on the insights from the study? (1)

(a) Increase profitability through enhanced snack marketing
(b) Building healthier communities
(c) Reducing the cost of healthcare services
(d) Expanding the range of available snack product

## Section B : Creative Writing Skills (18 Marks)

3. Attempt **any one** of the two, (a) or (b), in about 50 words. 4

(a) The problem of residents' parking of vehicles often leading to minor scuffles and arguments has become a source of growing concern. As Anuj Verma/Anuja Verma , Secretary of Smart Living Society, Tara Bagh, Raipur write a notice informing the residents about a meeting to discuss the problem and find an acceptable solution. Invent all necessary details

**OR**

(b) There has been an increase in the number of cyber bullying cases amongst school students. This has led to parents and students getting very anxious. As David Green, the school captain, you are arranging for a talk during the morning assembly by Mr Tom Brown, Director, Cyber Crime Department, inviting both students and parents for the same .Draft a notice in about 50 words informing the students, mentioning the day, date, time and venue.

4. Attempt **anyone** of the two, (a) or (b), in about 50 words. 4

(a) Draft an invitation card inviting friends to an exhibition cum sale of handmade candles and small earthen lamps. Include necessary details regarding the event. You are Anila Das/Anil Das the Director of Handicrafts Pvt . Ltd.

**OR**

(b) You are Mira Malik/ Manohar Malik, a celebrated short story writer .You have been invited by the Literary Club of Sunshine Public School Nagpur to deliver a lecture on the' Importance of Literature in Life'. Draft a formal acceptance of the invitation in about 50 words. Address it to the Principal.

5. Attempt **any one** of the two, (a) or (b), in 120 - 150 words. 5

(a) Many people, while travelling do not follow standard norms such as standing in queues, keeping their surroundings clean and maintaining a certain level of silence that shows respect for everyone's space. This leads others to have an unpleasant and unsafe experience. Write a letter to the editor of a national daily describing the problem and examining this improper behaviour. Provide suggestions for how such behaviour can be improved .Use the following cues along with your own ideas to compose the letter. You are Arunima/Pankaj a concerned Indian citizen.

| |
|---|
| Examples of improper behaviour |
| not maintaining proper queues |
| throwing rubbish on the floor |
| shoving or pushing while handling baggage |
| watching videos without earphones or talking loudly |
| Consequences |
| cause chaos and anxiety |
| physical injuries due to luggage manhandling |
| dirty and unhygienic surroundings |
| disrupting the peace of the place |

**OR**

(b) The Nehru Foundation is recruiting graduates for an intensive leadership training program during the summer in villages across India .You are Madhumita/Mohanlal from Ratnagiri - Institute of Higher Studies, Bilaspur .You saw the given advertisement in the newspaper and wish to apply for the position advertised.

| |
|---|
| Leadership Training Programme |
| Graduates required by Nehru Foundation |
| Whom do we need |
| Fresh graduates in any discipline |
| Skills -Excellent communication skills both written and verbal |
| Fluent in languages- English and state language |
| Age 21- 24 years |
| Early response solicited |

**Contd...4**

6. Attempt **any one** of the two (a) or (b), in 120 to 150 words. 5

(a) A recent survey by a website shows that about 55% of the Indian adults sleep less than 6 hours everyday. This is a worrying statistic as the scientifically recommended amount of sleep is 8 to 10 hours. The study notes that there is a direct relationship between sleep and mental health wherein both impact each other. As Purva/ Purvinder draft an article in 120 to 150 words on the importance of adequate sleep and the possible causes of poor sleep. You can use the following cues along with your own ideas.

| |
|---|
| food, stress, anxiety, cause poor sleep<br>sleep clears toxins, improves memory<br>maintains and builds immunity |

**OR**

(b) You are Ramesh /Meera. The Career Counselling Department of your school recently organised a talk on 'Possible Career Options: Science ,Commerce, Arts or Humanities 'for the students of classes 11 and 12. You attended the event on 1 December 2024. Draft a report covering the talk for the news letter of your school. Support your ideas with the cues given below –

| |
|---|
| purpose of the talk<br>who attended the talk<br>aim of the talk and the main points that were made<br>primary take away from the talk<br>post- talk references given to attendees<br>the impact the talk had on the attendees |

## Section C : Literature (40 Marks)

7. Read the following extracts and answer the questions for **any one** of the two, (a) or (b): 1x**6=6**

(a) If we were not so single-minded
about keeping our lives moving
and for once could do nothing
perhaps a huge silence
might interrupt this sadness
of never understanding ourselves
and of threatening ourselves with death

(i) Whom does ' we 'refer to in the above lines?

(ii) Why does the poet want us to 'do nothing 'for once?
(a) To proliferate brotherhood (b) To give rest to our body for a few minutes
(c) To introspect ourselves (d) None of these

(iii) What is man single-minded about?

(iv) What does' keeping our life moving 'mean?

(v) Identify the poetic device used in the last four lines of the stanza.
(a) Alliteration (b) Repetition (c) Enjambment (d) Consonance

(vi) What is the hope in the poet's mind?
(a) Man would become less interested in others.
(b) Man would begin to focus more on keeping his life moving.
(c) Man would begin to be more humane if he begins to introspect.
(d) Man would develop new ideas to destroy each other.

**OR**

(b) … she
looked but soon
put that thought away and looked out at Young
Trees sprinting, the merry children
spilling out of their homes...

(i) Which poetic device has been used in 'Trees sprinting '?

(ii) What did the poet realise?

(iii) How did she feel when she realized that her mother is getting old ?
(a) she was fine with it (b) she tried to divert her thoughts
(c) this feeling was hard for her to accept (d) none of these

(iv) What did she do then?

(v) What does the poem not revolve around ?
(a) Poet's fears (b) Poet's love for her mother
(c) Theme of old age (d) Poet's travel plans

(vi) 'put that thought away'. Which thought was put away?

**Contd…5**

8. Read the extract and answer the questions for **any one** of the given two, (a) or (b): **1x4=4**

(a) Students on Ice, the programme I was working with on the Shokalskiy, aims to do exactly this by taking high school students to the ends of the world and providing them with inspiring educational opportunities which will help them foster a new understanding and respect for our planet. It's been in operation for six years now, headed by Canadian Geoff Green who got tired of carting celebrities and retired rich curiosity - seekers who could only' give' back in a limited way .

With Students on Ice he offers the future generation of policy- makers a life-changing experience at an age when they are ready to absorb, learn and most importantly act.

(i) Complete the following sentence.
The writer refers to educational opportunities as inspiring because .....

(ii) Which of the following would Not be a life changing experience ?
(a) being given the lead role in a play (b) going on an adventure trip
(c) playing a video game (d) meeting a great leader you admire

(iii) Select the most suitable title for the given extract:
(a) Adventure with the mission (b) Adventure- the spice of life
(c) The Wanderlust (d) Students of the future

(iv) Why does the writer refer to 'act' as more important than absorb or learn?

**OR**

(b) When I heard this I didn't want to laugh anymore, I felt terribly sad. How could they believe that it was disgusting if one of us held that package in his hands, even though the vadai had been wrapped first in a banana leaf and then parcelled in paper?

I felt so provoked and angry that I wanted to touch those wretched vadais myself straight away. Why should we fetch and carry for these people, I wondered. Such an important elder of ours goes meekly to the shops to fetch snacks and hands them over reverently, bowing and shrinking, to this fellow who just sits there and stuffs them into his mouth. The thought of it infuriated me.

(i) The elder handing snacks reverently bowing and shrinking to the fellow indicates the 'fellow' was

1. condescending 2. unassuming 3. submissive
4. disdainful 5. aggressive 6. domineering

(a) 2,3 and 6 (b) 1,4 and 5 (c) 1,4 and 6 (d) 2, 3 and 5

(ii) Based on the given context choose the option that illustrates when a person can be provoked, out of the examples given below .
1. The employees organised a peaceful protest outside the firm.
2. The manager ill-treated one of the employees and wrongfully terminated him.
3. The employees wrote a letter of complaint against the manager.
4. The director of the firm scheduled a meeting for reconciliation.

(a) option 1 (b) option 2 (c) option 3 (d) option 4

(iii) Why did the narrator get sad ?

(iv) Do you think that the narrator can surpass the biasness of caste?How?

9. Read the following extracts and answer the questions for anyone of the given two, (a) or (b): **1x6=6**

(a) All this shows that there was a great deal of national integration long before AIR and Doordarshan began broadcasting programmes on national integration. This gang of nationally integrated make-up men could turn any decent looking person into a hideous crimson hued monster with the help of truck- loads of pancake and a number of other locally made potions and lotions. Those were the days of mainly indoor shooting and only five percent of the film was shot outdoors.

(i) All this shows that there was a great deal of national integration.
What does 'all this ' refer to in the given lines?

(ii) Who are the nationally integrated makeup men ?
(a) The make-up artists of Gemini Studio
(b) The make-up artists of a beauty parlour
(c) The make-up artists of All India Radio
(d) The make-up artists of Doordarshan

(iii) Find the word from the extract which means exactly the opposite of the word 'beautiful'.
(a) integrated (b) hideous (c) potions (d) monster

(iv) Fill in the blanks
..... is the name of a make-up brand that the studio used in large amounts.

(v) What does the extract say about the television industry ?

(vi) Which of the following statements replicates the meaning of pancake as used in the extract?
(a) He turned the pancake over with the strong flick of his wrist.
(b) The countryside there is as flat as a pancake.
(c) The whole landscape looked as flat as a pancake.
(d) She applied the pancake on her face with a sponge.

**OR**

(b) He had naturally been thinking of his rattraps when suddenly he was struck by the idea that the whole world about him- the whole world- with its land and seas - its cities and villages was nothing but a big rattrap. It had never existed for any purpose than to set baits for people.
(i) Who is 'he' referred to here?
(ii) What was he thinking ?
(a) about rattraps (b) about his survival (c) about cities and villages (d) None of these
(iii) According to him what is the purpose of the world?
(a) To kill people (b) To set baits for people
(c) To spread kindness (d) To hypnotize the world
(iv) Which word from the following means the same as allurement?
(a) struck (b) rattrap (c) idea (d) bait
(v) What does the' rat trap' symbolise?
(vi) Fill in the blank :
The literary device used by the author to signify the rattrap is ....

10. Answer **any five** of the following six questions in 40 to 50 words each: 5x2=**10**
(i) Who did M. Hamel blame for the neglect of learning on the part of boys like Franz? (The Last Lesson)
(ii) 'It is his karam', his destiny' .Explain (Lost Spring)
(iii) How did the invention of synthetic Indigo affect the peasant-landlord relationship in Champaran? (Indigo)
(iv) Explain the concept of 'interstices' in our lives as given by Umberto Eco. (The Interview)
(v) Evaluate the two different perspectives to life that Jansie and Sophie represent. (Going Places)
(vi) What is the source of 'an endless fountain ' and what is its effect? (A Thing of Beauty)

11. Answer **any two** of the following three questions in 40 to 50 words each: 2x2=**4**
(i) Do you think Derry's mother is protective of him? Justify your opinion with textual evidence. (On The Face Of It)
(ii) Zitkala - Sa says, "Eating by formula wasn't the hardest trial in that first day." What does she mean by' Eating by formula'? (Memories of Childhood)
(iii) Why was the Maharaja sunk in gloom even after having killed seventy tigers? (The Tiger King)

12. Answer **any one** of the following two questions in120 to 150 words. **5**
(a) When the peasants are so crushed and fear stricken law courts are useless. The real relief for them is to be free from fear. (Indigo). The people of Firozabad (Lost Spring) are too fear stricken to form a cooperative as there is a vicious circle of middlemen, politicians etc. who don't allow them to take any initiative. This means fear is the biggest deterrent to success.

As a motivational speaker give a speech advising students to overcome fear to lead a successful life. Use material from the texts to support your views.

**You may begin like this:**

Dear Students

Emotion will always interfere and interrupt your path to success…

**OR**

(b) A Roadside Stand and Aunt Jennifer's Tiger's are both poetic expressions of inequality. Discuss with reference to the two poems.

13. Answer **any one** of the following two questions in 120 to 150 words. **5**
(a) " … that if the man were whole, I could turn him over to the Police... but since he is wounded" (The Enemy) The above statement clearly displays Dr Sadao's commitment to his profession and his compassion. Write a paragraph in appreciation of Dr Sadao's professional ethics and his ability to rise above prejudices.

**You may begin like this:**

Dr Sadao proved himself to be a man with great humanitarian values…

**OR**

(b) The narrator has used nostalgia and escapism very effectively to capture the interest of the reader in The Third Level. Do you agree with the statement? Mention specific instances from the text to support your view.

# DELHI PUBLIC SCHOOL, BHILAI

**DATE : 12.12.2024**
**CLASS : XII**
**Name : _____**

**PREBOARD EXAMINATION 2024-'25**
**SUBJECT – MATHEMATICS**

**Time : 3 Hrs.**
**Max. Marks : 80**
**Roll No. : _____**

**General Instructions:**

1. This question paper contains five sections A, B, C, D and E. Each section is compulsory.
2. Section – A carries 20 marks weightage, section – B carries 10 marks weightage, section – C carries 18 marks weightage, Section – D carries 20 marks weightage and section – E carries 3 case-based with total weightage of 12 marks.
3. **Section – A** comprises **20 MCQs** of 1 mark each.
4. **Section – B** comprises **5 VSA** type questions of 2 marks each.
5. **Section – C** comprises **6 SA** type of questions of 3 marks each
6. **Section – D** comprises **4 LA** type of questions of 5 marks each.
7. **SECTION – E** It has **3 case studies**. Each case study comprises 3 case-based questions, where 2 VSA type questions are of 1 mark each and 1 SA type question is of 2 marks. Internal choice is provided in 2 marks question in two case-study.
8. Internal choices are provided in 2 questions in section – B, 3 questions in section – C, 2 questions in section – D. You have to attempt only one of the alternatives in all such questions.

## Section – A

**01.** The domain of function $f(x) = cos^{-1}(x^2 - 4)$ is

(A) $[3, 5]$ (B) $[0, \pi]$

(C) $[-\sqrt{5}, -\sqrt{3}] \cap [-\sqrt{5}, \sqrt{3}]$ (D) $[-\sqrt{5}, -\sqrt{3}] \cup [\sqrt{3}, \sqrt{5}]$

**02.** Let $A = \begin{bmatrix} 1 & sin\vartheta & 1 \\ -sin\vartheta & 1 & sin\vartheta \\ -1 & -sin\vartheta & 1 \end{bmatrix}$ where $0 \leq \vartheta \leq 2\pi$, then

(A) $|A| = 0$ (B) $|A| \epsilon (2, \infty)$ (C) $|A| \in (2, 4)$ (D) $|A| \in [2, 4]$

**03.** If $A = \begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix}$ then $A^{2024}$ is equal to

(A) $\begin{bmatrix} 0 & 1 \\ 0 & 0 \end{bmatrix}$ (B) $\begin{bmatrix} 0 & 2024 \\ 0 & 0 \end{bmatrix}$ (C) $\begin{bmatrix} 0 & 0 \\ 0 & 0 \end{bmatrix}$ (D) $\begin{bmatrix} 2024 & 0 \\ 0 & 2024 \end{bmatrix}$

**04.** If $A = \begin{bmatrix} \alpha & 0 \\ 1 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 0 \\ 5 & 1 \end{bmatrix}$ then the value of $\alpha$ for which $A^2 = B$, is

(A) 1 (B) $-1$ (C) 4 (D) No real values

**05.** If A is a square matrix of order $3 \times 3$ such that $|A| = -3$ then the value of $|-3AA^T|$ is

(A) 243 (B) $-243$ (C) $-27$ (D) $-81$

**06.** If A is a square matrix of order n then which of the following is not correct:

(A) $adj\,(A^T) = (adj\,A)^T$ (B) $adj(adj\,A) = |A|^{n-2}\,A$

(C) $|adj\,(adj\,A)| = |A|^{(n-1)^2}$ (D) $adj(adj\,A) = |A|^{n-1}.A$

**07.** If $f(x) = \begin{cases} x & , \ 0 \leq x \leq 1 \\ 2x - 1 & , \ x > 1 \end{cases}$ then which one of the following is appropriate for $f(x)$ ?

(A) $f$ is continuous at $x = 1$ (B) $f$ is differentiable at $x = 1$

(C) $f$ is continuous but not differentiable at $x = 1$ (D) None of these

**08.** Let $f(x) = x + 1, x \in (-1, 1)$ then minimum and maximum value of the function is

(A) $(-2, 2)$ (B) $[2, 2]$ (C) $[0, 1]$ (D) do not exist

**09.** $\int \frac{2^{x+1} - 5^{x-1}}{10^x}\,dx$ equal to

(A) $\frac{1}{5}\,\frac{(2^{-x})}{log2} - 2\left(\frac{5^{-x}}{log5}\right) + C$ (B) $\frac{1}{6}\log(2^{-x}) - 2log5^x(5^{-x}) + C$

(C) $\frac{1}{5}\,log(2^{-x}) + 3log5 \times (5^{-x}) + C$ (D) None of these

**Contd...**

10. The value of $\int_0^1 tan^{-1}\left(\frac{2x}{1+x-x^2}\right) dx$ is

(A) 1 (B) 0 (C) $-1$ (D) $\pi/4$

11. The area of the region bounded by the curve $y^2 = 4x$, $y - axis$ and line $y = 3$, is

(A) 2 sq. unit (B) $\frac{9}{4}$ sq. unit (C) $\frac{9}{3}$ sq. unit (D) $\frac{9}{2}$ sq. unit

12. $tan^{-1}x + tan^{-1}y = C$ is the general solution of the equation

(A) $\frac{dy}{dx} = \frac{1+y^2}{1+x^2}$ (B) $\frac{dy}{dx} = \frac{1+x^2}{1+y^2}$

(C) $(1 + x^2)dy + (1 + y^2)dx = 0$ (D) $(1 + y^2)dy + (1 + x^2)dx = 0$

13. The sum of order and degree of differential equation $\frac{d}{dx}\left[\left(\frac{dy}{dx}\right)^3\right] = 0$ is

(A) 2 (B) 3 (C) 4 (d)5

14. Let $\vec{a} = \hat{\imath} - 2\hat{\jmath} + 3\hat{k}$ and $\vec{b}$ is a vector such that $\vec{a}.\vec{b} = |\vec{b}|^2$ and $|\vec{a} - \vec{b}| = \sqrt{7}$ then $|\vec{b}|$ is equal to

(A) 7 (B) 14 (C) $\sqrt{7}$ (D) $\sqrt{21}$

15. If $\vec{a}$ and $\vec{b}$ are two unit vectors such that $\vec{a} + \vec{b}$ is also a unit vector, then the angle between $\vec{a}$ and $\vec{b}$ is

(A) $\pi$ (B) $\pi/2$ (C) $\pi/3$ (D) $2\pi/3$

16. In an L.P.P., the optimal value of the objective function is attained at the points

(A) Given by intersection of inequations with the axes only.
(B) Given by intersection of inequatins with X axis only.
(C) Given by corner points of the feasible region.
(D) None of these.

17. The maximum value of $z = 4x + 3y$ subject to the constraints

$3x + 2y \geq 160$, $5x + 2y \geq 200$
$x + 2y \geq 80$, $x, y \geq 0$, is

(A) 320 (B) 300 (C) 230 (D) None of these

18. A and B are events such that $P(A) = 0.4$, $P(B) = 0.3$ and $P(A \cup B) = 0.5$, then $P(B' \cap A)$ equal to

(A) 2/3 (B) 1/2 (C) 3/10 (D) 1/5

**For questions 19 and 20, two statements are given – one labeled Assertion (A) and the other labeled Reason (R), select the correct answer to these questions from the codes (A), (B), (C) and (D) as given below:**

**(A) Both A and R are true and R is the correct explanation of the assertion**
**(B) Both A and R are true and R is not the correct explanation of the assertion**
**(C) A is true, but R is false**
**(D) A is false, but R is true**

19. **Statement – 1 (A) :** $f(x) = e^{-|x|}$ is differentiable $\forall x \in R$.
**Statement – 2 (R) :** $for(x) = e^{-|x|}$ is continuous everywhere.

20. **Statement – 1 (A) :** The function $f: R \to$ defined by $f(x) = [x]$ is neither one-one nor onto.
**Statement – 2 (R) :** The function $f: R \to R$ defined by $f(x) = |x|$ is onto.

## Section – B

21. Find the value of $tan^{-1}\left(tan\frac{5\pi}{6}\right) + cos^{-1}(cos\frac{13\pi}{6})$

22. If $sin^2y + \cos(xy) = \pi$, then find $\frac{dy}{dx}$

**OR**

If $x\sqrt{1+y} + y\sqrt{1+x} = 0$, $x \neq y$, then show that $\frac{dy}{dx} = \frac{-1}{(1+x)^2}$

**Contd...3**

**23.** For the curve $y = 5x - 2x^3$ if $x$ increases at rate of 2 units/sec then how fast is the slope changing when $x = 3$.

**24.** If $|\vec{a}| = 10 \quad |\vec{b}| = 2$ and $\vec{a}.\vec{b} = 12$ then find the value of $|\vec{a} \times \vec{b}|$

**OR**

If the lines $6x - 2 = 3y + 1 = 2z - 2$ and $\frac{x-2}{\lambda} = \frac{2y-5}{-3} = \frac{z+2}{0}$ are perpendicular to each other then find the value of $\lambda$.

**25.** If $\vec{a}$ and $\vec{b}$ two vectors with magnitudes $\sqrt{3}$ and 4 respectively and $\vec{a}.\vec{b} = 2\sqrt{3}$ then find the angle between $\vec{a}$ and $\vec{b}$.

## Section – C

**26.** Find the interval in which $f(x) = \log(1 + x) - \frac{x}{1+x}$ is increasing or decreasing.

**27.** Sand is pouring from a pipe at the rate of $12\ cm^3/sec$. The falling sand forms a cone on the ground in such a way that the height of the cone is always one-sixth of the radius of the base. How fast is the height of sand-cone increasing when height is 4 cm.

**28.** Evaluate : $\int \frac{xe^x}{(x+1)^2}\ dx$

**OR**

$\int_0^{\frac{\pi}{4}} log\ (1 + tanx)dx$

**29.** Find the shortest distance between the lines $\frac{x-8}{3} = \frac{y+9}{-16} = \frac{10-z}{-7}$ and $\frac{x-15}{3} = \frac{y-29}{8} = \frac{5-z}{5}$

**OR**

If $\vec{a} = \hat{\imath} + 4\hat{\jmath} + 2\hat{k}$, $\vec{b} = 3\hat{\imath} - 2\hat{\jmath} + 7\hat{k}$ and $\vec{c} = 2\hat{\imath} - \hat{\jmath} + 4\hat{k}$. Find a vector $\vec{d}$ which is perpendicular to both $\vec{a}$ and $\vec{b}$ and $\vec{c}.\vec{d} = 15$.

**30.** Consider the following L.P.P. Minimise $z = x + 2y$
Subject to constrains $2x + y \geq 3$, $x + 2y \geq 6$, $x, y \geq 0$
Show graphically that minimum of $z$ occurs at more than one point.

**31.** Two numbers are selected at random (without replacement) from first six positive integers. Let X denotes the larger of the two numbers obtained. Find the probability distribution of X, also find mean of X.

**OR**

There are four ball in a bag. Two balls are drawn at random and both found to be white. Find the probability that all the balls in the bag are white.

## Section – D

**32.** Use the product $\begin{bmatrix} 1 & -1 & 2 \\ 0 & 2 & -3 \\ 3 & -2 & 4 \end{bmatrix} \begin{bmatrix} -2 & 0 & 1 \\ 9 & 2 & -3 \\ 6 & 1 & -2 \end{bmatrix}$

to solve the system of equations: $x + 3z = 9$, $-x + 2y - 2z = 4$, $2x - 3y + 4z = -3$

**33.** If $y = (logx)^x + x^{logx}$ then find $dy/dx$.

**OR**

If $x = sin\left(\frac{1}{a} logy\right)$, show that $(1 - x^2)y_2 - xy_1 = a^2y$

**34.** Find the area of the smaller part of the circle $x^2 + y^2 = a^2$ cut off by the line $x = a/\sqrt{2}$.

**OR**

Find the area of the region bounded by the curve $x = 4y - y^2$ and the $y - axis$.

**Contd...4**

35. Find the co-ordinate of foot of perpendicular from the point $(2, 3, -8)$ to the line $\frac{4-x}{2} = \frac{y}{6} = \frac{1-z}{3}$ Also find the equation of perpendicular and distance of given point from the line.

## Section – E
## (Case Study Questions)

36. Ritesh and Kamal are playing a game with a die. They find that all possible outcomes in the game is given by the set $\{1, 2, 3, 4, 5, 6\}$. Let A and B are the sets of players and outcomes i.e. $A = \{R, K\}$ , $B = \{1, 2, 3, 4, 5, 6\}$

On the basis of the above information, answer the following questions:

(a) Show that the relation $R$ on set $B$, defined by $R = \{(x, y): y \text{ is divisible by } x\}$, is reflexive transitive but not symmetric.

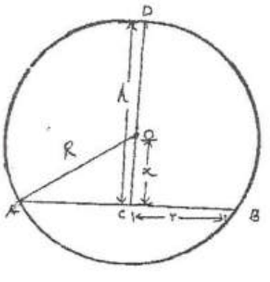
**OR**

Let $R$ be a relation on $B$ defined by
$R = \{(1, 2)\ (2, 1)\ (2, 2)\ (1, 3)\ (3, 4)\ (3, 1)\ (1, 1)\ (4, 3)\}$
Check whether $R$ is reflexive, symmetric or transitive.

(b) Ritesh is willing to know the number of functions from A to B. How many functions can be made from A to B.

(c) Kamal wants to know the number of possible relations from A to B. Find the number of relations.

37. Let a cone be inscribed in a sphere of radius R. The height and radius of cone are h and r respectively as shown in the figure:




On the basis of the above information, answer the following questions:

(a) Write the relation among $r, R \text{ and } x$.

(b) Write the volume V of the cone in terms of $R \text{ and } x$.

(c) Show that the volume V of the cone is maximum when $x = R/3$.

**OR**

If volume V of the cone is maximum at $x = R/3$ , then find the maximum volume of the cone and also find the ratio of maximum volume of the cone and volume of the sphere.

38. A doctor is to visit a patient. From the past experience, it is known that the probabilities that he will come by train, bus, scooter or by other means of transport are respectively $3/10$ , $1/5$ , $1/10$ and $2/5$ . The probabilities that he will be late are $1/4$ , $1/3$ and $1/2$, if he comes by train, bus or by scooter but if he come by other means of transport, he is in time.

On the basis of above information answer the following questions:

(a) Find the probability that the doctor will be late.

(b) Find the probability that he had come by scooter given that he was late.

# DELHI PUBLIC SCHOOL, BHILAI

**DATE : 12.12.2024** | **PREBOARD EXAMINATION 2024-'25** | **Time : 3 Hrs.**

**CLASS : XII** | **SUBJECT – APPLIED MATHEMATICS** | **Max. Marks : 80**

**Name : _____** | **Roll No. : _____**

## GENERAL INSTRUCTIONS

1. This Question paper contains - **five sections A, B, C, D and E**. Each section is compulsory. However, there is some internal choice in some questions.
2. **Section A** has 18 MCQ's and 02 Assertion Reason based questions of **1 mark** each.
3. **Section B** has 5 Very Short Answer (VSA) questions of **2 marks** each.
4. **Section C** has 6 Short Answer (SA) questions of **3 marks** each.
5. **Section D** has 4 Long Answer (LA) questions of **5 marks** each.
6. **Section E** has 3 source based/case based/passage based/integrated units of assessment (**04 marks each**) with sub parts.
7. Internal Choice is provided in 2 questions in Section -B, 2 questions in Section-C, 2 Questions in Section-D. You have to attempt only one alternatives in all such questions.

## SECTION – A

**(All questions are compulsory no internal choice is provided in this section)**

1. In 1 km race, player P beats player Q by 18 m or 9 sec. What is P's time to complete the race?
   (A) 512 sec (B) 502 sec (C) 491 sec (D) 481 sec

2. If $x > y$ and $z < 0$, then
   (A) $xz > yz$ (B) $xz \geq yz$ (C) $\frac{x}{z} > \frac{y}{z}$ (D) $\frac{x}{z} < \frac{y}{z}$

3. If AB = A and BA = B, then $(B^2 + B)$ equals
   (A) 2A (B) O (C) 2I (D) 2B

4. The value of $A = \begin{vmatrix} 42 & 2 & 5 \\ 79 & 7 & 9 \\ 29 & 5 & 3 \end{vmatrix}$
   (A) 0 (B) 1 (C) $-1$ (D) 3

5. If $y = e^{-2x}$, then $\frac{d^3y}{dx^3}$ is equal to
   (A) $2e^{-2x}$ (B) $e^{-4x}$ (C) $4e^{-4x}$ (D) $-8e^{-2x}$

6. The function $f(x) = x^2 - x + 1$
   (A) increasing in $(0, 1)$
   (B) decreasing in $(0, 1)$
   (C) increasing in $\left(0, \frac{1}{2}\right)$ and decreasing in $\left(\frac{1}{2}, 1\right)$
   (D) increasing in $\left(\frac{1}{2}, 1\right)$ and decreasing in $\left(0, \frac{1}{2}\right)$

7. The order and the degree of the differential equation $y\frac{d^2y}{dx^2} - x\left(\frac{dy}{dx}\right)^2 = 0$ are respectively
   (A) 1, 1 (B) 1, 2 (C) 2, 1 (D) 1, not defined

8. A fair coin is tossed twice and outcomes are noted. If the random variable $X$ represents the number of heads that appeared in the experiment, then the mathematical expectation of $X$ is
   (A) 1 (B) ½ (C) ¼ (D) $1\frac{1}{2}$

9. What time will it be after 1275 h, if the present time is 9: 00 pm?
   (A) 1.1 pm (B) 12 am (C) 9 pm (D) 9 am

10. If for a Poisson Variate $X$, $P(X = k) = P(X = k + 1)$, then the variance of $X$ is
    (A) $k - 1$ (B) k (C) $k + 1$ (D) $k + 2$

11. If the calculated value of $|t| < t_v(\alpha)$ (critical value of t), then the null hypothesis is
    (A) rejected (B) accepted
    (C) neither accepted nor rejected (D) cannot be determined

**Contd...2**

12. For testing the significance of difference between the means of two independent samples, the degree of freedom(v) is taken as
(A) $n_1 - n_2 + 2$ (B) $n_1 + n_2 + 2$
(C) $n_1 - n_2 - 2$ (D) $n_1 + n_2 - 2$

13. For the given values 23, 32, 40, 47, 58, 33, 42, the 5 yearly moving averages are
(A) 38, 40, 42 (B) 40, 42, 44 (C) 40, 42, 46 (D) 42, 44, 46

14. Using the flat rate method, the EMI to repay a loan of Rs 20000 in $2\frac{1}{2}$ year at an interest rate of 8% per annum is
(A) Rs 700 (B) Rs 800 (C) Rs 900 (D) Rs 100

15. A mobile phone costs Rs 12000 and its scrap value after a useful life of 3 year is Rs 3000. Then the book value of the mobile phone at the end of 2 year is
(A) Rs 3000 (B) Rs 6000 (C)Rs 5000 (D) Rs 7000

16. What sum of money should be deposited at the end of every 6 months to accumulate Rs 50000 in 8 year, if money is worth 6% per annum compounded semi-annually? [given $(1.03)^{16} = 1.6047$]
(A) Rs 3432.53 (B) Rs 2783.08 (C) Rs 2480.57 (D) Rs 2149.93

17. The graph of the inequation $2x + 3y > 6$ is the
(A) half-plane that contains the origin
(B) entire $XOY - plane$
(C) $half - plane$ that neither contains the origin nor the points on the line $2x + 3y = 6$
(D) whole $XOY - plane$ excluding the points on the line $2x + 3y = 6$

18. In an LPP if the objective function Z = ax + by has same maximum value on two corner points of the feasible region, then the number of points at which maximum value of z occurs is
(A) 0 (B) 2 (C) finite (D) infinite

Q. NO. 19 and 20 are ASSERTION(A) AND REASON(R) type with the following options:
(A) A and R both are correct and R is the correct explanation of A.
(B) A and R both are correct and R is the not correct explanation of A.
(C) A is correct and R is false.
(D) A is false and R is correct

19. **Assertion (A) :** The function $f(x) = x^2 - x + 1$ is strictly increasing on $(-1, 1)$
**Reason (R) :** If $f(x)$ is continuous on [a, b] and derivable on $(a, b)$ then $f(x)$ is strictly increasing on $(a, b), if\ f'(x) > 0\ for\ all\ x \in (a, b)$

20. In the Binomial distribution, n = 200 and p = 0.04. Taking Poisson distribution as an approximation to the binomial distribution
**Assertion (A) :** Mean of Poisson distribution = 8
**Reason (R) :** $P(X = 4) = \frac{512}{3e^8}$

## SECTION – B

**(All questions are compulsory.**
**In case of internal choice attempt any one question only, also write steps in support of your answers)**

21. If $A = \begin{bmatrix} 1 & 0 \\ -1 & 7 \end{bmatrix}$, find the value of k such that $A^2 - 8A + kI = 0$.

**OR**

If $\begin{bmatrix} x-y & 2x+z \\ 2x-y & 3z+w \end{bmatrix} = \begin{bmatrix} -1 & 5 \\ 0 & 13 \end{bmatrix}$ find the values of $x, y, z, w$.

22. Using Cramer's rule, solve the following system of equations $2x + 3y = 5;\ 11x - 5y = 6$

23. Find the solution to the following linear programming problem (if it exists) graphically Maximize $Z = x + y$ subject to the constraints $x - y \leq -1;\ -x + y \leq 0; x, y \geq 0$

24. At 6% per annum, compounded quarterly, find the present value of perpetuity of Rs 600 payable at the end of each quarter.

**Contd...3**

25. Assume an investment's starting value is Rs 20000 and it grows to Rs 50000 in 3 year. Calculate CAGR (Compounded Annual Growth rate) (use $(2.5)^{1/3} = 1.355$)

**OR**

A man bought an item for Rs 12000. At the end of the year, he decided to sell it for Rs 15000. If the inflation rate was 6%, find the nominal and real rate of return.

## SECTION – C

**(All questions are compulsory.**

**In case of internal choice attempt any one question only, also write steps in support of your answers)**

26. A container has 50 L of juice in it. 5L of juice is taken out and is replaced by 5L of water. This process is repeated 4 more times. Determine the quantity of juice in the container after final replacement. $[use\ (0.9)^5 = 0.59049]$.

27. Evaluate $\int_0^2 x^2 dx$ and hence show the region on the graph whose area it represents.

**OR**

Evaluate $\int_0^1 \frac{e^{-x}}{1+e^x} dx$.

28. Find the differential equation of all circles in the first quadrant which touches both the coordinate axes.

29. Given that the scores of a set of candidates on an IQ test are normally distributed. If the IQ test has a mean of 100 and a standard deviation of 10, determine the probability that a candidate who takes the test will score between 90 and 110. [given P(Z<1) = 0.8413 and P(Z<-1) = 0.1587]

30. The mean weekly sales of a 4-wheeler was 50 units per agency in 20 agencies. After an advertising campaign, the mean weekly sales increased to 55 units per agency with standard deviation of 10 units. Test whether the advertising campaign was successful.
[given $\sqrt{5} = 2.24, t_{19}(0.05) = 1.729$]

31. A recent accounting graduate opened a new business and installed a computer system that costs Rs 45200. The computer system will be depreciated linearly over 3 years and will have a scrap value of Rs 0.

(i) What is the rate of depreciation?

(ii) Give a linear equation that describes the computer system's book value at the end of $t^{th}$ year, where $0 \leq t \leq 3$

(iii) What will be the computer system's book value at the of the first year and a half?

**OR**

Find the effective rate which is equivalent to normal rate 10% per annum compounded

(i) semi-annually

(ii) Quarterly

$[Given\ (1.05)^2 = 1.1025,\ (1.025)^4 = 1.1038]$

## SECTION – D

**(All questions are compulsory.**

**In case of internal choice attempt any one question only, also write steps in support of your answers)**

32. A cistern has three pipes A, B and C. Pipes A and B are inlet pipes whereas pipe C is an outlet pipe. Pipes A and B can fill the cistern separately in 3 h and 4 h respectively, while pipe C can empty the completely filled cistern in 1 h. If the pipes A, B and C are opened in order at 5, 6 and 7 am respectively, at what time will the cistern be empty?

33. Find all the points of local maxima and local minima of the function

$$f(x) = -\frac{3}{4}x^4 - 8x^3 - \frac{45}{2}x^2 + 105$$

**OR**

Find the intervals in which the following function f is strictly increasing or strictly decreasing

$f(x) = 20 - 9x + 6x^2 - x^3$

**Contd...4**

34. Let X denotes the number of hours a class 12 student studies during a randomly selected school day. The probability that X can take the value $x_i$, for an unknown constant k

$$P(X = k) = \begin{cases} 0.1, & if \quad x_i = 0 \\ kx_i, & if \quad x_i = 1 \text{ or } 2 \\ k(5 - x_i) & if \quad x_i = 3 \text{ or } 4 \end{cases}$$

(A) Find the value of k.

(B) Determine the probability that the student studied for at least 2 h.

(C) Determine the probability that the student studied for at most 2 h.

**OR**

A river near a small town floods and overflows twice in every 10 year on an average. Assuming that Poison distribution is appropriate, what is the mean expectation? Also, calculate the probability of 3 or less overflows and floods in a 10 years interval. [Given $e^{-2} = 0.13534$]

35. Amu buys a car for which she makes a down payment of Rs 250000 and the balance is to be paid in 2 years by monthly instalments of Rs 25448 each. If the financer charges interest at the rate of 20% per annum, find the actual price of the car. [Given $\left(\frac{61}{60}\right)^{-24} = 0.67253$]

## SECTION E-CASE BASED

**(All questions are compulsory.**

**In case of internal choice attempt any one question only, also write steps in support of your answers)**

36. On her birthday Shenu decides to donate some money to children of an orphanage home. If there are 8 children less, everyone gets Rs 10 more. However, if there are 16 children more, everyone gets Rs 10 less. Let the number of children in the orphanage home be x and the amount to be donated to each child be Rs y.

Based on above information answer the following questios.

(a) Write the system of linear equations in x and y formed of the given situation.

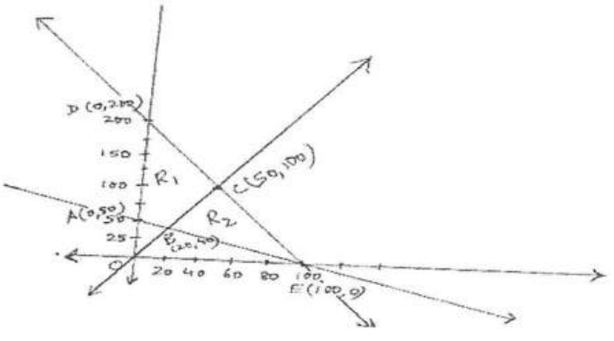
(b) Write the system of linear equations, obtained in (a) above in matrix form $AX = B$.

(c) Find the inverse of the matrix A.

**OR**

Determine the values of $x$ and $y$.

37. In number theory, it is often important to find factors of an integer N, the number N has two trivial factors, namely 1 and N. Any other factor, if exists, is called non-trivial factor of N. Chenu has plotted a graph of some constraints (linear inequations) with points $A(0, 50), B(20, 40), C(50, 100), D(0, 200)$ *and* $E(100, 0)$. This graph is constructed using three non-trivial constraints and two trivial constraints. One of the non-trivial constraints is $x + 2y \geq 100$




Based on the above information answer the following questions (a)

What are the two trivial constraints?

(b) What are the other two non-trivial constrains if $R_1$ is the feasible region.

**OR**

What are the other two non-trivial constrains if $R_2$ is the feasible region

(c) If $R_1$ is the feasible region, then find the maximum value of the objective function Z = 5x + 7y

38. When observed over a long period of time a time series data can predict trends that can forecast increase or decrease or stagnation of a variable under consideration, such analytical studies can benefit a business for forecasting or prediction of future estimated sales or production. The table below shows the sale of an item in a district during 1996 – 2001

| Year | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|---|---|---|---|---|---|---|
| Sales (in lakh Rs) | 6.5 | 5.3 | 4.3 | 6.1 | 5.6 | 7.8 |

Based on above information answer the following questions:

(a) Determine the equation of straight line trend.

(b) Tabulate the trend values of the years and also compute expected sales trend for the year 2002.

**OR**

Tabulate the trend values of the years and plot the graph.

# DELHI PUBLIC SCHOOL, BHILAI

**DATE : 04.12.2024** | **PREBOARD EXAMINATION 2024-'25** | **Time : 3 Hrs.**

**CLASS : XII** | **SUBJECT – PHYSICS** | **Max. Marks : 70**

**Name : _____** | **Roll No. : ____**

**General Instructions:**

(1) There are 33 questions in all. All questions are compulsory.
(2) This question paper has five sections: Section A, B, C, D and Section E.
(3) All the sections are compulsory.
(4) **Section A** contains sixteen questions, twelve MCQ and four Assertion Reasoning based of 1 mark each, **Section B** contains five questions of two marks each, **Section C** contains seven questions of three marks each, **Section D** contains two case study-based questions of four marks each and **Section E** contains three long answer questions of five marks each.
(5) There is no overall choice. However, an internal choice has been provided in one question in Section B, one question in Section C, one question in each CBQ in Section D and all three questions in Section E. You have to attempt only one of the choices in such questions.
(6) Use of calculators is not allowed.

## SECTION – A (16x1=16 marks)

Q.1 Two parallel plate capacitors X and Y have the same area of plates and same separation between plates, X has air and Y has dielectric of constant 2, between its plates. They are connected in series to a battery of 12V. The ratio of electrostatic energy stored in X and Y is –
(A) 4 : 1 (B) 1 : 4 (C) 2 : 1 (D) 1 : 2 **(1)**

Q.2 An electric dipole placed in an electric field of intensity $2 \times 10^5$ N/C at an angle of 30° experiences a torque equal to 4 Nm. The charge on the dipole of dipole length 2 cm is-
(A)7 μC (B) 8 mC (C) 2 mC (D) 5 mC **(1)**

Q.3 A long solenoid of radius 1 mm has 100 turns per mm. If 1 A current flows in the solenoid, the magnetic field strength at the centre of the solenoid is-
(A) $6.28 \times 10^{-2}$ T (B) $12.56 \times 10^{-2}$ T (C)$12.56 \times 10^{-4}$ T (D) $6.28 \times 10^{-4}$ T **(1)**

Q.4 The diffraction effect can be observed in –
(A) sound waves only (B) light waves only
(C) ultrasonic waves only (D) sound waves as well as light waves **(1)**

Q.5 The property which is not of an electromagnetic wave travelling in free space is that:
(A)They are transverse in nature
(B) The energy density in electric field is equal to energy density in magnetic field
(C)They travel with a speed equal to $\frac{1}{\sqrt{\mu_0 \varepsilon_0}}$
(D)They originate from charges moving with uniform speed **(1)**

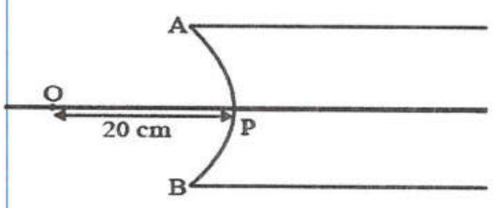
Q.6 In an LCR circuit:
(A) the impedance is equal to reactance
(B) the ratio between effective voltage to effective current is called reactance
(C) the current flowing is called wattless current
(D) at resonance the net reactance is zero

Q.7 Which of the following waves is produced by Klystron tube-
(A) X rays (B) Infrared rays (C) Gamma rays (D) Microwaves **(1)**

Q.8 Impact parameter for an alpha particle approaching a target nucleus is maximum when the scattering angle ($\theta$) is :
(A) 0° (B) 90° (C) 180° (D) 45° **(1)**

Q.9 For an astronomical telescope having objective lens of focal length 10 m and eyepiece lens of focal length 10 cm, telescope's tube length and magnification respectively are
(A) 20 cm, 1 (B) 1000 cm, 1 (C) 1010 cm, 1 (D) 1010 cm, 100 **(1)**

Q.10 In the figure given below, APB is a curved surface of radius of curvature 10 cm separating air and a transparent material (n = 4/3). A point object O is placed in air on the principal axis of the surface 20 cm from P. The distance of the image of O from P will be =




(A) 16 cm left of P in air
(B) 20 cm right of P in water
(C) 16 cm right of P in water
(D) 20 cm left of P in air **(1)**

**Contd...2**

Q.11 Silicon can be doped using one of the following elements as dopant:
(i) Arsenic
(ii) Indium
(iii) Phosphorus
(iv) Boron To get n-type semiconductor, the dopants that can be used are:
(A) (i) and (iii only (B) (ii) and (iii) only
(C) (i), (ii), (iii) and (iv) (D) (iii) and (iv) only **(1)**

Q.12 The current through a $\frac{4}{3}$ Ω external resistance connected to a parallel combination of two cells of 2 V and 1 V emf and internal resistances of 1 Ω and 2 Ω respectively is equal to –
(A) 1 A (B) 2/3 A (C) 3/4 A (D) 5/6 A **(1)**

For Questions 13 to 16, two statements are given – one labelled Assertion (A) and other labelled Reason (R). Select the correct answer to these questions from the options as given below:
(A) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
(B) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
(C) If Assertion is true but Reason is false.
(D) If both Assertion and Reason are false.

Q.13 **Assertion (A) :** Magnetic field interacts with a moving charge only.
**Reason(R) :** Moving charges never produce a magnetic field. **(1)**

Q.14 **Assertion (A) :** Angular momentum of single electron in any orbit of Hydrogen type atoms is independent of the atomic number of the element.
**Reason (R) :** In ground state , angular momentum is maximum .

Q.15 **Assertion (A) :** Energy is released when heavy nuclei undergoes fission or light nuclei undergoes fusion.
**Reason (R) :** For heavy nuclei ,binding energy per nucleon increases with increasing Z while for light nuclei it decreases with increasing Z.

Q.16 **Assertion (A) :** Number of photons increases with increase in frequency of light.
**Reason (R) :** Maximum kinetic energy of emitted electrons increases with the Wavelength of incident radiation.

**(5x2=10 marks)**

## SECTION – B

Q.17 Define the terms :
(a) threshold frequency and (b) stopping potential in photo electric effect.

Q.18 In Young's double-slit experiment using monochromatic light of wavelength $\lambda$, the intensities of two sources is I. What is the intensity of light at a point where path difference between wave front is $\frac{\lambda}{4}$ ?

**OR**

Two light waves of wavelengths 800 and 600 nm are used in Young's double slit experiment to obtain interference fringes on a screen placed 7 m away from plane of slits. If the two slits are separated by 0.35 mm, then calculate the shortest distance from the central bright maximum to the point where the bright fringes of the two wave length coincide.

Q.19 Derive expression for magnetic field due to a straight current carrying conductor.

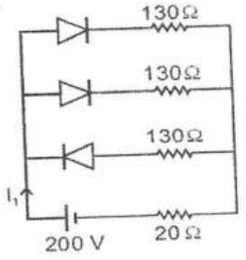
Q.20 Show that density of nucleus is independent of its mass number A.

Q.21 State Bohr's postulates and show that speed of electron in innermost orbit of hydrogen atom is $\frac{1}{137}$ times speed of light.

**(7x3=21 marks)**

## SECTION – C

Q.22 (a) 'A doped semiconductor is electrically neutral'. Explain this.
(b) In the given figure, each diode has a forward bias resistance of 30 Ω and infinite resistance in reverse bias. Find the current $I_1$ .




**(3)**

**Contd...3**

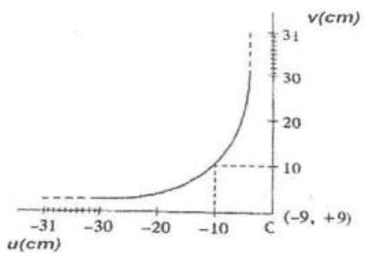
Q.23 The electric potential (in volt) in a region varies with x according to the relation $V(x) = 5 + 4x^2$, where x is in m.
(i) Is the electric field in the given region uniform?
(ii) Find the magnitude and direction of the force experienced by a charge of 1C placed at x = –1 m. **(3)**

Q.24 (i) Draw a ray diagram for the formation of image by a Cassegrain telescope.
(ii) Why these types of telescopes are preferred over refracting type telescopes. (Write 2 points) **(3)**

Q.25 Explain the working of a full wave rectifier with the circuit diagram. **(3)**

Q.26 (i) Define self inductance. Write its SI unit.
(ii) Write the expression for self inductance of long solenoid of length 'l' and having 'N' turns.
(iii) If the rate of change of current of 2 A/s induces an emf of 10 mV in a solenoid, what is the self inductance of the solenoid? **(3)**

Q.27 (a) Write the lens makers formula.
(b) A convex lens made up of a glass of refractive index 1.5 is dipped in –
(i) a medium of refractive index 1.65,
(ii) a medium of refractive index 1.33. Will it behave as converging lens or a diverging lens in the two cases?
(c) The graph shows the relationship between object distance (u) and image distance (v) for an equiconvex lens. Find the focal length of the lens using the graph.5 cm **(3)**




Q.28 State Gauss' s law in electrostatics. Using this theorem, derive an expression for the electric field due to an infinitely long straight wire of linear charge density λ. **(3)**

**OR**

(a) Define electric flux and write its SI unit.
(b) Use Gauss' s law to obtain the expression for the electric field due to a uniformly charged infinite plane sheet of charge.

## SECTION D **(2x4=8 marks)**

Q.29 Case Study Based Question:

A galvanometer is used in an electric circuit to detect current and in some experiments to locate the null point. The galvanometer cannot be used as such to measure the value of current. A galvanometer is a very sensitive device. It gives full scale deflection even for a very small current of the order of few micro – amperes. On the passage of a large current the galvanometer may get damaged either due to the breaking of the pointer or the coil may burn due the production of the excessive heat. A galvanometer can be converted an ammeter by the use of a shunt resistance.

(i) Two galvanometers A and B require 6 mA and 2 mA respectively to produce the same deflection of division. Then,
(A) A is more sensitive than B (B) B is more sensitive than A
(C) A and B are equally sensitive (D) cannot predict **(4)**

(ii) A 72 Ω galvanometer is shunted by a resistance of 8 Ω. The percentage of the total current which passes through the galvanometer is –
(A) 0.1% (B) 10% (C) 25% (D) 0.25%

(iii) Which one will have the greatest resistance, a micro-ammeter, a milli-ammeter, or an ammeter?
(A) Microammeter (B) Milliammeter
(C) Ammeter (D) All will have the same resistance

(iv) (a) Sensitivity of a galvanometer depends on:
(A)angle of deflection (B) torsion constant
(C) earths magnetic field (D) Moment of inertia of coil

**OR**

(b) An ammeter reads up to 1 ampere. Its internal resistance is 0.81 ohm. To increase the range to 10A, the value of the required shunt is –
(A) 0.9 ohm (B) 0.09 ohm (C) 0.03 ohm (D) 0.3 ohm

**Contd...4**

Q30. Case Study Based Question:

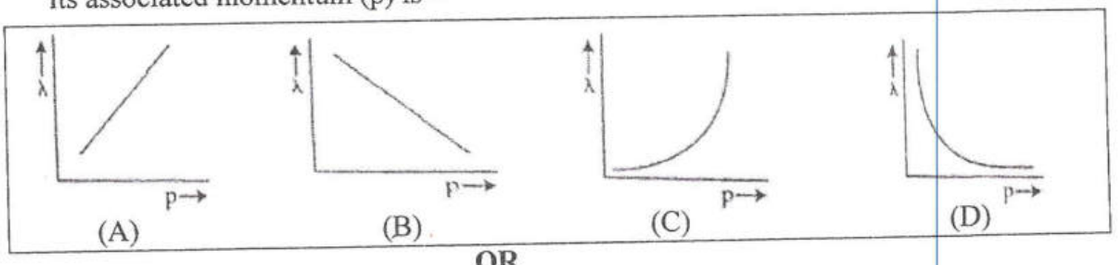
Dual nature : French physicist de Broglie in 1924 put forward the bold hypothesis that moving particles of matter should display wave-like properties under suitable conditions. He reasoned that nature was symmetrical and that the two basic physical entities – matter and energy, must have symmetrical character. If radiation shows dual aspects, so should matter. de Broglie proposed that the wave length $\lambda$ associated with a particle of momentum p is given as $\lambda = h/p = h/mv$. From this equation $\lambda$ is smaller for a heavier particle (large m) or more energetic particle (large v). de Broglie wavelength of an electron accelerated by a potential difference 'V' can be calculated by $\lambda = \frac{12.27A^0}{\sqrt{V}}$

(i) For which of the following particles, it will be most difficult to experimentally verify de broglie relationship ?
(A) an electron (B) proton (C) alpha particle (D) dust particle

(ii) Which of the following is not an electromagnetic wave?
(A) Matter wave (B) X Rays (C) Radio wave (D) Ultraviolet

(iii) The de Broglie wavelength of an electron having kinetic energy E is λ. If the kinetic energy of electron becomes $\frac{E}{4}$, then its de-Broglie wavelength will be :
(A) $\frac{\lambda}{3}$ (B) $\lambda\sqrt{2}$ (C) $\frac{\lambda}{\sqrt{2}}$ (D) $2\lambda$

(iv) (a) The graph which shows the variation of the de Broglie wavelength (□) of a particle and its associated momentum (p) is –



(A) (B) (C) (D)

**OR**

(b) A particle at rest breaks down in two parts of masses $\frac{M}{3}$ and $\frac{2M}{3}$. The ratio of de – Broglie wavelength of two parts is equal to –
(A) 2:1 (B) 1:2 (C) 1:3 (D) 1:1

## SECTION E

**(3x5=15)**

Q.31 (i) State Kirchhoff's rules in analysis of electrical circuits.
(ii) Derive the equation of the balanced state in a Wheatstone bridge using Kirchhoff's laws.

**OR**

(i) Define resistivity.
(ii) On the basis of electron drift, derive an expression for resistivity of a conductor in terms of number density of free electrons and relaxation time.
(iii) On what factors does the resistivity of a conductor depends?
(iv) Why alloys like Manganin are used for making standard resistors?

Q.32 (i) Explain the working of a transformer with diagrams.
(ii) How is the transformer used in large scale transmission and distribution of electricity over long distances?

**OR**

(i) A voltage $v = V_0 \sin \omega t$ applied to a series LCR circuit drives a current $i = I_0 \sin(\omega t + \phi)$ in the circuit. Deduce the expression for the average power dissipated in the circuit.
(ii) What is power factor?
(iii) What is wattless current?

Q.33 (i) Derive mirror equation for a concave mirror.
(ii) Using mirror equation show that a convex mirror always makes a virtual and diminished image independent of location of object.

**OR**

(i) Two thin lenses are placed co-axially in contact. Obtain the expression for the focal length of this combination in terms of focal lengths of the two lenses.
(ii) The refractive index of prism is $n = \sqrt{3}$ and the ratio of the angle of minimum deviation to the angle of prism is one. Calculate the value of angle of prism.

# DELHI PUBLIC SCHOOL, BHILAI

**DATE : 16.12.2024** | **PREBOARD EXAMINATION 2024-'25** | **Time : 3 Hrs.**

**CLASS : XII** | **SUBJECT – CHEMISTRY** | **Max. Marks : 70**

**Name :** _____ **Roll No. :** _____

**General Instructions:** Read the following instructions carefully.

(A) There are **33 questions** in this question paper with internal choice.
(B) **SECTION A** consists of **16 multiple-choice questions** carrying **1 mark** each.
(C) **SECTION B** consists of **5 short answer questions** carrying **2 marks** each.
(D) **SECTION C** consists of **7 short answer questions** carrying **3 marks** each.
(e) **SECTION D** consists of **2 case-based questions** carrying **4 marks** each.
(f) **SECTION E** consists of **3 long answer questions** carrying **5 marks** each.
(g) All questions are compulsory.
(h) Use of log tables and calculators is **not allowed**.

## SECTION – A

The following questions are multiple-choice questions with one correct answer. Each question carries 1 mark. There is no internal choice in this section.

1. Fac–Mer isomerism is associated with which one of the following complexes?
(A) $[M(AA)_2]$ (B) $[M\,A_3B_3]$ (C) $[M\,ABCD]$ (D) $[M\,A_4B_2]$

2. If amines are arranged in decreasing order of their basic strength in gaseous phase, then the correct order will be:
(A) $(CH_3)_3N > (CH_3)_2NH > CH_3NH_2 > NH_3$
(B) $NH_3 > CH_3NH_2 > (CH_3)_2NH > (CH_3)_3N$
(C) $CH_3NH_2 > (CH_3)_3N > (CH_3)_2NH > NH_3$
(D) $(CH_3)_2NH > (CH_3)_3N > CH_3NH_2 > NH_3$

3. Amongst the following, the most stable complex is :
(A) $[Fe(H_2O)_6]^{3+}$ (B) $[Fe(NH_3)_6]^{3+}$ (C) $[Fe(C_2O_4)_6]^{3-}$ (D) $[FeCl_6]^{3-}$

4. Two faradays of electricity are passed through a solution of $CuSO_4$. The mass of Cu deposited at the cathode (at mass of Cu=63.5 amu) is :
(A) 2 g (B) 127 g (C) 0 g (D) 63.5 g

5. The chemical teat to distinguish between ethamine and aniline is
(A) Haloform test (B) Tollen's test (C) Azo dye test (D) Hinsberg test

6. Among $[Ni(CO)_4]$ , $[Ni(CN)_4]^{2-}$ , $[NiCl_4]^{2-}$ species the hybridisation order is
(A) $sp^3$ , $dsp^2$ , $sp^3$ (B) $dsp^2$ , $sp^3$ , $dsp^2$
(C) $sp^3$ , $sp^3$ , $dsp^2$ (D) $dsp^2$ , $sp^3$ , $sp^3$

7. The IUPAC name of the complex $[CO(NH_3)_5(NO_2)]Cl_2$ is
(A) Pentaammine nitrito-O-cobalt (III) chloride
(B) Pentaammine nitrito-N-cobalt (III) chloride
(C) Pentaammine nitrito-Cobalt (III)chloride
(D) Pentaammine nitrito-Cobalt (II) chloride

8. Which of the following cannot be prepared by using Williamson Synthesis?
(A) Methoxybenzene (B) Benzyl p-nitrophnenyl ether
(C) tert-butyl methyl ether (D) Di-tert butyl ether

9. Out of $Fe^{2+}$ , $CO^{2+}$ , $Cr^{3+}$ , $Ni^{2+}$ the one which shows highest magnetic moment is:
$(At.number:\ Cr = 24, Fe = 26, Co = 27, Ni = 28)$
(A) $Fe^{2+}$ (B) $Co^{2+}$ (C) $Cr^{3+}$ (D) $Ni^{2+}$

10. In Clemmensen Reduction, carbonyl compound is treated with _____ .
(A) Zinc amalgam + $HCl$ (B) Sodium amalgam + $HCl$
(C) Zinc amalgam + $HNO_3$ (D) Sodium amalgam + $HNO_3$

11. A first order reaction is found to have a rate constant, $k = 5.5 \times 10^{-14}\ s^{-1}$. The time taken for its completion is :
(A) $1.26 \times 10^{13}\ s$ (B) $2.52 \times 10^{13}\ s$
(C) $0.63 \times 10^{13}\ s$ (D) It never goes to completion

**Contd...2**

12. The IUPAC name of $(CH_3)_3\,C - CH_2\,Br$ is
(A) 2, 2 – Dimethyl – 2 bromopropane
(B) 1 – Bromo – 2, 2, 2 – trimethyl ethane
(C) 2 – Bromo – 1, 1, 1 – trimethyl ethane
(D) 1 – Bromo – 2, 2 – dimethyl propane

For Questions number 13 to 16, two statements are given – one labelled as Assertion (A) and the other labelled as reason (R). Select the correct answer to these questions from the codes (A), (B), (C) and (D) as given below:
(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of (A).
(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
(C) Assertion (A) is true, but Reason (R) is false.
(D) Assertion (A) is false, but Reason (R) is true.

13. **Assertion (A) :** Order of a reaction can be fractional but molecularity is never fractional.
**Reason (R) :** Order of a reaction does not depend upon the stoichiometric coefficients of the balanced equation.

14. **Assertion (A) :** $Cu^{2+}$ iodide is not known.
**Reason (R) :** $Cu^{2+}$ oxidises $I^-$ to Iodine.

15. **Assertion (A) :** D (+) – Glucose is dextrorotatory.
**Reason (R) :** 'D' represents its dextrorotatory nature.

16. **Assertion (A) :** Aromatic primary amines can be prepared by Gabriel Phthalimide Synthesis.
**Reason (R) :** Aryl halides cannot undergo nucleophilic substitution in this reaction.

## SECTION – B

**This section contains 5 questions with internal choice in one question.**
**The following questions are very short answer type and carry 2 marks each.**

17. Write the hydrolysis products of:
(a) Sucrose (b) Lactose **(2)**

18. (a) Give chemical tests to distinguish between the following pair of compounds:
(i) Ethanal and Propanone
(ii) Acetophenone and Benzophenone **(2)**

**OR**

(b) Account for the following:
(i) Aldehydes are more reactive than Ketones towards nucleophilic addition reactions.
(ii) Carboxylic acid is a stronger acid than phenol. Explain

19. Write the reaction involved in the following:
(a) Reimer-Tiemann reaction. (b) Kolbe's reaction. **(2)**

20. For a zero order reaction, show that the time required to complete 3 /4$^{th}$ of reaction is equal to 1.5 times the time required to complete half of the reaction. **(2)**

21. Write the structure of major organic product in each of the following reactions:

(a) $(CH_3)_3CBr + KOH \xrightarrow{ethanol,heat}$

(b) $C_6H_5ONa + C_2H_5Cl \rightarrow$

## Section – C

**This section contains 7 questions with internal choice in one question.**
**The following questions are short answer type and carry 3 marks each.**

22. What happens when:
(a) Methyl chloride reacts with alc KCN.
(b) Phenol is treated with $aq.\,Br_2$ .
(c) Benzyl methyl ether reacts with HI. **(3)**

23. A reaction is first order in A and second order in B.
(a) Write differential rate equation.
(b) How is the rate affected on increasing the concentration of B three times.
(c) How is the rate affected when concentration of both A and B is doubled? **(3)**

**Contd...3**

24. Account for the following:
(a) The dipole moment of chlorobenzene is lower than that of cyclohexyl chloride.
(b) Grignard reagents should be prepared under anhydrous conditions.
(c) Phenol is more acidic than ethanol. **(3)**

25. (a) Convert the following:
(i) Benzene to aniline.
(ii) Nitrobenzene to Benzoic acid.
(iii) Aniline to Benzyl alcohol. **(3)**

**OR**

(b) Arrange the following:
(i) In decreasing order of $pK_b$ values $C_2H_5NH_2$ , $C_6H_5NHCH_3$ , $(C_2H_5)_2\,NH$ and $C_6H_5NH_2$
(ii) In increasing order of boiling point $C_2H_5OH$ , $(CH_3)_2\,NH$ , $C_2H_5NH_2$
(iii) In decreasing order solubility in water
$C_2H_5NH_2$ , $(C_2H_5)_2\,NH$ , $C_2H_5OH$

26. At 300 k, 36 g of glucose present in a litre of its solution has an osmotic pressure of 4.98 bar. If the osmotic pressure of the solution is 1.52 bar at the same temperature, what would be its concentration? **(3)**

27. Write the Nernst Equation and calculate emf of the following cell at 209 $k$.
$Fe(s)|Fe^{2+}(0.001\,M)||H^+(1M)|H_{2(g)}1bar, Pt$ **(3)**

28. (a) Give one difference between double salt and coordination compound.
(b) Draw the structures of optical isomers of $[Cr(C_2O_4)_3]^{3-}$
(c) Predict the number of unpaired electrons in the square planar $[Pt(CN)_4]^{2-}\,ion$ .
(At. no. of Pt=78) **(3)**

## Section D

**The following questions are case-based questions.**
**Each question has an internal choice and carries 4 (2+1+1) marks each.**

**Read the passage carefully and answer the questions that follow:**

29. The addition of non-volatile substances to a solvent decreases the vapour pressure. The freezing point depression is referred to as a colligative property and its value is proportional to the molality of the solution. The other three colligative properties are relative lowering of vapour pressure, elevation in boiling point and osmotic pressure. These properties depend on number of solute particles and not on their nature.

Answer the following questions on the basis of above information:

(a) 0.1 $M$ $K_4[Fe(CN)_6]$ is 60% dissociated. Calculate its Van't Hoff factor. **(2)**
(b) Give example of a solution in which solute molecules undergo association in solution. **(1)**

**OR**

Which of the following will have highest Van't Hall factor? (Assume 100% dissociation)
$NaCl$ , $CaCl_2$ , $Ca_3(PO_4)_2$

(c) Which colligative property is preferred for the molar mass determination of macromolecules? **(1)**

30. DNA is made of chemical building blocks called nucleotides. These building blocks are made of three parts : a phosphate group, a sugar group and one of the four types of nitrogen bases. These bases are : adenine, thymine, guanine and cytosine.

Based on the above information, answer the following questions:
(a) (i) Name the purines present in DNA.
(ii) Give two functions of DNA. **(2)**
(b) What is a nucleoside ? **(1)**

**OR**

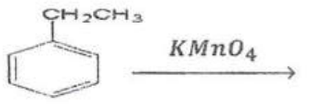
What are the four nitrogen bases in RNA ?

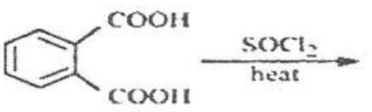
(c) Give the complementary strand of the following strand of DNA : A T C G T T. **(1)**

## Section E

**The following questions are long answer type of question and carry 5 marks each.**
**All questions have an internal choice.**

31. (a) What happens when (complete the reaction) **(3)**

(i) 


(ii) 


(iii) $C_6H_5CHO \xrightarrow{NH_2NHCONH_2}$

(b) An organic compound with the molecular formula $C_9H_{10}O$ forms 2, 4 – DNP derivative, reduces. Tollens' reagent and undergoes Cannizaro reaction. On vigorous oxidation, it gives 1, 2 – benzene dicarboxylic acid. Identify the compound. **(2)**

**OR**

(a) How will you bring about the following conversions in not more than two steps?
(i) Propanone to propene.
(ii) Benzoic acid to Benzaldehyde.
(iii) Ethanol to 3 – Hydroxy butanal. **(3)**

(b) Explain the following: (with reaction)
(i) Cannizaro reaction
(ii) HVZ reaction **(2)**

32. Answer the following: (1 mark each) **(5)**

(a) Lanthanoids have poor tendency to form complex compounds. Explain **(1)**

(b) Why $Mn^{2+}$ is a good oxidising agent? **(1)**

(c) Why $Ni^{2+}$ is more stable than $Pt^{2+}$, whereas $Pt^{4+}$ is more stable than $Ni^{4+}$ ? **(1)**

(d) Zn, Cd and Hg are quite soft and have low melting point. Explain. **(1)**

(e) Explain Lanthanoid contraction. **(1)**

**OR**

(a) Complete and balance the reaction:
$Fe^{2+} + MnO_4^- + H^+ \rightarrow$

(b) What happens when $KMnO_4$ is heated at 513 $K$ ?

(c) Out of $Cr^{2+}$ and $Fe^{2+}$, which one is a stronger reducing agent and why?

(d) Give one use of Lanthanoids.

(e) Actinoid contraction is greater from element to element than lanthanoid contraction. Why?

33. (a) What type of battery is the lead storage battery? Write the anode and cathode reactions and the overall reaction occurring in a lead storage battery when current is drawn from it. **(3)**

(b) A solution of $Ni(NO_3)_2$ is electrolysed between platinum electrodes using a current of 5.0 ampere for 20 minutes. What mass of nickel is deposited at the cathode? (At. Mass of Ni=58.7) **(2)**

**OR**

(a) (i) State Kohlrausch's Law. **(1)**

(ii) Predict the products of electrolysis when an aqueous solution of $AgNO_3$ is electrolysed with silver electrodes. **(1)**

(iii) How much electricity in terms of Faraday is required to produce 20.0 g of Ca from molten $CaCl_2$ . (At. Mass of Ca=40) **(1)**

(b) The conductivity of 0.20 M solution of $KCl$ at 298 $K$ is 0.0248 $S\ cm^{-1}$. Calculate its molar conductivity. **(2)**

# DELHI PUBLIC SCHOOL, BHILAI (C.G.)

**DATE : 09-12-2024** | **PREBOARD EXAMINATION, 2024** | **Time : 3 Hours**

**CLASS : XII** | **BIOLOGY** | **M.M : 70**

**General Instructions :**

1) This question paper contains 33 questions. All questions are compulsory.
2) This question paper is divided into 5 sections – A,B, C, D and E.
3) In Section A – Questions no.1 to 16 are multiple choice (MCQ) type questions, carrying 1 mark each.
4) In Section B – Questions no.17 to 21 are very short answer (VSA) type questions, carrying 2 marks each.
5) In Section C – Questions no.22 to 28 are short answer type (SA) type questions, carrying 3 marks each.
6) In Section D – Questions no.29 and 30 are case-based questions carrying 4 marks each. Each question has subparts with internal choice in one subpart.
7) In Section E – Questions no. 31 to 33 are long answer (LA) type questions carrying 5 marks each.
8) There is no overall choice. However, an internal choice has been provided in 1 question in Section B, 1 question in Section C, 2 questions in Section D and 3 questions in Section E. A candidate has to attempt only one of the alternatives in such questions.
9) Wherever necessary, neat and properly labelled diagram should be drawn.

## SECTION A

1) Genetic diversity refers to the diversity in genetic makeup of organisms that are capable of interbreeding. What component of an ecosystem does genetic diversity directly impact? (1)
   (a) ecosystem diversity (b) species diversity (c) species richness (d) ecological niche
2) In which of the following natural processes is recombinant DNA made?
   (a) Prophase in mitosis (b) Prophase I in meiosis
   (c) Prophase II in meiosis (d) r-DNA cannot be made naturally (1)
3) Immuno suppressants are administered to patients post organ transplantation and also to the those suffering from autoimmune disorders. In which of the following ways are immune suppressants helpful? (1)
   (a) They trigger allergic response.
   (b) They eliminate unhealthy tissues.
   (c) They control the cell mediated response.
   (d) They differentiate between self and non-self parts of the body.
4) A scientist measured BOD of water from the kitchen tap (sample P) and sewer pipe (sample Q). Choose the correct statement. (1)
   (a) The BOD of sample P will be lesser than sample Q.
   (b) The BOD of sample P will be greater than sample Q.
   (c) The BOD of sample P will be equal to that of sample Q.
   (d) Both samples cannot be compared without additional data.
5) In a cross between pea plants having round green seeds (RRGG) and wrinkled yellow seeds (rr gg), which percentage of eggs will carry both the round and green alleles for the F2 generation? (1)
   (a) 9% (b) 93% (c) 64% (d) 25%
6) Marfan syndrome is a connective tissue disorder in humans caused due to the mutation of the FBN1 gene coding for fibrillin – 1. Some symptoms of the disease are abnormally long limbs, heart murmurs and extreme nearsightedness. This syndrome is an example of (1)
   (a) Chromosomal disorder (b) Polygenic inheritance (c) Codominance (d) pleiotropy
7) The most likely reason for the bees to visit the banana flowers are (1)
   (a) for fertilization (b) for pollination (c) to collect pollens (d) to collect nectar
8) Which of the following is an indicator of a reproductively unhealthy society ? (1)
   (a) increase in infant mortality rate (b) decline in maternal mortality rate
   (c) widespread awareness of contraceptive methods (d) detection and cure of STDs

9) Competitive exclusion principle states that inferior species is eliminated eventually after prolonged competition was given by : (1)

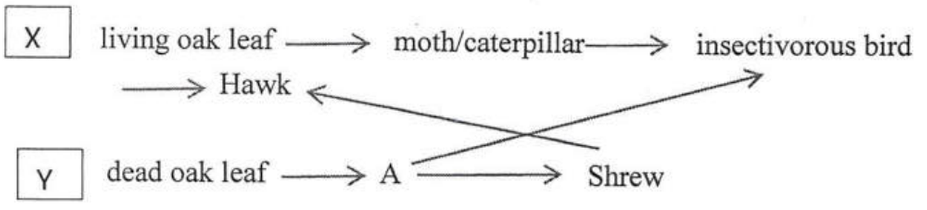
(a) Allen (b) Gause (c) Pearl Verhulst (d) Darwin

10) During human embryonic development the heart in the embryo is formed after : (1)

(a) 16 days of pregnancy (b) 30 days of pregnancy

(c) 45 days of pregnancy (d) 60 days of pregnancy

11) Two food chains X and Y are linked together to form a food web. (1)




| | X | Y | A |
|---|---|---|---|
| (a) | DFC | GFC | Bacterium |
| (b) | DFC | GFC | Detritivore |
| (c) | GFC | DFC | Detritivore |
| (d) | GFC | DFC | Grasshopper |

12) The antibody which can cross placental barrier is (1)

(a) $I_gA$ (b) $I_gE$ (c) $I_gM$ (d) $I_gG$

In each of the following questions, a statement of Assertion (A) is given followed by corresponding statement of Reason (R). Of the statements, mark the correct answer as

(a) If both A and R are true and R is the correct explanation of A

(b) If both A and R are true, but R is not the correct explanation of A.

(c) If A is true, but R is false.

(d) If both A and R are false.

13) **Assertion (A)** : Periodic abstinence is a natural method of birth control where couples avoid intercourse from day 10 to 17 of the menstrual cycle. (1)

**Reason (R)** : Ovulation occurs around the middle of the menstrual cycle.

14) **Assertion (A)** : DNA dependent RNA polymerase catalyses polymerization in the 5' to 3' direction. (1)

**Reason (R)** : The strand with 5' to 3' polarity is called the coding strand.

15) **Assertion (A)** : Darwin's finches have different types of modified beaks according to their feeding habits (1)

**Reason (R)** : Adaptive radiation leads to development of structures with different function arising from a common ancestor.

16) **Assertion (A)** : Tropical rainforest are rich in species diversity than temperate forest. (1)

**Reason (R)** : Frequent glaciation was quite common in temperate region and absent in tropical rainforest.

## SECTION B

17) CRISPR is a gene editing technique for which the developers won the Nobel prize. Indian scientists are in the process of developing resilient and high yielding varieties of rice using the technology and providing these to Indian farmers by 2024, once approved. (2)

(a) Which organization would be responsible for approving such varieties?

(b) What is the purpose of establishing the organization identified in (a)?

18) Meiotic arrest is a phenomenon noticed during oogenesis in human females where oocytes are arrested in the primary oocyte stage. (2)

(a) What is the chromosomal count of these primary oocytes?

(b) How are these primary oocytes converted to ovum?

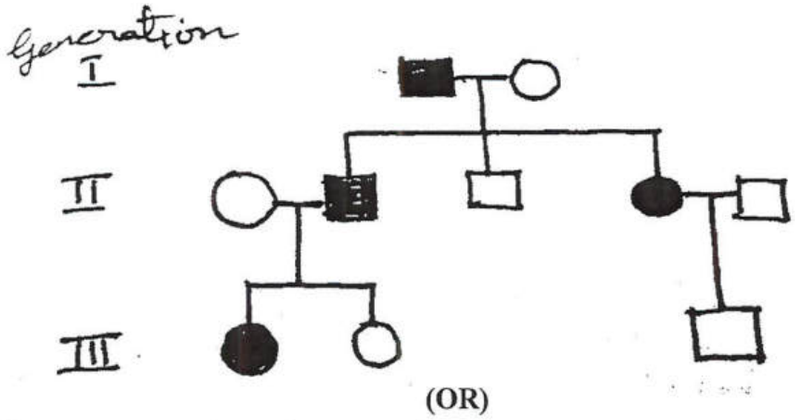
19) One strand of a DNA segment is made up of repeats of Adenine and cytosine 5'ACACACAC3'. (2)
Draw the formation of a dinucleotide (AC) and its base pair from nitrogenous bases.

20) Drug abuse is a common problem faced by countries around the world today due to its impact on the health and well being of an individual. Some drugs make an individual sleepy while some other make them hyper energetic. Using appropriate examples, explain this statement. (2)

21) Given below is a pedigree chart for an autosomal dominant disorder characterized by trait 'A'

(a) What evidence in the pedigree chart helps established that the condition is caused by a dominant allele?

(b) What are the genotypes of the affected and unaffected individuals? (2)




**(OR)**

Using the Punnett square, determine the genotype of the parents if their child can have any of the four blood groups.

## SECTION C

22) What are the different kinds of stem cells. Give any two applications of them. (3)

23) State the agent(s) which helps in pollinating in the following plants.
Explain the adaptations in these plants to ensure pollination. (3)
(a) Corn (b) Water hyacinth (c) Vallisneria

24) Name the basic classes of antibiotics. Rajesh was suffering from flu. He stopped taking the antibiotics after two days and did not consume as prescribed by the doctor. How will it effect him in future? (3)

**(OR)**

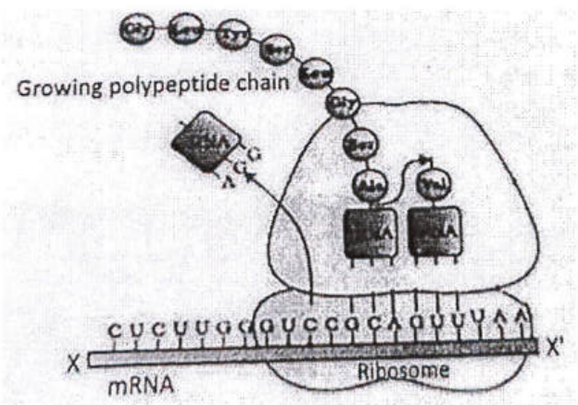
Name the group of bacteria involved in setting milk into curd. Explain the process they carry in doing so. Write another beneficial role of such bacteria.

25) (a) Rearrange the following from early to late geologic periods :
Carboniferous, Silurian, Jurassic (3)

(b) Write the characteristics of Dryopithecus and neanderthal man.

26) Enlist any three outbreeding devices that flowering plants have developed and explain how they help to encourage cross pollination? (3)

27) (a) Identify the polarity of x to x' in the diagram below and mention how many more amino acids are expected to be added to this polypeptide chain. (3)




(b) Mention the codon and anticodon for alanine.

(c) Why are some untranslated sequences of bases seen in mRNA coding for a polypeptide? Where exactly are they present on mRNA?

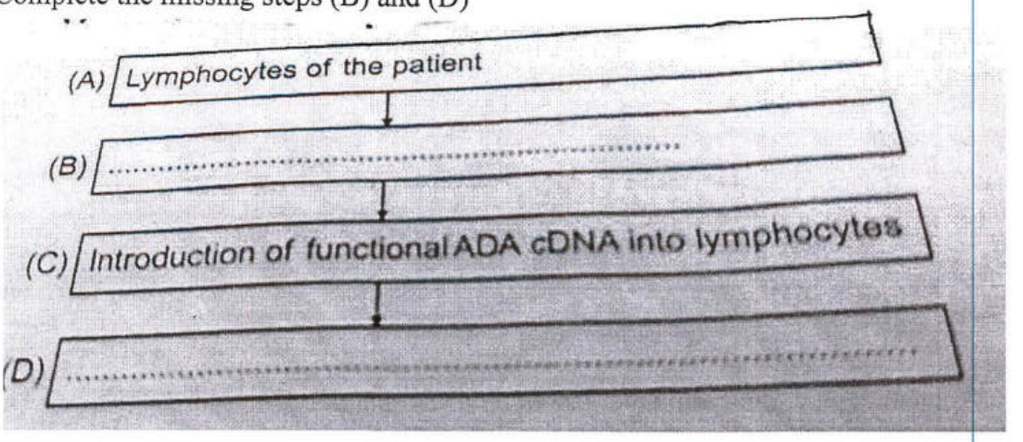
28) Describe the interrelationship between productivity, gross primary productivity and net primary productivity. (3)

## SECTION D

29) The clinical gene therapy is given to a 4 years old patient for an enzyme which is crucial for the immune system to function.. (4)

Observe the therapeutical flow chart and give the answer of the following :

(i) Complete the missing steps (B) and (D)




(ii) Identify the disease to be cured.

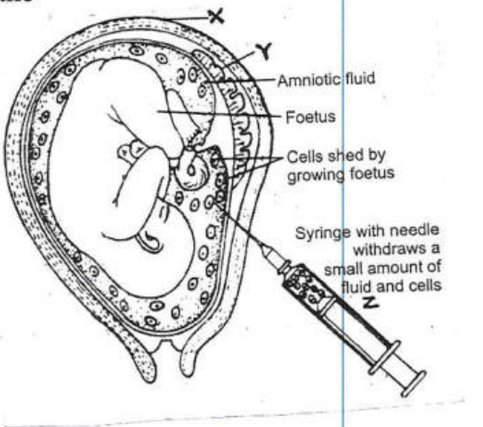
(iii) Why the above method is not a complete solution to the problem?

**(OR)**

Scientists have developed a method to cure this disease permanently. How?

30) Aminocentesis : A technique known as aminocentesis is used to determine foetal abnormalities. This test is based on the chromosomal pattern in amniotic fluid. However, this technique is legally banned now. (4)

Read the given passage carefully and give the answer of the following questions :




(i) Identify X and Y in the above given figure.

(ii) What is the function of Z?

(iii) Mention a non-invasive technique of detecting foetal disorder.

**(OR)**

'Unfortunately this technique is being misused'. Elaborate the context of this statement.

## SECTION E

31) (i) Draw the sectional view of a seminiferous tubule of human. Label its any six parts. (5)

(ii) Name the pituitary hormones involved in the process of spermatogenesis.
State their functions.

**(OR)**

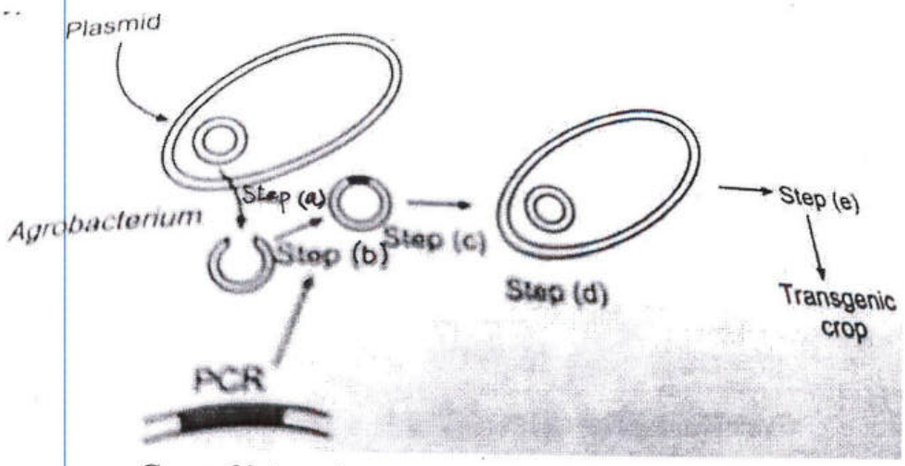
Draw a labelled diagram of an anther lobe at microspore mother cell stage. Mention the role of different wall layers of anther.

32) List the criteria a molecule that can act as genetic material must fulfill. Which one of the criteria are best fulfilled by DNA or by RNA thus making one of them a better genetic material than the other? Explain. (5)

**(OR)**

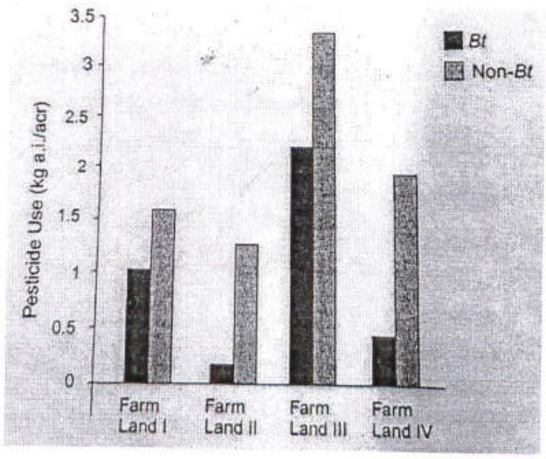
Explain the process of transcription in prokaryotes. How is the process different in eukaryotes?

33) In the given figure, Agrobacterium is utilized for the production of a transgenic crop. Explain the steps a, b, c, d and e shown in the figure. (5)




**(OR)**

GM crops especially Bt crops are known to have higher resistance to pest attacks. The substantiate this experimental study was conducted in four different farm lands growting Bt and nonBt-Cotton crops. The farm lands had the same dimensions, fertility and were under similar climatic conditions. The histogram below shows the usage of pesticides on Bt crops and non-Bt crops in these farm lands.




(i) Which of the above four farm lands has successfully applied the concepts of biotechnology to show better management practices and use of agrochemicals? If you had to cultivate, which crop would you prefer (Bt or Non-Bt) and why?

(ii) Cotton Bollworms were introduced in another experimental study on the above lands wherein no pesticide was used. Explain what effect would a Bt and Non bt crop have on the pest.

*********

# DELHI PUBLIC SCHOOL, BHILAI

DATE : 12.12.2024
CLASS : XII
Name : _____

PREBOARD EXAMINATION 2024-'25
SUBJECT – BIOTECHNOLOGY

Time : 3 Hrs.
Max. Marks : 70
Roll No. : _____

**General Instructions :**

- Question paper consists of **five sections A, B, C, D and E.**
- **Section A** has **16 questions** of **1 mark** each.
- **Section B** has **05 questions** of **2 marks** each.
- **Section C** has **07 questions** of **3 marks** each.
- **Section D** has **02 Case based questions** of **4 marks** each.
- **Section E** has **03 questions** of **5 marks** each.

## Section – A

1. Microbial source of Hind III restriction enzyme is
(A) Haemophilus influenzae (B) Haemophilus aegyptius
(C) Haemophilus haemolyticus (D) Haemophilus felis (1)

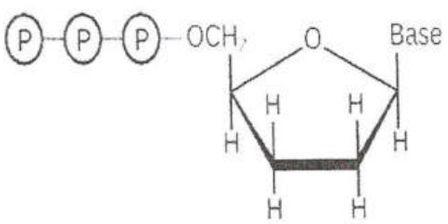
2. Technique of introducing colours into DNA by nick translation was developed by
(A) Rous and Jones (B) Rigby and Paul Berg
(C) Edward Sanger (D) Kary Mullis and Parul Berg (1)

3. Acaligenes cutrophus is associated with the production of –
(A) Streptomycin (B) Pencillin (C) Hepatitis Antigen (D) Poly-3-hydroxybutynate (1)

4. Transgenic plants which over express compounds like mannitol, sugars and proline
(A) are pest resistant (B) are abiotic stress tolerant
(C) produce more secondary metabolites (D) are weedicide tolerant (1)

5. Person who lack the ability to produce Factor VIII has heritable genetic disorder
(A) Haemophilia A (B) Haemophilia B (C) Christmas disease (D) stroke (1)

6. The given structure is



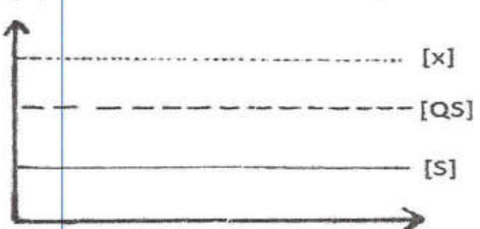

(A) 2'deoxynucleotide triphosphate (B) Ribose sugar
(C) 2'3' dideoxy nucleotide triphosphate (D) 3'dideoxynucleotide triphosphate (1)

7. Which chromosome changes to Philadelphia chromosome due to reciprocal translocation.
(A) Chromosome 9 (B) Chromosome 22 (C) Both (A) and (B) (D) Chromosome 24 (1)

8. The cells in the primary cell culture can be grown as
(A) adherent cells (B) Suspension cells (C) Culturing cells (D) Both (A) and (B) (1)

9. The somatic embryogenesis was first demonstrated in
(A) Radish (B) Potato (C) Brinjal (D) Carrot (1)

10. From blue – white selection we infer that
(A) White colonies represent non recombinant bacteria.
(B) Blue colonies represent non recombinant bacteria.
(C) Blue colonies represent recombinant bacteria.
(D) Blue and white colonies represent non recombinant bacteria (1)

11. 


What does X represent
(A) Cell density (B) Substrate concentration
(C) Turn over rate (D) Time of reaction (1)

Contd...2

12. Citric acid a commercial product is isolated from which microorganism.
(A) Aspergillus oryzae (B) E.Coli
(C) Aspergillus niger (D) Streptomycin griseus (1)

For Questions 13 to 16, two statements are given – one labelled Assertion (A) and other labelled Reason (R). Select the correct answer to these questions from the options given below:
(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(B) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).
(C) Assertion (A) is true but Reason (R) is false.
(D) Assertion (A) is false but Reason (R) is true.

13. **Assertion (A) :** Ripening of fruits can be slowed by blocking ethylene production.
**Reason (R) :** Ethylene forming gene will suppress it own expression in the crop plant. (1)

14. **Assertion (A) :** Yeast cells having Yep plasmid can grow on a medium lacking leucine and hence can be selected.
**Reason (R) :** Leu 2 gene codes for an enzyme required for the synthesis of amino acid leucine. (1)

15. **Assertion (A) :** EPO is a glycoprotein hormone formed in the foetal liver and kidney of the adults.
**Reason (R) :** It causes proliferation of progenitor cell into erythrocytes in the bone marrow. (1)

16. **Assertion (A) :** Foaming is a problem in most microbiological culture.
**Reason (R) :** Foaming is caused by oil and silicones. (1)

## Section – B

17. Calculate the generation time or the doubling time of a bacterial population in which the number of bacteria increases from $10^4 ml$ to $10^7 ml$ during four hours of exponential growth. (2)

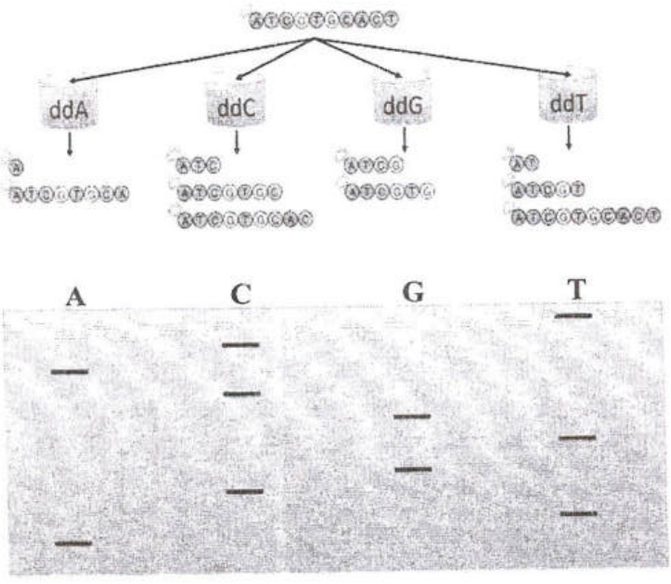
18. **Give reason :**

(a) 2D gel electrophoresis is considered a suitable technique for studying proteomics.
(b) Whey has been administered to the sick for the treatment of numerous ailments. (2)

19. How are the following traits created in transgenic crops.
(a) Herbicide tolerance (b) Insect resistance (2)

20. Animal cell cultures are grown in $CO_2$ incubators rather than BODs. Why?
**OR**
Explain the mode of action of tPA with the help of diagram. (2)

21.

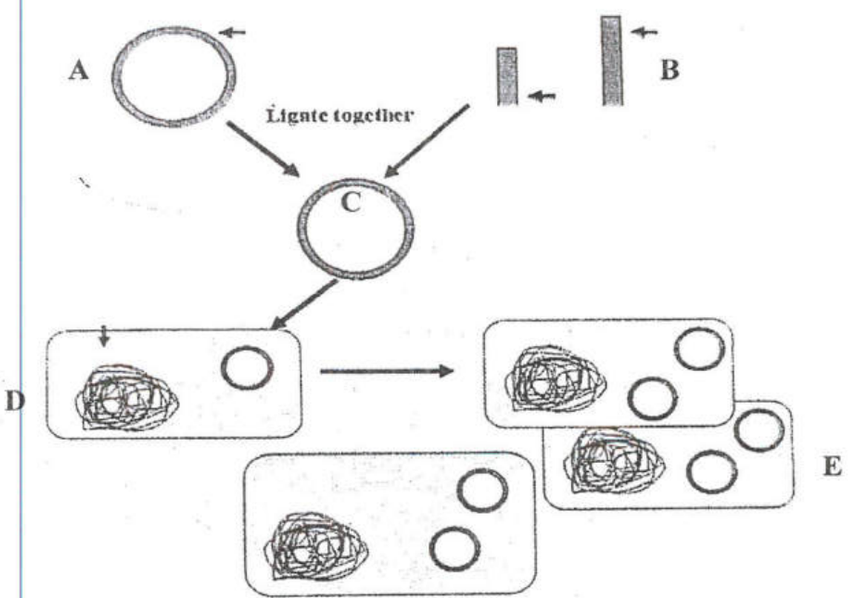



(a) Write the original strand of the above electrophoretic gel.
(b) Expand RFLP. State an application of it. (2)

Contd...3

## Section – C

22.




(A) What does the above diagram depict.
(B) Identify A, B, C, D and E.
(C) How do bacteria protect itself from bacteriophages?
(D) How can DNA be prevented from religation? **(3)**

**23.** How are monoclonal antibodies produced? Explain the production of it with the help of diagram. State an application of it. **(3)**

**24.** Expand NCBI. What are the various resources available under NCBI. Explain any two. **(3)**

**25.** Write the importance of the following in animal cell culture and how is it maintained?
(a) pH (b) Osmolality **(3)**

**26.** What are secondary metabolites? Suggest **any four** secondary metabolites and its source that are useful in medicine.

**OR** **(3)**

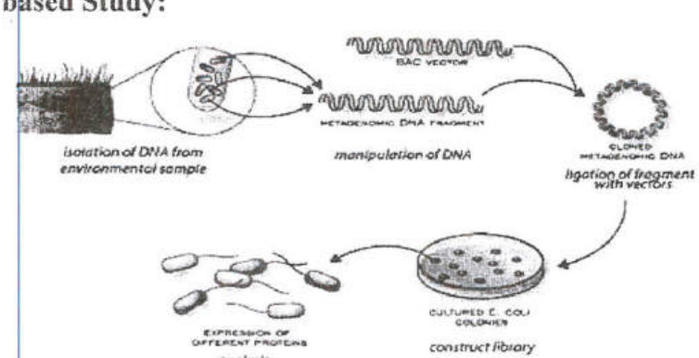
What can be done to raise
(a) Hybrids of interspecific cross.
(b) Male sterile plants production.

**27.** Draw a well labelled diagram of artificial seed. Why and how are these seeds produced? **(3)**

**28.** Expand SNP. State **any four** applications of it. How can they be used to predict susceptibility to diseases. **(3)**

## Section – D

**29. Case based Study:** **(4)**




(a) What does the above figure depict? State the principle of it.
(b) State two applications of it.
(c) Pichia pastoris is better than Sacchromyces cerevisea.

**OR**

What are problems to be tackled when eucaryotic gene is expressed in procaryotes.

**Contd..4**

**30.** Chymotrypsin is synthesized in the pancreas and through pancreatic duct get released into the duodenum. Nature has ensured that chymotrypsin and other proteolytic enzymes are synthesized in harmless precursor form. The enzyme catalytic triad is important for its function.

**Answer the following:** **(4)**

(a) What is in situ activation? Name the precursor of chymotrypsin.
(b) Write the structure of chymotrypsin.
(c) What is charge relay system?

**OR**

What is subtilisin? What is the catalytic triad of subtilisin?

## Section – E

**31.** An analytical device is used to determine and analyze protein sample as little as picomoles.
(a) Name the device.
(b) Explain the principle the process and the major parts of the device.
(c) Draw a well labelled diagram of its parts.

**OR** **(5)**

Explain the process of generating peptide map of a person suffering from sickle cell anaemia with the help of flow sheet diagram. State the cause of it and principle of it.

**32.** Explain the process of amplifying specific segments of DNA or to generate fragments of DNA for cloning with the help of diagram. State an application of it.

**OR** **(5)**

(a) What are the different methods of introducing rDNA into the host cells.
(b) How recombinant plasmids are screened using blue-white selection.

**33.** State the reason:
(a) The relationship between the number of genes and number of proteins is not linear.
(b) Embryonic Stem Cells are important for diagnostics and therapeutic modalities.
(c) It is important to have the structural functional and expressional information of proteins in human genomics.

**OR** **(5)**

(a) Explain the technology with help of diagram to monitor the whole genome of a given organism in a single chip.
(b) State the principle and procedure.
(c) Expand FISH. State the difference between a probe and a primer.

# DELHI PUBLIC SCHOOL, BHILAI

**DATE : 09.12.2024**
**CLASS : XII**
**Name : _____**

**PREBOARD EXAMINATION 2024-'25**
**SUBJECT – COMPUTER SCIENCE (083)**

**Time : 3 Hrs.**
**Max. Marks : 70**
**Roll No. : _____**

**General Instructions:**

- This question paper contains 37 questions.
- All questions are compulsory. However, internal choices have been provided in somequestions. Attempt only one of the choices in such questions
- The paper is divided into 5 Sections- A, B, C, D and E.
- **Section A** consists of 21 questions (1 to 21). Each question carries 1 Mark.
- **Section B consists** of 7 questions (22 to 28). Each question carries 2 Marks.
- **Section C** consists of 3 questions (29 to 31). Each question carries 3 Marks.
- **Section D** consists of 4 questions (32 to 35). Each question carries 4 Marks.
- **Section E** consists of 2 questions (36 to 37). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.
- In case of MCQ, text of the correct answer should also be written.

| Q No. | Section – A (21 x 1 = 21 Marks) | Marks |
|---|---|---|
| 1. | State **True or False**:<br>While defining a function in Python, the positional parameters in the function header must always be written after the default parameters. | (1) |
| 2. | What possible output from the given options is expected to be displayed when the following Python code is executed?<br>import random<br>**Signal = ['RED', 'GREEN', 'YELLOW']**<br>**for K in range(2,0, -1):**<br>**R = random.randrange(K)**<br>**print(Signal[R],end='#')**<br><br>(A) YELLOW#RED#<br>(B) RED#GREEN#<br>(C) #GREEN#RED#<br>(D) YELLOW#GREEN# | (1) |
| 3. | Which of the following expressions evaluates to False?<br>(A) not(True) and False<br>(B) True or False<br>(C) not(False and True)<br>(D) True and not(False) | (1) |
| 4. | Select the correct output of the following code:<br>**Event = 'G@20 Presidency@2023'**<br>**L = Event.split(' ')**<br>**print(L[::-2])**<br><br>(A) 'G20'<br>(B) ['Presicency@2023']<br>(C) ['G20']<br>(D) 'Presicdency@2023' | (1) |
| 5. | **print** ('The sum of {0:b} and {1:x} is {2:o}'.format(2, 10, 12))<br>(A) The sum of 2 and 10 is 12<br>(B) The sum of 10 and a is 14<br>(C) The sum of 10 and a is c<br>(D) Error | (1) |
| 6. | numberGames = {}<br>numberGames[(1,2,4)] = 8<br>numberGames[(4,2,1)] = 10<br>numberGames[(1,2)] = 12<br>sum = 0<br>for k in numberGames:<br>sum += numberGames[k]<br>print(len(numberGames) + sum)<br><br>(A) 30 (B) 24 (C) 33 (D) 12 | (1) |

**Contd...2**

| | | |
|---|---|---|
| 7. | How will you add these items to the already created empty dictionary? Suppose I want to have the following output:<br>{0: 'welcome', 2: 'to', 3: 'include help'}<br>A. Dict[0] = 'welcome'<br>Dict[2] = 'to'<br>B. Dict[3] = 'include help'<br>[0] = 'welcome'<br>[2] = 'to'<br>[3] = 'include help'<br>C. Dict[0] = [0:'welcome']<br>Dict[1] = [2:'to']<br>Dict[2] =[3: 'include help']<br>D. None of the above | (1) |
| 8. | What will be the output of the following Python code?<br>a=[13,56,17]<br>a.append([87])<br>a.extend([45,67])<br>print(a)<br>(A) [13, 56, 17, [87], 45, 67] (B) [13, 56, 17, 87, 45, 67]<br>(C) [13, 56, 17, 87,[ 45, 67]] (D) [13, 56, 17, [87], [45, 67]] | (1) |
| 9. | If a table which has one Primary key and two alternate keys. How manyCandidate keys will this table have?<br>(A) 1 (B) 2 (C) 3 (D) 4 | (1) |
| 10. | Write the missing statement to complete the following code:<br>**file = open("cbse.txt", "r")**<br>**data = file.read(50)**<br>**_____#Move the file pointer to thebeginning of the file**<br>**next_data = file.read(50)**<br>**file.close()** | (1) |
| 11. | State whether the following statement is **True or False**:<br>While handling exceptions in python, name of the exception has to be compulsorily added with except clause. | (1) |
| 12. | x = 50<br>**def** func():<br>**global** x<br>**print**('x is', x)<br>x = 2<br>**print**('Changed global x to', x)<br>func()<br>**print**('Value of x is', x)<br>**(A)** x is 50<br>Changed global x to 2<br>Value of x is 50<br>**(B)** x is 50<br>Changed global x to 2<br>Value of x is 2<br>**(C)** x is 50<br>Changed global x to 50<br>Value of x is 50<br>**(D)** None of the mentioned | (1) |
| 13. | Which SQL command can change the cardinality of an existing relation? | (1) |
| 14. | Suppose you are asked to display all the names with 'a' as their second character. Which query pattern will you use?<br>(A) __a%; (B) _a_; (C) _a%; (D) _%a; | (1) |
| 15. | In which data type the value stored is padded with spaces to fit the specifiedlength.<br>(A) DATE (B) VARCHAR (C) FLOAT (D) CHAR | (1) |
| 16. | Which aggregate function can be used to find the cardinality of a table?<br>(A) sum() (B) count() (C) avg() (D) max() | (1) |
| 17. | Which of these components is internal to a computer and is required to connect the computers to a network?<br>(A) Wireless Access Point (B) Network Interface Card (C) Switch (D) Hub | (1) |

**Contd...3**

| | | |
|---|---|---|
| 18. | Which network device is used to connect two networks that use differentProtocols?<br>(A) Modem (B) Gateway (C) Switch (D) Repeater | (1) |
| 19. | Which protocol holds the email only until you receive it?<br>(A) SMTP (B) FTP (C) IMAP (D) POP3 | (1) |
| | **Q20 and Q21 are Assertion (A) and Reason(R) based questions. Mark the correct choice as:**<br>(A) Both A and R are true and R is the correct explanation for A<br>(B) Both A and R are true and R is not the correct explanationfor A<br>(C) A is True but R is False<br>(D) A is False but R is True | |
| 20. | **Assertion (A)** : DDL and DML are part of SQL.<br>**Reasoning (R)** : Both DDL and DML are interchangeable. | (1) |
| 21. | **Assertion (A):** The document for the Python module should be written in a triple quotes string.<br>**Reasoning (R) :** The doc strings are triple quoted strings in Python that are displayed as documentation when the help <module> command is issued. | (1) |

| Q No | Section – B ( 7 x 2=14 Marks) | Marks |
|---|---|---|
| 22. | Identify the correct output of the following code. Also, write the minimum and maximum possible values in the variable b.<br>**import random**<br>**a= 'Programming'**<br>**b = random.randint(3,8)**<br>**for i in range(0,b,3):**<br>**print(a[i], end = '*')** | (2) |
| 23. | Write a user-defined function named **PUZZLE(W,N),** which takes two arguments as an English word and an integer and returns the string where every Nth alphabet of the word W is replaced with an underscore ('_').<br>For example: if W contains the word 'TELEVISION' and N is 3 then the function should return the string 'TE_EV_SI_N'. | (2) |
| 24. | If **L1=[1,3,2,4,5,6,7,6,5,4,3 ],** and **L2=[10,20,30,40,50 ],** then<br>*(Answer using built-in functions only)*<br>(A) Write a statement to count the occurrences of 5 in L1.<br>(B) Write a statement to sort the elements of list L1 in ascendingorder.<br>**OR**<br>(C) Write a statement to insert all the elements of L2 at the end of L1.<br>(D) Write a statement to reverse the elements of list L2. | (2) |
| 25. | What is the possible outcome(s) after executing the following code?<br>**import random**<br>**PICK=random.randint(0,3)**<br>**CITY = ['DELHI', 'MUMBAI', 'CHENNAI', 'KOLKATA']**<br>**for I in CITY:**<br>**for J in range(1,PICK):**<br>**print(I, end = ' ')**<br>**print()**<br>(A) DELHIDELHI<br>MUMBAIMUMBAI<br>CHENNAICHENNAI<br>KOLKATAKOLKATA<br>(B) DELHI<br>DELHIMUMBAI<br>DELHIMUMBAICHENNAI<br>(C) DELHI<br>MUMBAI<br>CHENNAI<br>KOLKATA<br>(D) DELHI<br>MUMBAIMUMBAI<br>KOLKATAKOLKATAKOLKATA | (2) |
| 26. | Rewrite the following code in Python after removing all syntax error(s):<br>**STRING = " "WELCOME NOTE" "**<br>**For S in range[0,8]:**<br>**Print STRING(s)**<br>**Print(S+STRING)** | (2) |

Contd...4

| | | |
|---|---|---|
| 27. | (A) Differentiate between an attribute and a tuple with an example.<br>(B) Consider the following table with their fields<br>EMPLOYEE (ECODE, ENAME, ENAME, DESIG, SALARY, DOJ)<br>List the names, salary, PF, DA of all the employees in the EMPLOYEE table. HRA is 25% of the salary, DA is 10% of the salary, PF is 5% of the salary. The result should be in descending order of salary.<br>**OR**<br>(A) What are FOREIGN KEYS? Write its properties.<br>(B) Write an SQL command to display each field of a table called "TRANSPORT" with the type, size, and constraints. | (2) |
| 28. | (A) List one advantage and one disadvantage of bus topology.<br>(B) What is the use of Router in a networking technology?<br>**OR**<br>(A) Expand the following terms:<br>TCP/IP, VoIP<br>(B) Write any two advantages of SMS | (2) |
| **Q No.** | **Section – C ( 3 x 3 = 9 Marks)** | **Marks** |
| 29. | (A) Write a Python function that displays all the words containing "was" from a text file "english.txt".<br>**OR**<br>(B) Write a Python function that finds and displays all the words which starts and ends with 'A' from a text file "novel.txt". | (3) |
| 30. | A) Consider the list named NUMS which contains random integers. Write the following user defined function from the list NUMS and pushes all such numbers which have 5 or more digits into stack BUGNUMS<br>(i) **PushBig()** It checks every number from the list NUMS and pushes all such numbers which have 5 or more digits into the stack BIGNUMS.<br>(ii) **PopBig()** It pops the numbers from the stack BIGNUMS, and displays them. The function should also display 'Stack is empty' when no more numbers are left in the stack.<br>(iii) **peep():** This function displays the topmost element of the stack without deleting it. If the stack is empty, the function should display 'None'.<br>**OR**<br>B) You have a stack named NUMSTACK that stores even numbers. The stack is implemented using a list.<br>Write the following user-defined functions in Python to perform the specified operations on the stack NUMSTACK.<br>(i) **Push_Num(NUMSTACK, new_num):** This function takes the stack NYUMSTACK and a new number as arguments and pushes the new number onto the stack only if it is odd.<br>(ii) **Pop_Num(NUMSTACK):** This function pops the topmost number from the stack and returns it. If the stack is already empty, the function should display 'Underflow'.<br>(iii) **Peek(NUMSTACK):** This function displays the topmost element of the stack without deleting it. If the stack is empty, the function should display 'None'. | (3) |
| 31. | Predict the output of the following code:<br>`x = (1, (2, (3, (4,))))`<br>`print(len(x))`<br>`print( x[1][0] )`<br>`print( 2 in x )`<br>`y = (1, (2, (3,), 4), 5)`<br>`print( len(y[1]))`<br>`print( y[2] + 50 )`<br>`z = (2, (1, (2, ), 1), 1)`<br>`print( z[z[z[0]]])`<br>**OR**<br>`line = "LeaveTheWorldBehind"`<br>`eline = ""`<br>`for i in line:`<br>`  eline += chr(ord(i)+3)`<br>`  print(eline)` | (3) |

Contd...5

**Q No.** | **Section – D ( 4 x 4 = 16 Marks)** | **Marks**

**32.** Consider the following table **FLIGHTS**: — **Marks: 4**

| START | END | NO_FLIGHTS | NO_STOPS |
|---|---|---|---|
| MUMBAI | DELHI | 8 | 0 |
| MUMBAI | INDORE | 3 | 1 |
| DELHI | MUMBAI | 2 | 1 |
| MUMBAI | CHENNAI | 1 | 0 |
| DELHI | RAIPUR | 4 | 1 |
| RAIPUR | NAGPUR | 3 | 0 |
| MUMBAI | KOCHI | 4 | 1 |

Write SQL statements for the following:

(i) To display the total number of flights.

(ii) To display the number of flights whose FL_NO starts with 'IC'.

(iii) To delete the row whose FL_NO is 'IC333'.

(iv) To change the NO_flights of 'IC301' as 4.

**OR**

Write the output of the given SQL commands:

(i) Select sysdate() as 'Current Date'.

(ii) Select round(435666,8267,4);

(iii) Select truncate(3415.79,-1);

(iv) Select substr('When are you coming?',-10,4);

**33.** **A CSV file, "xiia.csv",** contains the data about students. Each record of thefile contains the following data: — **(4)**

- **Name** – name of the. Student.
- **House** – ('Chenab', 'Ganges', 'Jhelum').
- **Eng, Phy, Chem, Maths, CS** – marks of subjects out of 100 marks each.

Write the following Python functions to perform the specified operations on this file:

**(i) Display_data():** Read all the data from the file and print the name and total marks obtained by the 'Chenab' house students only.

**(ii) Weak_list():** Print the name of the student and subject names in which she/he has got marks less than 33.

**34.** Study the following tables, **DOCTORS** and **SALARY** and write SQL commands for the following: — **4**

Table: **DOCTORS**

| ID | NAME | DEPT | SEX | EXP |
|---|---|---|---|---|
| 101 | JOHN | ENT | M | 12 |
| 104 | SMITH | ORTHO | M | 5 |
| 107 | GEORGE | CARDIO | M | 10 |
| 114 | LARA | SKIN | F | 3 |
| 109 | K GEORGE | MEDICINE | F | 9 |
| 105 | JOHNSON | ORTHO | M | 10 |
| 117 | LUCY | ENT | F | 3 |
| 111 | B ILL | MEDICINE | F | 12 |
| 130 | MORPHY | ORTHO | M | 15 |

**Table: SALARY**

| ID | BASIC | ALLOWANCE | CONSULTATION |
|---|---|---|---|
| **101** | **12000** | **1000** | **300** |
| **104** | **23000** | **2300** | **500** |
| **107** | **32000** | **4000** | **500** |
| **114** | **12000** | **5200** | **100** |
| **109** | **42000** | **1700** | **200** |
| **105** | **18900** | **1690** | **300** |
| **130** | **21700** | **2600** | **300** |

(i) Display the names of all the doctors in the MEDICINE department with more than 10 years of experience from the table DOCTORS.

(ii) Display the average salary of all doctors working in the ENT department using the table DOCTORS.

SALARY = BASIC+ALLOWANCE.

(iii) Display the minimum ALLOWANCE of female doctors.

(iv) (a) Display the highest consultation fee among all male doctors.

**OR**

(b) To display the details of ORTHO doctors who have experience more than 12 years

**Contd...6**

35 A table named **SCHOOL** in the CBSE database has the following structure: (4)

| FIELD NAME | TYPE |
|---|---|
| ADMNO | CHAR(6) |
| NAME | CHAR(20) |
| HOUSE | CHAR(15) |
| FEES | INT |
| PDATE | DATE |

Write the following Python function to perform the specified operation:
**DATA_ENTRY():** To input details of student and store it in the table SCHOOL.
**DISPLAY_DATA():** The function should then retrieve and display all records from the STUDENT table for only those records whose house is 'CHENAB'.

Assume the following for Python-Database connectivity:
Host: localhost, User: root, Password: zunjani

| Q.No. | SECTION – E (2 X 5 = 10 Marks) | Marks |
|---|---|---|

36. Rajan is a manager working in a recruitment agency. He needs to managethe records of various candidates. For this, he wants the following information of each candidate to be stored:
- **Candidate_ID** – integer
- **Candidate_Name** – string
- **Designation** – string
- **Experience** – float

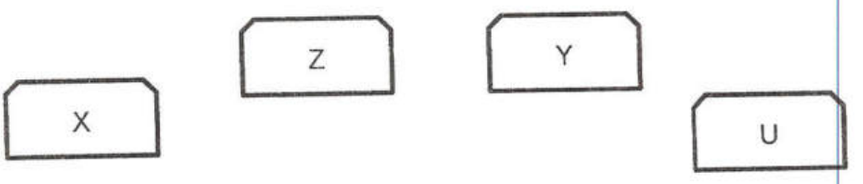
(2+1+2=5)

As a company programmer, you have been assigned to do the following jobs:
(i) Write a function **DATA_ENTRY()** to input a candidate's data and append it in a binary file **'BSP.DAT'**.

(ii) Write a function **UPDATE_DATA()** to update the data of candidates whose experienceis more than 5 years and change their designation to "Manager".

(iii) Write a function **DISPLAY_DATA()** to read the data from the binary file and display the data of all those candidates who are not "DGM".

37. Sony corporation has set up its 4 offices in the city of Srinagar with its offices X, Z, Y, U. (5)




| BLOCKS | DISTANCE |
|---|---|
| X to Z | 40 m |
| Z to Y | 60 m |
| Y to U | 135 m |
| U to X | 170 m |
| X to Y | 165 m |

(i) Suggest a suitable layout of connectivity of the offices.
(ii) Suggest the placement of the server in the network with suitable reason.
(iii) Suggest the placement of the following devices in the network with justification:
(a) Switch/Hub (b) Repeater
(iv) (a) Write any one advantage of the topology suggested.

**OR**

(b) Write any one disadvantage of the topology suggested.

# DELHI PUBLIC SCHOOL, BHILAI

**DATE : 09.12.2024**
**CLASS : XII**
**Name : _____**

**PREBOARD EXAMINATION 2024-'25**
**SUBJECT – ENGINEERING GRAPHICS**

**Time : 3 Hrs.**
**Max. Marks : 70**
**Roll No. : _____**

**Instructions:**
(i) Attempt all the questions.
(ii) Use both sides of the drawing sheet, if necessary.
(iii) All dimensions are in millimetres.
(iv) Missing and mismatching dimensions, if any, may be suitably assumed.
(v) Follow the SP: 46 – 2003 revised codes. (with first angle method of projection)
(vi) In no view of question 21, are hidden edges or lines required.
(vii) In question 23, hidden edges or lines are to be shown in views without section.

## SECTION – A

**Q 1 to Q 8 –** Answer the following multiple choice questions. Print the correct choice on your drawing sheet: **(1×8=8)**

1. Which is the included angle of a regular hexagon?
(A) 30° (B) 60° (C) 90° (D) 120°

2. Name the projection with multiple views.
(A) Perspective projection (B) Isometric projection
(C) Orthographic projection (D) Oblique projection

3. Name the solid with apex.
(A) Cone (B) Square prism (C) Triangular Prism (D) Sphere

4. Name the type of line which is used for dimensioning.
(A) Small dash line (B) Chain line (C) Wavy line (D) Thin continuous line

5. What is the thread angle of a metric thread?
(A) 40° (B) 60° (C) 80° (D) 100°

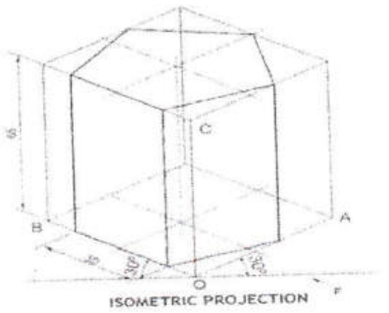
6. Which one of these is a temporary fastening?
(A) Welding (B) Nut-Bolt (C) Riveting (D) Pasting

7. Which among these is used for power transmission?
(A) Square thread (B) BSW thread
(C) Metric thread internal (D) Metric thread external

8. Usually the section lines are inclined with horizontal line at.
(A) 45° (B) 35° (C) 25° (D) 15°

**Q 9 to Q 14 – Select the correct option corresponding to the orientation of the given Isometric Projection:** **(1×6=6)**

9.

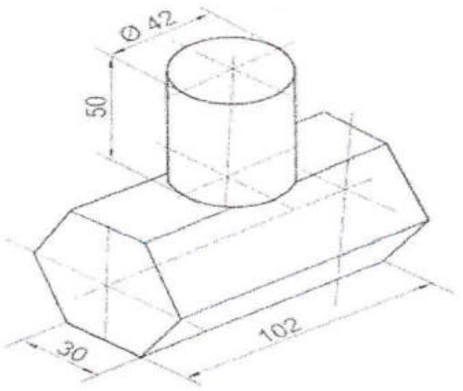


ISOMETRIC PROJECTION

(A) Axis of the prism is parallel to bot H.P. & V.P.
(B) Axis of the prism is perpendicular to H.P.
(C) Hexagonal ends of the prism are perpendicular to V.P.
(D) Pentagonal ends of the prism are parallel to V.P.

**Contd...2**

10.



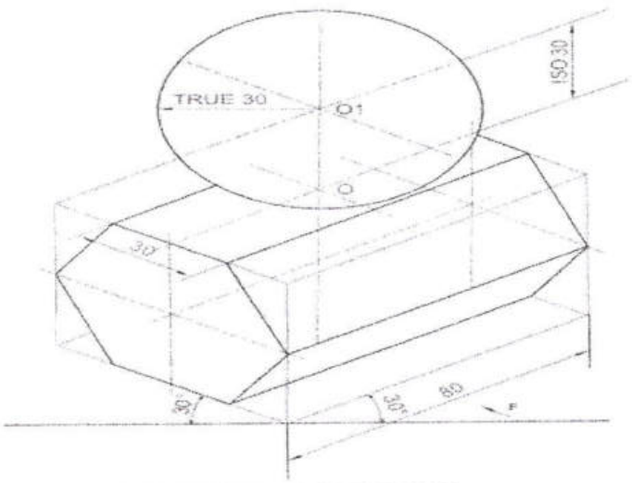

(A) A vertical cylinder of base diameter 42 mm is placed centrally on a hexagonal prism which is resting on HP with one of its long edges on it.

(B) A vertical cylinder of base diameter 42 mm is placed centrally on a pentagonal prism which is resting on HP with one of its long edges on it.

(C) A vertical cylinder of base diameter 42 mm is placed centrally on a pentagonal prism which is resting on HP with one of its rectangular faces on it.

(D) A vertical cylinder of base diameter 42 mm is placed centrally on a hexagonal prism which is resting on HP with one of its rectangular faces on it.

11.




ISOMETRIC PROJECTION

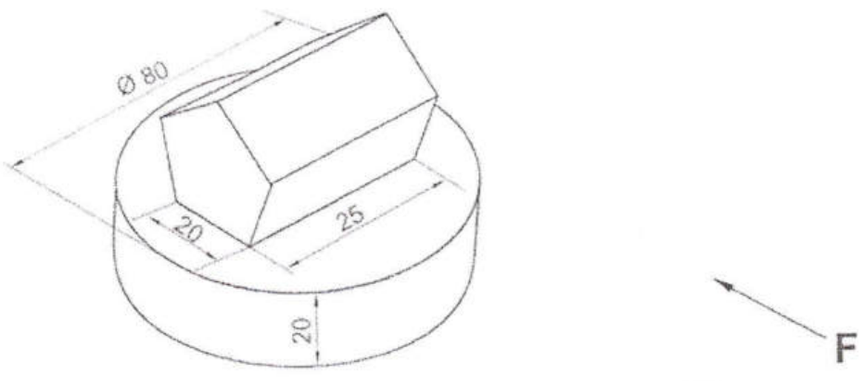
(A) The isometric projection of a sphere is a circle whose diameter is equal to the isometric diameter of the sphere.

(B) The isometric projection of a sphere is a circle whose diameter is equal to the true diameter of the sphere.

(C) The isometric projection of a sphere is a circle whose diameter is equal to half of the true diameter of the sphere.

(D) The isometric projection of a sphere is a circle whose diameter is equal to double of the true diameter of the sphere.

12.




(A) Axis of both prism and cylinder are perpendicular to HP.
(B) Axis of both prism and cylinder are perpendicular to VP.
(C) Axis of prism is Parallel to VP and axis of cylinder is perpendicular to HP.
(D) Axis of prism is perpendicular to HP and axis of cylinder is perpendicular to VP.

**Contd...3**

**OR**

Figure 2 shows the assembly of the parts of a FLANGE PIPE JOINT. Disassemble the parts and then draw the following views of the following components to scale 1 : 1, keeping them in the same position with respect to H.P. and V.P.

(i) FLANGE B :
(a) Front view, upper half in section. (b) Right hand side view. **(8+7)**

(ii) GASKET : (a) Full sectional front view. (b) Left hand side view. **(3+3)**

Print the titles of both and the scale used. Draw the projection symbol. Give 6 important dimensions. **(6)**

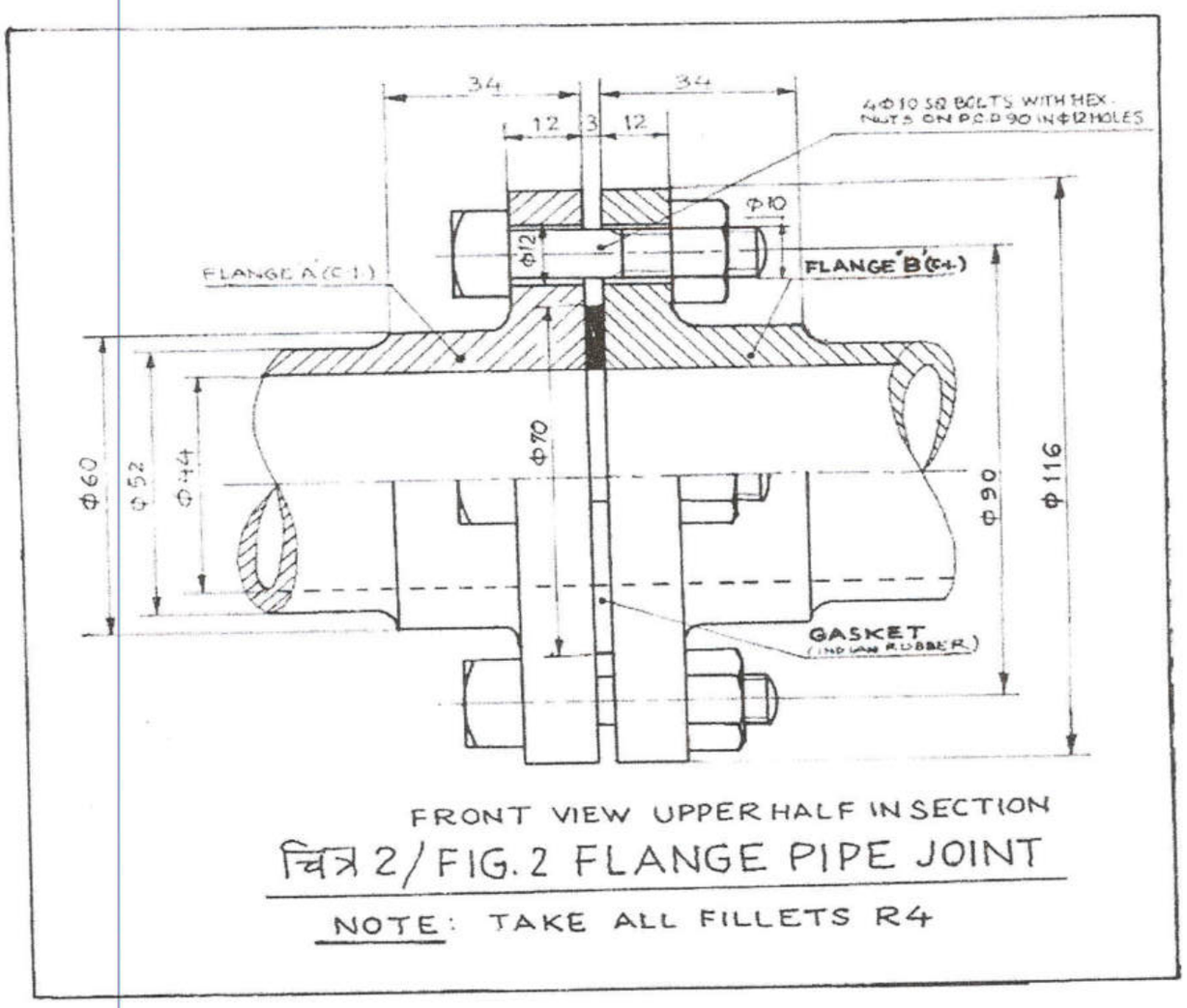
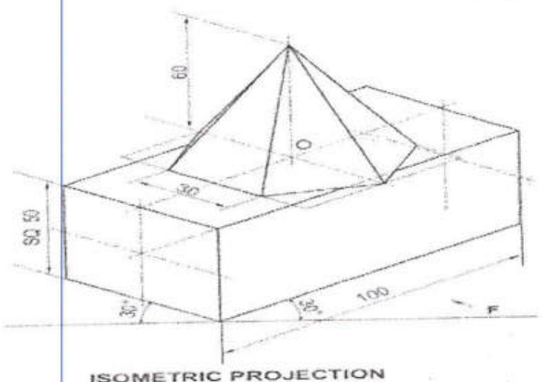



**FIGURE – 2**

13.




ISOMETRIC PROJECTION

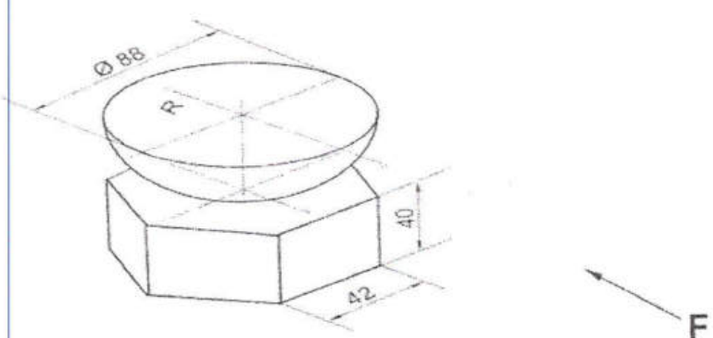
(A) A vertical pentagonal pyramid with one of its base edges parallel to VP is placed centrally on a horizontal square prism with its square ends parallel to VP.

(B) A vertical pentagonal pyramid with one of its base edges perpendicular to VP is placed centrally on a horizontal square prism with its square ends perpendicular to VP.

(C) A vertical hexagonal pyramid with two of its base edges perpendicular to VP is placed centrally on a horizontal square prism with its square ends perpendicular to VP.

(D) A vertical hexagonal pyramid with two of its base edges parallel to VP is placed centrally on a horizontal square prism with its square ends perpendicular to VP.

14.




(A) The common axis is perpendicular to HP and two of the base edges of the prism are perpendicular to VP
(B) The common axis is perpendicular to VP and two of the base edges of the prism are perpendicular to VP
(C) The common axis is perpendicular to HP and two of the base edges of the prism are parallel to VP
(D) The common axis is perpendicular to VP and two of the base edges of the prism are parallel to VP

**Q15 –** Two statements are given – one labelled assertion ((A) and the other labelled reason (R). Select the correct answer to the following question from the codes ((A), ((B), ((C) and ((D) as given below:

(A) Both A and R are true and R is the correct explanation of A.
(B) Both A and R are true and R is not the correct explanation of A.
(C) A is true but R is false.
(D) A is false and R is also false.

15. **Assertion (A) :** The hexagonal nut takes preference over the other nuts.
**Reason (R) :** The angle through which the spanner will have to be turned to get another hold is only 60 in case of a hexagonal nut but 90° for a square nut. (1)

**Q16 to Q 20** – Answer Read the following para and answer the following questions.

Two friends who are the students of class XII Engg. Graphics visited a workshop to repair a part of their robotic arm. Mechanic advised them to use nub-bolt combination in place of welding. While purchasing, they observed many nuts and bolts. They sent the following image to their Engineering Graphics teacher. Then the teacher explained everything about nut-bolt and fasteners. **(1×5=5)**

16. The way to represent external threads of a bolt of diameter 'd' in drawing is
(A) Discontinuous ' 0.8d' circle (B) Discontinuous 'd' circle
(C) Discontinuous '1.5d+3' circle (D) Discontinuous '1.5d' circle

**Contd...4**

17. The way to represent internal threads of a nut of diameter 'd' in drawing is
(A) Discontinuous ' 0.8d' circle (B) Discontinuous 'd' circle
(C) Discontinuous '1.5d+3' circle (D) Discontinuous '1.5d' circle

18. The thickness of a nut of diameter 'd' is
(A) 0.8d (B) d (C) 1.5d+3 (D) 1.5d

19. The maximum diameter of a washer which is used on a bolt of diameter 'd' is
(A) 2d (B) d+1 (C)1.5d+3 (D) 2d+3

20. The diameter of a cylindrical rod on which thread profiles are formed is known as
(A) Major diameter (B) Nominal diameter (C) Minor diameter (D) Chamfering diameter.

## SECTION – B

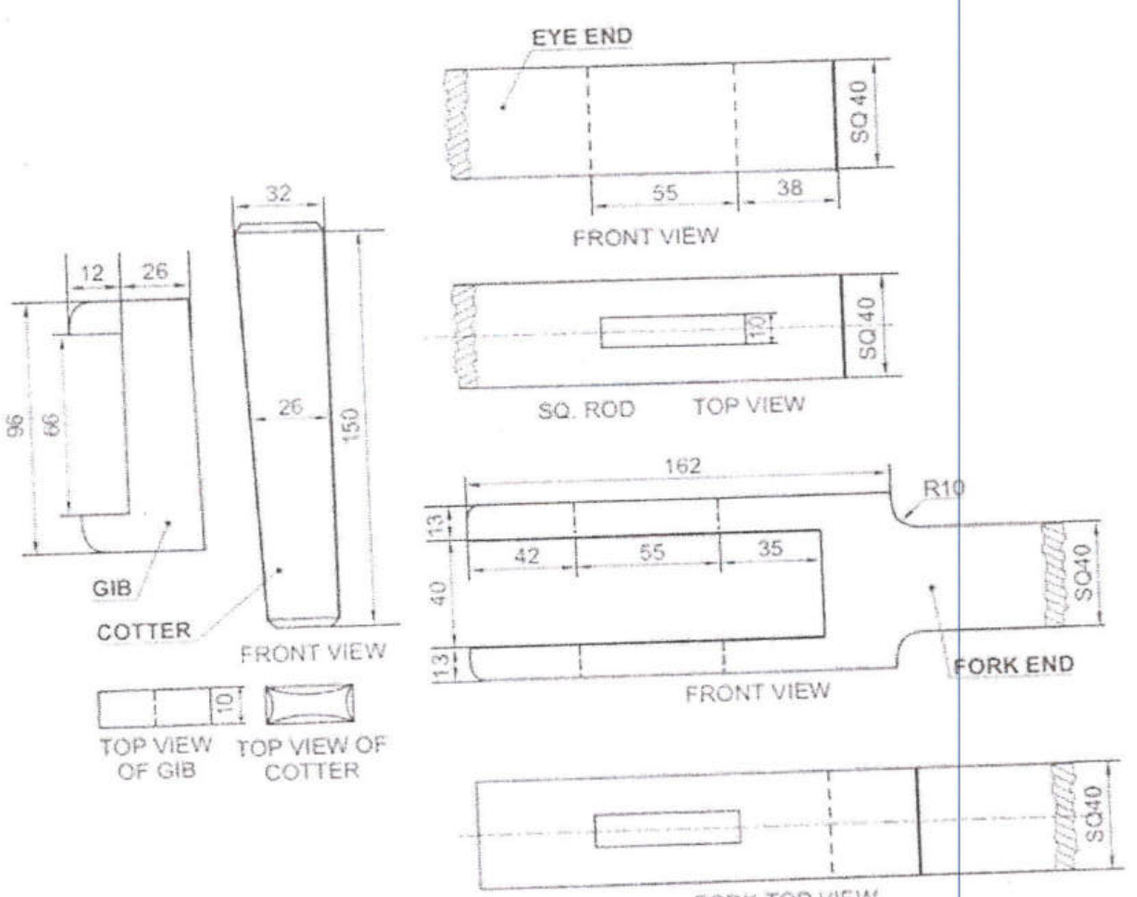
21. (a) Construct an isometric scale. **(5)**
(b) A pentagonal prism of base side 30 mm and height of 70 mm resting on its base on H.P. with one of its base side parallel to and near to V.P. **(10)**

22. Draw to scale 1:1, the standard profile of the B.S.W. thread profile with the pitch = 50mm. Give standard dimensions. **(8)**

**OR**

Draw to scale 1:1, the Front View and Top View of a Square nut of diameter 25 mm, keeping the axis perpendicular to H.P. and two opposite parallel faces are parallel to V.P. Give standard dimensions. **(8)**

23. Figure-1 shows the detail drawings of different parts of a Gib and Cotter Joint for joining two square rods. Assemble all the parts correctly and draw the following views to scale 1:1
(a) Front view, upper half in section. **(15)**
(b) Side view, viewing from the left hand side. **(06)**
(c) Print title, scale used and draw the projection symbol. Give '6' important dimensions. **(06)**




DETAILS OF A GIB AND COTTER JOINT

**FIGURE – 1**

# DELHI PUBLIC SCHOOL, BHILAI

**DATE : 12.12.2024** | **PREBOARD EXAMINATION 2024-'25** | **Time : 3 Hrs.**

**CLASS : XII** | **SUBJECT – HOME SCIENCE** | **Max. Marks : 70**

**Name : _____** | **Roll No. : _____**

1. All questions are compulsory.
2. There are total 35 questions.
3. Question paper is divided into three sections – A, B and C.
4. **Section A** has question no.1 to 18 (Objective type questions) and are of 1 mark each.
5. **Section B** has question no. 19 to 25 of 2 marks each and question no.26 to 29 of 3 marks each.
6. **Section C** has question no.30 to 33 of 4 marks each and question no.34 and 35 are of 5 marks each.
7. Internal choices are given in some questions.
8. Support your answers with suitable examples wherever required

## SECTION A (OBJECTIVE TYPE QUESTIONS)

**Q.01** Rohan's grandmother is suffering from issues of liver and chewing problems. Which type of diet should be prescribed by the dietician to Rohan's grandmother?
(A) Low protein diet and mechanical soft diet. (B) High protein diet and mechanical soft diet.
(C) Low fibre diet and liquid diet. (D) High fibre diet and regular diet. **(1)**

**Q.02** Red Ribbon Express (RRE) was a campaign launched for generating awareness about which of the following disease?
(A) HIV/Aids (B) Polio (C) Tuberculosis (D) Cancer **(1)**

**Q.03** Which of the following sciences are not involved in the study of Food Science?
(A) Chemistry (B) Culinary Arts (C) Biotechnology (D) Microbiology **(1)**

**Q.04** Community radio is being operated in which of the following locations?
(A) Delhi University North (B) Vanasthali Vidyapeeth
(C) SEWA Gujarat (D) All of the above **(1)**

**Q.05** Match the following:

| LIST I | LIST II |
|---|---|
| 1. Proportion | (A) Created in a garment when all the elements of design come together to give a good harmonious effect. |
| 2. Balance | (B) Relationship of the parts of the garments to one another. |
| 3. Formal Balance | (C) Proper equalling of the distribution of weight from the central point of a dress. |
| 4. Harmony | (D) The least expensive and most expected type of design which is found on less expensive garments. |

**Choose the correct option:**
(A) A-1, B-2, C-3, D-4 (B) A-2, B-3, C-4, D-1
(C) A-3, B-2, C-4, D-1 (D) A-1, B-3, C-2, D-4 **(1)**

**Q.06** Who amongst the following tried to comprehend and explain that young children have different ways of understanding things around them?
(A) Jean Piaget (B) Lev Vygotsky (C) Maria Montessori (D) None of these **(1)**

**Q.07** Match the following:

| LIST I | LIST II |
|---|---|
| 1. Couture | (A) Ready-to-wear clothing. |
| 2. Pret-a-Porter | (B) Art of making a dress. |
| 3. Sewing Machine | (C) Female dress designer. |
| 4. Couturier | (D) Issac Singer |

**Choose the correct option:**
(A) A-1, B-2, C-3, D-4 (B) A-2, B-1, C-4, D-3
(C) A-3, B-4, C-1, D-2 (D) A-4, B-1, C-3, D-2 **(1)**

**Q.08** A _____ is a specific group of people who share common characteristics.
(A) Population (B) Demography (C) Community (D) Society **(1)**

**OR**

Anganwadi is the component of which of the following?
(A) ICDS (B) Montessori Schools (C) Nehru Yuva Kendra (D) NSS

**Contd...2**

**Q.09** Which of the following is not included in Back Office Department?
(A) Engineering Department (B) Finance and Accounts Department
(C) Human Resources Department (D) Food and Beverages Department **(1)**

**Q.10** FSSAI comes under which level of standard for food quality?
(A) National Standard (B) Company Standard
(C) Regional Standard (D) International Standard **(1)**

**Q.11** Which of the following are not included in nutritional care during illness?
(A) Assessing nutritional status (B) Diagnosis of nutritional problems
(C) Prescribing over-the-counter medicines (D) Planning and prioritizing nutrition **(1)**

**Given below are two statements labelled as Assertion (A) and reason (R). Select the most appropriate answer from the options given below:**
(A) Both A and R are true and R is the correct explanation of A.
(B) Both A and R are true but R is not the correct explanation of A.
(C) A is true but R is false.
(D) A is false but R is true.

**Q.12** **ASSERTION (A):** There is a need for participatory content development and appraisal if a community radio initiative is to be successful.
**REASON(R):** Participating in such programmes creates an illusion of community. **(1)**

(A) Both A and R are true and R is the correct explanation of A.
(B) Both A and R are true but R is not the correct explanation of A.
(C) A is true but R is false.
(D) A is false but R is true.

**Q.13** **ASSERTION (A):** New pathogens can be discovered in food with time.
**REASON (R):** Changes in human susceptibility, increased globalisation of food leads to transfer and emergence of pathogens in food. **(1)**

**CASE BASED QUESTIONS:**
**Read the passage carefully and answer question no. 14 to18**

Aman, a degree holder in Entrepreneurship came to know about Piplantri Village located in Rajasthan, where in 2006 an initiative was started in which 111 trees are planted every time a girl child is born. To keep termites away from the trees the villagers have planted 2.5 million Aloe Vera plants around the trees. This has turned the village into an oasis, as the planting of trees led to higher water levels. Aman decided to visit the village to start a business unit, for the processing and marketing of Aloe Vera into juices, gels and other products. However, on visiting the village Aman found that the villagers were suffering exploitation at the hands of local merchants who were engaged in unscrupulous, exploitative trade practices like hoarding and black marketing of food products and also selling unsafe and adulterated products to the villagers. After looking at their plight, instead of a business organization, he decided to set up an organization for the protection and promotion of the consumer interest of the villagers.

**Q.14** Which of the following responsibilities is needed to be taught to the villagers?
(A) Responsibility towards regularly updating their knowledge of various laws and legislative provisions made by the government.
(B) While making a purchase, she/he should read all the information given on the label/ brochure.
(C) She/he must have increasing awareness about various national and international consumer organizations in terms of their activities, work and understand the benefits of becoming a member of such organizations.
(D) Both (A) and (C). **(1)**

**Q.15** Which consumer problem are the villagers suffering from?

I. Inadequate or Erroneous Information given by Manufacturer.
II. Lack of Consumer Information.
III. Substandard/ poor quality goods
IV. Adulteration

**Choose the correct option:**
(A) I, II and III (B) II, III and IV
(C) II and IV (D) All of the above **(1)**

**Q.16** Which consumer right is violated in the above case?
(A) Right to Safety (B) Right to seek Redressal
(C) Right to be Heard (D) None of the above **(1)**

**Contd...3**

**Q.17** Publishing periodicals and other publications to give knowledge about consumer problems, legal reporting, reliefs available, help consumers in protecting themselves from unfair trade practices.

Based on the given statement, choose who is responsible for the same?
(A) Voluntary consumer organizations (B) Government organizations
(C) Standardization mark organizations (D) All of the above **(1)**

**Q.18** **Assertion (A):** Consumers must purchase products with standardization mark to ensure the quality/purity of the product.
**Reason (R):** Standardization is a prime requisite for attaining quality. **(1)**
**Select the correct option.**
(A) Both A and R are true and R is the correct explanation of A.
(B) Both A and R are true, but R is not the correct explanation of A.
(C) A is true, but R is false.
(D) A is false, but R is true.

## SECTION B (SHORT ANSWER QUESTIONS)

**Q.19** What is meant by ironing? Which are the most inexpensive and basic irons used in day-to-day life? **(2)**

**Q.20** Vidya purchased a new electric kettle. She received an electric shock due to its manufacturing defect. Which consumer right of Vidya has been infringed in this case? **(2)**

**Q.21** Discuss how SEWA can make use of Information and Communication Technology in its program. **(2)**

**OR**

Give reasons as to why children are a vulnerable section of society.

**Q.22** Public health plays an important role in the developing countries as well as the developed countries. Discuss the significance of public health with reference to the given statement. **(2)**

**Q.23** Write any two features of laundry in hotels. **(2)**

**Q.24** Write down the factors responsible for the emergence pathogens. **(2)**

**Q.25** Technology is the science and application of scientific, socio-economic knowledge and legal rules for production. With reference to the given statement explain the concept of food technology. **(2)**

**26. (a)** Discuss any four skills or attributes required by an entrepreneur.
**(b)** Describe any two benefits of Ergonomics. **(2+1=3)**

**OR**

Discuss the main methods of washing in a machine.

**Q.27** How can people with figure problems emphasise or camouflage their figure? Explain with an example. **(3)**

**Q.28** Discuss the following problems faced by consumers worldwide.
**(a)** Adulteration **(b)** High prices **(c)** Lack of consumer information **(3)**

**Q.29 (a)** Write a short note on pasteurization.
**(b)** Describe the experiment of spoilage done by Pasteur in 1864. **(3)**

**Q.30** Trisha is learning about the development of Food processing and technology. She ponders over the following question.
**(a)** What was the use of Food technology during the earlier periods?
**(b)** How did seasonal food gain popularity through Food processing and technology?
**(c)** Importance of Food technology in day-to-day life. **(4)**

**Q.31** **(a)** Discuss any two programmes and initiatives to cater to the needs of vulnerable children.
**(b)** Discuss in brief ICDS.
**(c)** Mention the different kinds of homes run for children. **(4)**

**Q.32** What is a colour scheme? Discuss the Relative colour scheme. **(4)**

**Q.33** Discuss how encouraging adventures can help in the overall development of youth. **(4)**

**OR**

Mr. Sharma owns a soap-making factory. He wants to make sure his products are genuine by getting them an Eco mark certification. In this regard discuss the Eco mark scheme.

**Q.34** Minal is a Fashion designer. She wishes to create a skirt with a lined design.
**(a)** Which type of lines can she add to her skirt?
**(b)** Which lines can she add in order to make her skirt graceful?
**(c)** Which lines should Minal avoid in order to exaggerate size? **(5)**

**Q.35** Explain HACCP in detail. **(5)**

Name _____ Roll No. _____

# DELHI PUBLIC SCHOOL, BHILAI

**DATE: 04.12.2024** | **PREBOARD EXAMINATION 2024-25** | **Time: 3 HRS.**

**CLASS: XII** | **SUBJECT – ACCOUNTANCY (055)** | **Max. Marks: 80**

**GENERAL INSTRUCTIONS:**

1. This question paper contains 34 questions. All questions are compulsory.
2. This question paper is divided into two parts, Parts A and B.
3. Questions 1 to 16 and 27 to 30 carry 1 mark each.
4. Questions 17 to 20, 31 and 32 carries 3 marks each.
5. Questions 21, 22 and 33 carries 4 marks each.
6. Questions 23 to 26 and 34 carry 6 marks each.
7. There is no overall choice. However, an internal choice has been provided in 7 questions of one mark, 2 questions of three marks, 1 question of four marks and 2 questions of six marks.

## Part – A

## (Accounting for Partnership Firms and Companies)

1. K and L are partners in a firm sharing profits and losses in the ratio of 4:1. They admitted R as a new partner. K sacrificed 1/4th of his share and L sacrificed 1/5th share of his share in favour of R. R's share in the profits of the reconstituted firm will be:
   (A) 2/5 (B) 6/25 (C) 9/30 (D) 1/9 (1)
2. (i) R, M and T were partners in a firm sharing profits and losses in the ratio of 1:3:2. T died on 31st July 2023. According to the Partnership Deed, his share of profit from the closure of last accounting year till the date of her death was to be calculated on the basis of aggregate profits of two completed years before his death. Profits of the firm for the years ending 31st March 2022 and 31st March 2023 amounted to ₹ 46,000 and ₹ 44,000 respectively. The firm closes its books on 31st March every year. T's share of profit till the date of his death will be:
   (A) ₹ 20,000 (B) ₹ 5,000 (C) ₹ 10,000 (D) ₹ 45,000 (1)

   **(OR)**

   (ii) A and B were partners sharing profits and losses in the ratio of 2:1. Their capital accounts as on 31st March 2024 had a credit balance of ₹ 1,09,000 and ₹ 66,000 respectively. They admitted C as a new partner on 1st April 2024 for 1/5th share in profits. C brought ₹ 25,000 as his share of goodwill premium and agreed to contribute capital proportionate to the capital of the new firm. The amount of capital brought by C is:
   (A) ₹ 40,000 (B) ₹ 32,000 (C) ₹ 50,000 (D) ₹ 12,50,000 (1)
3. W, V and U were partners in a firm sharing profits in the ratio of 1:2:2. With effect from 1st April 2024, they decided to share future profits in the ratio of 7:5:3. Their Balance Sheet as at that date showed a balance of ₹ 22,500 in Deferred Revenue Expenditure Account. The amount to be debited respectively to the capital accounts of W, V and U for writing off Deferred Revenue Expenditure is:
   (A) ₹ 7,500; ₹ 7,500; and ₹ 7,500 (B) ₹ 4,500; ₹ 9,000; and ₹ 9,000
   (C) ₹ 10,500; ₹ 7,500; and ₹ 4,500 (D) ₹ 11,250; Nil; and ₹ 11,250 (1)
4. Read the following statements carefully:
   (I) Sweat Equity Shares can be issued by a company to its directors and employees in lieu of their know-how, intellectual property rights.
   (II) Sweat Equity Shares can be issued only at a discount for cash.
   (III) Sweat Equity Shares can be issued to directors who are not employees of the company.
   Which of the following is correct in context with above statements?
   (A) Only (I) is correct (B) Both (I) and (III) are correct
   (C) All are correct (D) Only (II) is correct (1)
5. Pranshu Ltd. forfeited 2,000 shares of Mr. Narayan on which ₹ 80 each called-up and ₹ 50 each were paid and reissued to Sinha for ₹ 70 each as ₹ 90 paid-up. Gain on reissue of these shares is:
   (A) ₹ 60,000 (B) ₹ 1,00,000 (C) ₹ 40,000 (D) ₹ 20,000 (1)
6. Which of the following items will affect the fixed capital balance of partners?
   (A) Profit or Loss for the Year (B) Cash withdrawn for domestic expenses
   (C) Additional Capital Introduced (D) Interest on Capital (1)
7. Raka and Saka are partners in the ratio of 3:2. Their fixed capitals were ₹ 3,00,000 and ₹ 4,00,000 respectively. After the close of the accounts for the year it was observed that the interest on capital was provided @ 10% p.a. instead of the agreed rate of 5% p.a. While passing the adjustment entry, which of the following is correct?
   (A) Raka's Current Account will be debited by ₹ 15,000.
   (B) Raka's Current Account will be credited by ₹ 6,000.
   (C) Raka's Current Account will be credited by ₹ 35,000.
   (D) Raka's Current Account will be debited by ₹ 20,000. (1)

8. On dissolution of a partnership firm, furniture appearing in the Balance Sheet was ₹ 2,00,000. 50% of the furniture was taken over by a partner at ₹ 65,000 and balance 50% was sold at 20% less than the book value. The amount debited to Bank Account was:
(A) ₹ 1,45,000 (B) ₹ 80,000 (C) ₹ 65,000 (D) ₹ 1,85,000 (1)

9. (i) At the time of firm's dissolution, if no liability is expected to arise on account of Workmen Compensation, then entire amount of Workmen Compensation Reserve is transferred to:
(A) Debit side of Realisation Account (B) Debit side of Partners' Capital Accounts
(C) Credit side of Realisation Account (D) Credit side of Partners' Capital Accounts (1)

**(OR)**

(ii) On firm's dissolution, a debtor whose debt of ₹ 10,000 was written off in the books, paid ₹ 8,000 in full settlement. In such a case, _____ will be credited by _____.
(A) Realisation Account, ₹ 8,000 (B) Realisation Account, ₹ 10,000
(C) Debtors' Account, ₹ 10,000 (D) Debtors' Account, ₹ 8,000 (1)

10. Ganga Ltd. took up a loan from Punjab National Bank on security of land and building and issued its 9% Debentures as collateral security. The bank to which these debentures are issued_____.
(A) will be entitled to interest on such debentures from the date of issue
(B) will be entitled to interest on such debentures from next accounting year
(C) will not be entitled to interest on loan given to the company
(D) will not be entitled to interest on such debentures (1)

11. (i) If 10,000 shares of ₹ 10 each were forfeited for non-payment of final call money of ₹ 3 per share and only 7,000 of these shares were reissued at ₹ 11 per share as fully paid-up, then what is the minimum amount that company must collect at the time of reissue of the remaining 3,000 shares?
(A) ₹ 9,000 (B) ₹ 21,000 (C) ₹ 16,000 (D) ₹ 30,000 (1)

**(OR)**

(ii) A company forfeited 3,000 shares of ₹ 10 each on which only ₹ 5 per share (including ₹ 1 premium) has been paid. Out of these, few shares were reissued at a discount of ₹ 1 per share and ₹ 6,000 were transferred to Capital Reserve. How many shares were reissued?
(A) 3,000 Shares (B) 1,000 Shares (C) 2,000 Shares (D) 1,500 Shares (1)

12. Tangible Assets of the firm are ₹ 14,00,000 and outside liabilities are ₹ 4,00,000. Profit of the firm is ₹ 1,50,000 and normal rate of return is 10%. The amount of Capital Employed will be:
(A) ₹ 1,00,000 (B) ₹ 50,000 (C) ₹ 10,00,000 (D) ₹ 20,000 (1)

13. (i) A and B are partners sharing profits in the ratio of 3:2. Their Balance Sheet shows Machinery at ₹ 3,00,000; Furniture ₹ 1,00,000 and Debtors at ₹ 2,00,000. C is admitted as a new partner and the new ratio is agreed at 5:3:2. Machinery is revalued at ₹ 2,40,000 and a provision is made for doubtful debts @ 5%. A's share in loss on revaluation amount to ₹ 30,000. Revised value of Furniture will be: (1)
(A) ₹ 50,000 (B) ₹ 1,50,000 (C) ₹ 80,000 (D) ₹ 1,20,000

**(OR)**

(ii) X, Y and Z are sharing profits in the ratio of 5:3:2. On 1st April 2024, they admitted A as a new partner for 1/5th share in the profits. An extract of the Balance Sheet as at 31st Mach 2024 was as follows:

| Liabilities | Amount | Assets | | Amount |
|---|---|---|---|---|
| | ₹ | | | ₹ |
| Creditors | 2,00,000 | Plant and Machinery | 2,00,000 | |
| | | (-) Provision for Depreciation | (10,000) | 1,90,000 |

**Additional Information:** Plant and Machinery is valued at ₹ 1,71,000.
Which journal entry reflects the correct accounting treatment of the above situation?

(A) Revaluation A/c Dr. 19,000
To Provision for Depreciation on Plant and Machinery A/c 19,000

(B) Plant and Machinery A/c Dr. 19,000
To Revaluation A/c 19,000

(C) Revaluation A/c Dr. 19,000
To Plant and Machinery A/c 19,000

(D) Provision for Depreciation on Plant and Machinery A/c Dr. 19,000
To Revaluation A/c 19,000 (1)

14. (i) At the time of forfeiture of shares, Share Capital Account is debited with:
(A) Uncalled amount on shares (B) Paid up amount on shares
(C) Unpaid amount on shares (D) Called up amount on shares (1)

**(OR)**

(ii) Debentures which are transferable by mere delivery are:
(A) First Debentures (B) Second Debentures
(C) Registered Debentures (D) Bearer Debentures (1)

15. There are two statements Assertion (A) and Reason (R):
**Assertion (A):** Under the Fluctuating Capital Method, the balance in the capital account fluctuates from time to time.
**Reason (R):** Under the Fluctuating Capital Method, all the adjustments such as share of profit and loss, interest on capital, partners' salary, interest on drawings etc. are recorded directly in the capital accounts of the partners.
Choose the correct option from the following:
(A) Both (A) and (R) are correct and (R) is the correct explanation of (A).
(B) Both (A) and (R) are correct but (R) is not the correct explanation of (A).
(C) Assertion (A) is correct but Reason (R) is incorrect.
(D) Assertion (A) is incorrect but Reason (R) is correct. (1)

16. Arti, Jyoti and Shivangi are partners sharing profits in the ratio of 3:3:2. As per the partnership agreement, Shivangi is to get a minimum amount of ₹ 80,000 as her share of profits every year and any deficiency on this account is to be personally borne by Arti. The net profit for the year ended 31st March 2024 amounted to ₹ 3,12,000. The amount of deficiency to be borne by Arti is:
(A) ₹ 1,000 (B) ₹ 4,000 (C) ₹ 8,000 (D) ₹ 2,000 (1)

17. A, B and C were partners in a firm sharing profits and losses in the ratio of 5:3:2. Goodwill appeared in their books at a value of ₹ 60,000 and General Reserve at ₹ 20,000. B decided to retire from the firm. On the date of retirement, goodwill of the firm was valued at ₹ 2,40,000. The new profit-sharing ratio decided among A and C was 2:3. Pass necessary journal entries for the above on B's retirement. (3)

18. Varun Ltd. forfeited 1,200 shares of ₹ 50 each issued at par for non-payment of final call of ₹ 10 per share. Out of these, 900 shares were reissued at ₹ 45 per share fully paid-up. Pass necessary Journal Entries for forfeiture and reissue of shares. (3)

**(OR)**

Kinetic Ltd. issued 15,000; 12% Debentures of ₹ 100 each on 1st June 2023 payable at 10% premium after four years. The issue was fully subscribed. According to the terms of issue, interest on debentures is payable half-yearly on 30th September and 31st March every year. Pass necessary Journal Entries related to the debenture interest for the half year ending on 31st March 2024 and transfer of interest on debentures for the year. (3)

19. Raj, Sandeep and Lucky were partners in firm sharing profits and losses in the ratio of 3:2:1. The firm was dissolved on 31st March 2024. After transfer of assets (other than cash) and external liabilities to the Realisation Account, the following transactions took place:
(i) A debtor, whose debt of ₹ 70,000 was written off as bad, paid ₹ 68,000 in full settlement.
(ii) A creditor, to whom ₹ 1,00,000 were due to be paid, accepted furniture at ₹ 56,000 and the balance was paid to him by cheque.
(iii) Lucky had given a loan of ₹ 21,000 to the firm. He accepted ₹ 19,000 in full settlement of his loan. (3)

20. Seeta, Reeta and Geeta are partners in a firm sharing profits and losses in the ratio of 4:3:1. As per the terms of Partnership Deed, on the death of any partner, her share of goodwill was to be valued at 50% of net profits credited to that Partner's Capital Account during the last three completed years before her death. Seeta died on 28th February, 2024. The profits for the last five years were: 2019 ₹ 60,000; 2020 ₹ 97,000; 2021 ₹ 1,05,000; 2022 ₹ 30,000 and 2023 ₹ 84,000. On the date of Seeta's death, Building was found undervalued by ₹ 80,000, which was to be considered. Calculate the amount of Seeta's share of Goodwill in the firm and record the adjustment Journal Entries of revaluation of Building. The new profit-sharing ratio between Reeta and Geeta will be equal. (3)

**(OR)**

Amit and Ashish are partners sharing profits and losses equally. They decided to admit Vinay as partner for an equal share in the profits. Vinay agreed to bring ₹ 2,50,000 as his share of capital and required amount of goodwill in cash. For this purpose, the goodwill of the firm was to be valued on the basis of 2½ years' purchases of last five years' average profits. The profits and losses for last five years were:

1st Year: ₹ 1,20,000 (including an abnormal gain of ₹ 40,000)
2nd Year: ₹ 2,80,000 (excluding ₹ 80,000 as insurance premium)
3rd Year: ₹ 80,000 (after charging an abnormal loss of ₹ 40,000)
4th Year: ₹ 1,20,000
5th Year: ₹ 40,000 (Loss) (3)

Calculate the amount of goodwill to be brought in by Vinay.

21. A, B and C are partners sharing profits in the ratio of 2:2:1. Firm closes its accounts on 31st March every year. B died on 30th September, 2023. There was a balance of ₹ 96,000 in B's Capital Account in the beginning of the year. In the event of death of any partner, the partnership deed provides for the following:
    (a) Interest on capital will be calculated at the rate of 12% p.a.
    (b) The executor of deceased partner shall be paid ₹ 15,000 for his share of goodwill.
    (c) His share of Reserve Fund which is ₹ 10,000, shall be paid to his executor.
    (d) His share of profit till the date of death will be calculated on the basis of sales. It is also specified that the sales during the year 2022-23 were ₹ 8,00,000. The sales from 1st April, 2023 to 30th September 2023 were ₹ 1,50,000. The profit of the firm for the year ending 31st March 2023 was ₹ 1,00,000.

    Prepare B's Capital Account to be presented to his executor. (4)

22. On 1st April 2023, Atharva Ltd. was formed with an authorised capital of ₹ 90,00,000 divided into 90,000 Equity Shares of ₹ 100 each. The company invited applications for 80,000 Equity Shares. The amount was payable on application ₹ 30 per share; on allotment ₹ 40 per share; and on first and final call ₹ 30 per share. Applications for 1,00,000 shares were received. Applications for 20,000 shares were rejected and the application money was refunded. All calls were made. A shareholder holding 600 shares did not pay the first and final call.

    Show 'Share Capital' in the Balance Sheet of the company as per Schedule III, Part I of the Companies Act 2013 as at 31st March 2024. (4)

23. Arun, Varun and Tarun were partners of a Consultancy firm sharing profits in the ratio of 2:2:1. They had capitals of ₹ 3,00,000 (Cr.), ₹ 2,00,000 (Cr.) and ₹ 40,000 (Cr.) respectively as on 1st April 2023. Their Partnership Deed provided the following:
    (a) A monthly salary of ₹ 15,000 each is payable to Arun and Varun.
    (b) Tarun was guaranteed a profit of ₹ 5,00,000 and Arun guaranteed that he will earn an annual fee of ₹ 2,00,000. Any deficiency arising because of guarantee to Tarun will be borne by Arun and Varun in the ratio of 3:2.

    During the year ended 31st March 2024, Arun earned fee of ₹ 1,75,000 and the profits of the firm amounted to ₹ 15,00,000.

    Showing your workings clearly, prepare Profit and Loss Appropriation Account and the Capital Accounts of partners. (6)

24. (i) Anjan Ltd. invited applications for issuing 20,000 shares of ₹ 100 each at a premium of ₹ 10 per share. The amount was payable on application ₹ 40 (including premium); on allotment ₹ 30 and the balance on first and final call. Applications for 30,000 shares were received. Applications for 4,000 shares were rejected and pro-rata allotment was made to the remaining applicants. Over payments on applications were adjusted towards sum due on allotment. Vicky, who was allotted 200 shares, failed to pay the allotment and first and final call money. His shares were forfeited. The forfeited shares were reissued at ₹ 90 per share as fully paid-up.

    Pass the necessary journal entries in the books of Anjan Ltd. (6)

    **(OR)**

    (ii) Arjun Ltd. invited applications for issuing 6,00,000 equity shares of ₹ 10 each at a premium of ₹ 3 per share. The amount was payable as follows: On Application and Allotment - ₹ 3 per share; On First Call - ₹ 4 per share; On Second and Final Call — Balance (including premium). The issue was oversubscribed by 1,50,000 shares. Applications for 50,000 shares were rejected and the application money was refunded. Shares were allotted to the remaining applicants as follows:

    **Category I:** Applicants for 4,00,000 shares were allotted 3,00,000 shares on pro-rata basis.

    **Category II:** The remaining applicants were allotted the remaining shares.

    Excess application money received with applications was adjusted towards sums due on first call. Rakesh to whom 6,000 shares were allotted (out of Category I) failed to pay the first call money. His shares were forfeited. The forfeited shares were re-issued at ₹ 13 per share fully paid up after the second call.

    Pass necessary journal entries for the above transactions in the books of Arjun Ltd. (6)

25. (i) Anthony Ltd. purchased assets of ₹ 5,00,000 and took over liabilities of ₹ 1,00,000 of Amar Ltd. for a purchase consideration of ₹ 4,50,000. Anthony Ltd. paid one-third of the amount by cheque and balance was settled by issuing 11% Debentures of ₹ 100 each at a premium of 20%. Pass necessary Journal Entries in the books of Anthony Ltd. for the above transactions.

    (ii) Phoenix Ltd. need additional funds of ₹ 55,00,000 for which they decided to issued debentures in such a way that they got required funds after issuing debentures of the same class as earlier, at 10% premium. These debentures were to be redeemed at 20% premium after four years. These debentures were issued on 1st October 2023. You are required to pass entries for issue of Debentures and prepare Loss on Issue of Debentures Account assuming that there was existing balance of Securities Premium Account of ₹ 2,80,000. (3 + 3) (6)

26. (i) Ajay and Baldev are partners sharing profits in the ratio of 3:1. Their Balance Sheet as on 31st March 2024 is as follows:

| Liabilities | | Amount | Assets | Amount |
|---|---|---|---|---|
| | | ₹ | | ₹ |
| Creditors | | 75,000 | Cash at Bank | 15,000 |
| Reserve | | 8,000 | Debtors | 32,000 |
| Capital Accounts: | | | Stock | 42,000 |
| Ajay | 60,000 | | Investment | 36,000 |
| Baldev | 32,000 | 92,000 | Machinery | 50,000 |
| | | 1,75,000 | | 1,75,000 |

They agree to take Chetan into partnership on 1st April 2024 on the following terms:

(a) That Chetan pays ₹ 20,000 as his capital for 1/5th share in the future profits.
(b) That goodwill of the firm is valued at ₹ 40,000.
(c) That stock will be reduced by 10%.
(d) 5% provision for doubtful debts will be created on debtors.
(e) Machinery is found undervalued by ₹ 10,000.
(f) Capital accounts of the partners will be readjusted on the basis of their profit-sharing ratio and any excess or deficiency shall be adjusted through cash/bank.

Prepare Revaluation Account and Partners' Capital Accounts on C's admission. (6)

**(OR)**

(ii) Sachin and Rahul were partners in a firm sharing profits and losses in the ratio of 4:1. On 31st March 2024, their Balance Sheet was as follows:

| Liabilities | | Amount | Assets | | Amount |
|---|---|---|---|---|---|
| | | ₹ | | | ₹ |
| Sundry Creditors | | 80,000 | Cash at Bank | | 2,00,000 |
| Bank Overdraft | | 60,000 | Debtors | 1,70,000 | |
| Sachin's Brother's Loan | | 80,000 | Less: B/D Provision | (20,000) | 1,50,000 |
| Rahul's Loan | | 30,000 | Stock | | 1,50,000 |
| Investment Fluctuation Reserve | | 50,000 | Investments | | 2,50,000 |
| Capital Accounts: | | | Building | | 2,50,000 |
| Sachin | 5,00,000 | | Goodwill | | 1,00,000 |
| Rahul | 4,00,000 | 9,00,000 | Profit and Loss A/c | | 1,00,000 |
| | | 12,00,000 | | | 12,00,000 |

The firm was dissolved on 31st March 2024 on the following terms:

(a) Sachin agreed to pay off his brother's loan.
(b) Debtors of ₹ 50,000 proved bad.
(c) Other assets realised: Investments 20% less; and goodwill at 60%.
(d) One of the creditors for ₹ 50,000 was paid only ₹ 30,000.
(e) Building was auctioned for ₹ 3,00,000 and the auctioneer's commission amounted to ₹ 10,000.
(f) Rahul took over part of stock at ₹ 40,000 (being 20% less than book value). Balance of stock realised 50%.
(g) Expenses of realisation amounted to ₹ 20,000.

Prepare Realisation Account on dissolution of the firm. (6)

## Part – B
## (Analysis of Financial Statements)

27. (i) Which of the following is not a limitation of 'Analysis of Financial Statements?

(A) It is just a study of the reports of the company
(B) It does not consider price level changes.
(C) It ascertains the relative importance of different components of the financial position of the firm.
(D) It may be misleading without the knowledge of the changes in accounting procedures followed by a firm. (1)

**(OR)**

(ii) If the Operating Ratio of Parthivi Ltd. is 30%, its Operating Profit Ratio will be:

(A) 100% (B) 30% (C) 130% (D) 70% (1)

28. (i) Which of the following transactions will result in cash outflow from operating activities?
(A) Payment to creditors
(B) Proceeds from sale of investments
(C) Dividend received by a non-finance company
(D) Depreciation charged on furniture (1)

**(OR)**

(ii) Sale of patents of ₹ 50,00,000 will result in:
(A) Cash inflow of ₹ 50,00,000 from financing activities
(B) Cash outflow of ₹ 50,00,000 from financing activities
(C) Cash outflow of ₹ 50,00,000 from investing activities
(D) Cash inflow of ₹ 50,00,000 from investing activities (1)

29. **Statement I:** Financing Activities relate to long-term funds or capital of an enterprise.
**Statement II:** Separate disclosure of cash flows arising from financing activities is important because they represent the extent to which expenditures have been made for resources intended to generate future income and cash flows.
(A) Both the statements are correct.
(B) Statement I is correct and statement II is incorrect.
(C) Statement II is correct and statement I is incorrect.
(D) Both the statements are incorrect. (1)

30. If Total Assets of a firm are ₹ 8,00,000; Shareholders' Funds are ₹ 3,00,000; Non-Current Liability ₹ 4,00,000 and ratio between Non-Current Assets and Shareholders' Funds is 2:1, then Current Ratio will be:
(A) 3:1 (B) 5:1 (C) 2:1 (D) 1:1 (1)

31. Under which major head and sub-head will the following items be presented in the Balance Sheet of a company as per Schedule III, Part I of the Companies Act, 2013?
(i) Bank Overdraft;
(ii) Debenture Redemption Reserve; and
(iii) Capital Advances. (3)

32. Prepare a Comparative Statement of Profit and Loss of Anmol Ltd. with the help of the following information extracted from their Statement of Profit and Loss:

| Particulars | 31.3.2024 | 31.3.2023 |
|---|---|---|
| | ₹ | ₹ |
| Revenue from Operations | 12,00,000 | 10,00,000 |
| Employee Benefit Expenses (% of Total Revenue) | 40% | 30% |
| Other Income (% of Revenue from Operations) | 25% | 25% |
| Income Tax Rate | 40% | 40% |

(3)

33. (i) From the following information calculate Operating Profit Ratio:
Opening Stock ₹ 10,000; Purchases ₹ 1,20,000; Revenue from Operations ₹ 4,00,000; Purchases Return ₹ 5,000; Return from Revenue from Operations ₹ 15,000; Selling Expenses ₹ 70,000; Administrative Expenses ₹ 40,000; Closing Stock ₹ 60,000. (4)

**(OR)**

(ii) Debt to Capital Employed ratio is 0.3:1. State whether the following transactions, will improve, decline or will have no change on the Debt to Capital Employed Ratio. Also give reasons for the same.
(a) Sale of Equipment costing ₹ 10,00,000 for ₹ 9,00,000.
(b) Purchased Goods on Credit for ₹ 1,00,000 for a credit of 15 months, assuming operating cycle is of 18 months.
(c) Conversion of Debentures into Equity Shares of ₹ 2,00,000.
(d) Tax Refund of ₹ 50,000 during the year. (4)

34. Read the following hypothetical text and answer the given questions on the basis of the same:
Shantanu Agrawal, an alumnus of your School, initiated his start up StayRealtor, in 2021. StayRealtor is a service platform that helps real estate brokers to manage their day-to-day operations in Metro cities. It's basically a Customer Relationship Management with community of brokers which helps them to record their data effectively and efficiently. During the year 2023-24, StayRealtor issued bonus shares in the ratio of 5:1 by capitalising reserves. The profits of stayRealtor in the year 2023-24 after all appropriations was ₹ 7,50,000. This profit was arrived after taking into consideration the following items:

| Particulars | Amount (₹) |
|---|---|
| Interim Dividend paid during the year | 90,000 |
| Depreciation on Office Equipment | 40,000 |
| Loss of Office Equipment due to fire | 20,000 |
| Insurance claim received for Loss of Equipment due to Fire | 10,000 |
| Interest on Non-Current Investments received | 30,000 |
| Tax Refund | 20,000 |

**Additional Information:**

(a) The following items appeared in the Balance Sheet:

| Particulars | 31.3.2024 (₹) | 31.3.2023 (₹) |
|---|---|---|
| Equity Share Capital | 12,00,000 | 10,00,000 |
| Securities Premium Account | 3,00,000 | 5,00,000 |
| General Reserve | 1,50,000 | 1,50,000 |
| Investment in Marketable Securities | 1,50,000 | 1,00,000 |
| Cash in hand | 2,00,000 | 3,00,000 |
| Machinery | 3,00,000 | 2,00,000 |
| 10% Non-Current Investments | 4,00,000 | 3,00,000 |
| Bank Overdraft | 2,50,000 | 2,00,000 |
| Goodwill | 30,000 | 80,000 |
| Provision for Tax | 80,000 | 60,000 |

(a) Goodwill purchased during the year was ₹ 20,000.

(b) Proposed Dividend for the year ended 31st March 2023 was ₹ 1,60,000 and for the year ended 31st March 2024 was ₹ 2,00,000.

**You are required to choose the correct alternative for the following questions:**

(i) Net Profit Before Tax and Extraordinary Items will be:
(A) ₹ 10,70,000 (B) ₹ 10,60,000 (C) ₹ 10,50,000 (D) ₹ 11,00,000

(ii) Amount of Goodwill amortised will be:
(A) ₹ 50,000 (B) ₹ 70,000 (C) ₹ 1,10,000 (D) ₹ 11,00,000

(iii) Operating Profit Before Working Capital Changes will be:
(A) ₹ 11,20,000 (B) ₹ 11,80,000 (C) ₹ 11,50,000 (D) ₹ 10,90,000

(iv) Outflow from amount paid for Office Equipment is:
(A) ₹ 1,00,000 (B) ₹ 1,20,000 (C) ₹ 1,40,000 (D) ₹ 1,60,000

(v) Net Cash Flow from Financing Activities will be:
(A) ₹ 1,50,000 Outflow (B) ₹ 1,50,000 Inflow
(C) ₹ 2,00,000 Inflow (D) ₹ 2,00,000 Outflow

(6)

(vi) 'Insurance Claim for loss of assets due to fire' will be added in:
(A) Cash Flows from Operating Activities (B) Cash Flows from Investing Activities
(C) Cash Flows from Financing Activities (D) Closing Cash and Cash Equivalents

# DELHI PUBLIC SCHOOL, BHILAI

**DATE : 09.12.2024** | **PREBOARD EXAMINATION 2024-'25** | **Time : 3 Hrs.**

**CLASS : XII** | **SUBJECT – ECONOMICS (030)** | **Max. Marks : 80**

**Name : _____** | **Roll No. : ____**

**General instructions:**

(i) This question paper contains two sections:
**Section A – Macro Economics**
**Section B – Indian Economic Development**

(ii) This paper contains 20 Multiple Choice Type Questions of 1 mark each.

(iii) This paper contains 4 Short Answer Type Questions of 3 marks each to be answered in 60-80 words.

(iv) This paper contains 6 Short Answer Type Questions of 4 marks each to be answered in 80-100 words.

(v) This paper contains 4 Long Answer Type Questions of 6 marks each to be answered in 100-150words.

| Q.NO. | SECTION A – MACRO ECONOMICS | MARKS |
|---|---|---|
| 1. | Read the following statements: Assertion (A) and Reason (R). Choose the correct option from those given below:<br><br>**Assertion (A) :** At the break-even level of income, the value of average propensity to consume is zero.<br>**Reason (R) :** Sum of average propensity to consume and average propensity to save is always equal to the one.<br>**Options:**<br>(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).<br>(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).<br>(C) Assertion (A) is true, but Reason (R) is false.<br>(D) Assertion (A) is false, but Reason (R) is true. | 1 |
| 2. | "The Cabinet led by Prime Minister has decided that the Central Government will provide free food grains to 81.35 crore (approx.) beneficiaries under the Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY) for a period of five years with effect from 1st January, 2024."<br>Based on the aforesaid statement, identify the budgetary objective the government is trying to achieve and choose the correct option:<br>(A) Reallocation of resources (B) Economic stability<br>(C) Redistribution of income (D) Economic instability | 1 |
| 3. | Which of the following represents the total income earned by residents of a country, both domestically and abroad, minus income earned by foreigners within the country? (Choose the correct option to fill up the blank)<br>(A) Gross domestic product (B) Gross National product<br>(C) Net domestic product (D) Net national product | 1 |
| 4. | Under the_____exchange rate system, market forces automatically adjust the surplus and deficit in the Balance of Payments account.<br>(Choose the correct option to fill up the blank)<br>(A) fixed (B) flexible (C) managed floating (D) dirty floating | 1 |
| 5. | Arrange the following in the correct sequential order, if the govt. of a nation is trying to curtail the situation of inflationary gap.<br>i. Decrease in disposable income<br>ii Increase in taxes<br>iii. Decrease in aggregate demand<br>Code –<br>(A)i ,ii ,iii (B) iii , ii , i (C) ii , iii , i (D) ii , i . iii | 1 |
| 6. | As per the data presented in the Union Budget 2023-24, the total receipts of the government other than borrowings and the total expenditure are estimated at ₹ 27.2 lakh crore and ₹ 45 lakh crore respectively.<br>The value of the_____deficit would be ₹ 17.8 lakh crore.<br>(Choose the correct option to fill up the blank)<br>(A) revenue (B) fiscal (C) budgetary (D) primary | 1 |

**Contd...2**

| | | |
|---|---|---|
| 7. | Read the following statements carefully:<br>**Statement 1 :** The maximum value of Marginal Propensity to Consume (MPC) can be unity.<br>**Statement 2 :** As the income of an economy increases, the proportionate increase in the level of consumption is always more than the increase in the level of income.<br>In light of the given statements, choose the correct option from the following:<br>(A) Statement 1 is true and Statement 2 is false.<br>(B) Statement 1 is false and Statement 2 is true.<br>(C) Both Statements 1 and 2 are true.<br>(D) Both Statements 1 and 2 are false. | 1 |
| 8. | In a two-sector economy, Aggregate Demand can be determined by adding ____.<br>(Choose the correct option to fill up the blank)<br>(A) Autonomous Consumption, Induced Consumption and Induced Investment.<br>(B) Autonomous Consumption, Autonomous Investment and Induced Investment.<br>(C) Autonomous Consumption and Autonomous Investment.<br>(D) Autonomous Consumption Induced Consumption and Autonomous Investment. | 1 |
| 9. | Read the following statements carefully:<br>**Statement 1 :** Foreign grants-in-aid receipts do not lead to any claim on the government.<br>**Statement 2 :** Disposal of equity by the Public Sector Undertakings in the market may lead to a decrease in the assets of the government.<br><br>In light of the given statements, choose the correct option from the following:<br><br>(A) Statement 1 is true and Statement 2 is false.<br>(B) Statement 1 is false and Statement 2 is true.<br>(C) Both Statements 1 and 2 are true.<br>(D) Both Statements 1 and 2 are false. | 1 |
| 10. | Identify the correct reasons that may affect the demand for foreign exchange in an economy.<br>i. Import of visible<br>ii. Export of invisibles<br>iii. Remittances by residents working abroad<br>iv. Purchase of assets abroad<br>**Code –**<br>(A) i & ii (B) ii & iii<br>(C) iii & iv (D) I & iv | 1 |
| 11. | On the basis of the given data, estimate the value added by firm A and firm B from the following data-<br>(i) Change in stock of firm A 20<br>(ii) Change in stock of firm B 15<br>(iii) Purchase by firm A from firm B 90<br>(iv) Purchase by firm B from Firm A 20<br>(v) Sales by firm A to households 120<br>(vi) Sales by firm B to households 60<br>(vii) Sales by firm A to govt. 20<br>(viii) Exports by firm B 15<br>(ix) Imports by firm A 40<br>(x) Imports by firm B 30 | 3 |
| 12. | "Tax revenue collection of the government may be categorized under two heads." State and explain the two heads of tax revenue.<br>**OR**<br>"Taxation is an effective tool to reduce the inequalities of income". Justify the given statement with valid reasons. | 3 |
| 13. | (i) 'Foreign Portfolio Investment (FPI) witnessed a sharp turnaround during 2023-24 with net FPI inflows of US$ 32.4 billion.'<br><br>In which sub-account and on which side of the Balance of Payments account the above transaction will be recorded? Give reasons in support of your answer.<br><br>(ii) State the meaning of 'Balance of Payments Deficit'. | 3<br><br><br><br>1 |

**Contd...3**

| | | |
|---|---|---|
| 14. | "Saving curve can be derived from the consumption curve". Justify the statement, citing valid steps with the help of a well-labelled diagram.<br>**OR**<br>For two hypothetical economies A and B, the value of Marginal Propensity to Consume (MPC) stands at 0.6 and 0.8 respectively. Assuming for both the economies, Autonomous Consumption (c) to be ₹ 40 crore and Investment Expenditure (i) to be ₹ 100 crore.<br>Calculate:<br>(i) Break-even level of income for Economy A<br>(ii) Equilibrium level of income for Economy B | 4<br><br><br><br><br><br><br>2<br>2 |

| | | |
|---|---|---|
| 15. | Read the following text carefully:<br>"Union Finance Minister stated, that investments in infrastructure and productive capacity have a large multiplier impact on growth and employment and in view of this, capital investment outlay is being proposed to increase steeply in the Budget 2023-24 by 1,000 crore."<br>Based on the given text and common understanding, explain the working process of the increase in investment on the National Income, assuming the Marginal Propensity to Save (MPS) as 20%. | 4 |
| 16. | Read the following text carefully:<br>As societies developed from hunters and gatherers, the material needs of human beings increased – to build a house, wear clothes, make weapons and implements etc. Since these needs could not be produced individually, people had to purchase them from others. These purchases, for example, were paid initially by barter – a leather skin cloak for a spear. As barter had its limits – how many cloaks for a spear – barter got standardized in terms of metals or cowrie shells. Now people knew the value of both the cloak and the spear in terms of bronze or cowrie shells. This was still barter, as both bronze and shells had intrinsic value (shells were desired for their beauty). This system evolved over time into metal currencies. Gold and silver coinage were the offshoot of this system where they had features of barter (both gold and silver had intrinsic value) as well as money (they were standardized representation of value).<br>In respect of money two facts emerge historically:<br>• Money has taken the form of either commodities (which have intrinsic value) or in terms of debt instruments.<br>• Money is usually issued by a sovereign (or a Central Bank as its representative)<br>In modern economies, currency is a form of money that is issued exclusively by some competent authority (Central Bank). It is a liability of the issuing Central Bank and an asset of the holding publi(C)Currency is usually issued in paper (or polymer) form, but the form of currency is not its defining characteristic.<br>In the recent past, the Reserve Bank of India, issued Central Bank Digital Currency (CBDC). A CBDC is the currency issued by a central bank in a digital form. It serves all the purposes of a paper currency in a different form.<br>The introduction of CBDC has the potential to provide significant benefits, such as reduced dependency on cash, lower transaction costs, reduced settlement risk. Introduction of CBDC would possibly lead to a more robust, efficient, trusted, regulated payments option. There are associated risks such as cyber-attacks and technology preparedness, but they need to be carefully evaluated against the potential benefits.<br>On the basis of the given text and common understanding, answer the following questions:<br>(i) "Over the centuries, money has evolved in various forms."<br>In the light of the given statement, state and discuss briefly any two forms of money.<br>(ii) "Various economists have formed a strong opinion that, in the modern times digital currency (like CBDC) is quite essential. However, it comes with its own benefits and potential risks."<br>Do you agree with the given statement, giving valid arguments in support of your answer? | 3<br><br>3 |

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|---|---|---|
| 17. | (i) "Disposition Phase of circular flow of income involves flow of factor income, which comprises of rent, wages, interest and profits from firms to households". Defend or refute the statement, giving valid reasons in support of your answer. | 3 |
| | (ii) "The public investment on the construction of a multi-lane flyover may reduce traffic congestion." On the basis of the above statement, discuss its likely impact on Gross Domestic Product (GDP) and welfare in an economy. | 3 |
| | **OR** | |
| | (i) "Basis of classification of final goods into consumption and capital goods depend on the economic nature of its use." Defend or refute the statement, with the help of a suitable example. | 4 |
| | (ii) 'Natural calamities in the hill states of India have led to massive destruction of capital assets.' Identify the type of loss (depreciation or capital loss) indicated in the aforesaid statement. Give valid reasons in support of your answer. | 2 |
| | **SECTION B – INDIAN ECONOMIC DEVELOPMENT** | |
| 18. | ..... capacity implies that the resources extraction is not above the rate of regeneration of the resources where as ..... means the ability of the environment to absorb degradation.<br>(A) Absorption, Carrying (B) Assimilation, Absorptive<br>(C) Carrying, Absorptive (D) Ecological, Carrying | 1 |
| 19. | Read the following statements carefully:<br>**Statement 1 :** The British policies led to the collapse of India's world-famous handicraft industries.<br>**Statement 2 :** During the colonial rule in India, the contribution of the industrial sector to Gross Value Added (GVA) increased significantly.<br>In light of the given statements, choose the correct option from the following:<br>(A) Statement 1 is true and Statement 2 is false.<br>(B) Statement 1 is false and Statement 2 is true.<br>(C) Both Statements 1 and 2 are true.<br>(D) Both Statements 1 and 2 are false. | 1 |
| 20. | Read the following statements: Assertion (A) and Reason (R). Choose the correct option from those given below:<br>**Assertion (A):** Health expenditure indirectly increases the supply of healthy labour force.<br>**Reason (R):** A sick labourer without access to medical facilities is compelled to abstain from work and there is loss of productivity.<br>**Options:**<br>(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).<br>(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).<br>(C) Assertion (A) is true, but Reason (R) is false.<br>(D) Assertion (A) is false, but Reason (R) is true. | 1 |
| 21. | In the post-independence era, the policymakers of India adopted an economic system that fundamentally implies the coexistence of _____and_____.<br>(Choose the correct option to fill up the blank)<br>(A) small and large-scale industries (B) small and medium-scale industries<br>(C) public and private sector (D) private and foreign sector | 1 |
| 22. | The institutional structure of rural banking in contemporary India consists of a set of multi-agency institutions, namely, _____.<br>(i) Regional Rural Banks (ii) Cooperative Banks<br>(iii) Land Development Banks (iv) Commercial Banks<br>**Options:**<br>(A) (i) and (iv) (B) (i), (iii) and (iv)<br>(C) (i), (ii) and (iii) (D) (i), (ii), (iii), and (iv) | 1 |

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| | | |
|---|---|---|
| 23. | Identify, which of the following statement is incorrect about the financial sector reform introduced in 1991?<br>(Choose the correct option)<br>(A) Enabled the establishment of private sector banks, Indian as well as foreign.<br>(B) Foreign investment limit in banks was raised to around 74%.<br>(C) Foreign Institutional Investors were allowed to invest in Indian financial markets.<br>(D) Change in the role of the Reserve Bank of India from facilitator to regulator. | 1 |
| 24. | China's demographic problem of 4-2-1, resulted in a higher proportion of elderly individuals compared to the younger population. This was primarily due to the implementation of_____.<br>(A) Great Leap Forward Campaign (B) Great Proletarian Cultural Revolution<br>(C) One Child Norm (D) Special Economic Zones | 1 |
| 25. | _____was setup in 1974 by the Indian government to address two major environmental concerns viz. water and air pollution.<br>(Choose the correct option to fill up the blank)<br>(A) State Pollution Control Board (B) Central Pollution Control Board<br>(C) Brundtland Commission (D) Montreal Protocol | 1 |
| 26. | "Assuming in a hypothetical economy, Real Gross Domestic Product recorded a growth rate of 9% during a fiscal year. However, the economy faced a significant challenge in terms of creating an adequate number of employment opportunities."<br>Identify the situation indicated in the given statement and choose the correct option.<br>(A) Casualisation of workforce (B) Informalisation of workforce<br>(C) Formalisation of workforce (D) Jobless growth | 1 |

| | | |
|---|---|---|
| 27. | During the period 1951-2016,_____led to an increase in the milk production in India by about ten times.<br>(A) Green Revolution (B) Golden Revolution<br>(C) Operation Flood (D) Industrial Revolution | 1 |
| 28. | Globalization of the economy has helped the farmers marketing their produce and has helped in raising their standard of living. Discuss giving suitable example.<br>**OR**<br>'Globalisation is an essential outcome of liberalisation of an economy'. Justify the given statement with a valid explanation. | 3<br><br>3 |
| 29. | "Population explosion and the advent of industrial revolution have resulted in environmental crisis".<br>Do you agree with the given statement? Give valid reasons in support of your answer. | 3 |
| 30. | 'The reform process implemented in the late 1970s, commonly known as China's open door policy, encompassed a wide range of reforms across sectors like agriculture, investment, industry etc. These reforms played a pivotal role in driving the rapid growth of the Chinese economy over subsequent decades.'<br>In the light of the given text, discuss any two reforms responsible for the rapid economic growth of China. | 4 |
| 31. | "The mechanism of agricultural marketing faces several obstacles that hinders its efficient functioning and pose challenges to farmers and agricultural sector as a whole." Discuss those challenges.<br>**OR**<br>'It would be unclear to say that, the growth of human capital lays the ground for economic growth of a nation.'<br>Do you agree with the given statement? Support your answer with valid illustrations. | 4<br><br>4 |
| 32. | (I) Define informalization of workforce.<br>II) Compare and contrast agricultural policies during colonial period and post-independence period. | 1<br><br>3 |

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| | | |
|---|---|---|
| 33. | Read the following text carefully:<br>Employment generation has remained one of the top challenges of Indian policymakers, and over the years, this has only become more complex. India has experienced more or less consistent growth in the structure of the output of the economy, especially after the economic reforms which is measured by gross value added. However, the trend in employment did not reveal a consistent and clear pattern.<br><br>These complexities have led to a wide variation in the conclusions drawn by experts and various studies on workforce and employment.<br><br>Two major sources of data on the workforce and employment have been the<br>(i) decennial population census and<br>(ii) nationwide quinquennial surveys on employment and unemployment by the erstwhile NSSO under the Ministry of Statistics and Programme Implementation (MoSPI), Government of India.<br><br>The nationwide Employment and Unemployment (E&U) surveys have been replaced by the Periodic Labour Force Survey (PLFS) conducted by the National Statistical Office (NSO) of MoSPI, which started in the year 2017–18.<br><br>According to NSO, the PLFS data measure the dynamics in labour force participation, workers to population ratio and the employment status along with related, important parameters for both rural and urban areas.<br><br>Labour force includes persons who were either working (or employed) or those available for work (or unemployed). Some persons in the labour force are abstained from work for various reasons. Deducting that number from the labour force gives the number of actual workers. These workers are further categorised as persons who are engaged in any economic activity as self-employed or regular wage/salaried and casual labour. The difference between the labour force and the workforce gives the number of unemployed persons.<br><br>The size of the labour force in the country has increased from 485.3 million in the year 2017–18 to 497.4 million in the year 2018–19. The next year, the labour force increased by 8 per cent and reached 537.9 million. This increase was witnessed across male and female populations as well as rural and urban households.<br><br>On the basis of the given text and common understanding, answer the following questions:<br>(i) State any two major sources of data on the workforce and employment.<br>(ii) 'The labour force encompasses a broader category than the workforce.' Defend or refute the statement, giving valid reasons in support of your answer.<br>(iii) 'Workers can be categorized into different types depending on their status.' In the light of the given statement, state any one type of employment. | 2<br>3<br>1 |

| | | |
|---|---|---|
| 34. | (i) 'Under the Industrial Policy Resolution (IPR) 1956 in India, the system of industrial licensing was introduced to promote regional equality.' Justify the given statement with valid arguments.<br>(ii) Discuss briefly the estimates made by notable scholars regarding the national income and per capita income during the colonial rule in India.<br>**OR** | 4<br>2<br>3 |
| 34. | (i) 'During the colonial period, India's foreign trade was characterized by a large export surplus, however, this did not result in any flow of gold or silver into India.' Justify the given statement with valid arguments.<br>(ii) Explain the rationale behind choosing 'Self-reliance' as a central planning objective in India's development strategy. | 3 |

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# DELHI PUBLIC SCHOOL, BHILAI

DATE : 16.12.2024
CLASS : XII
Name : _____

PREBOARD EXAMINATION 2024-'25
SUBJECT – BUSINESS STUDIES

Time : 3 Hrs.
Max. Marks : 80
Roll No. : _____

**General Instructions:**

1. The question paper contains 34 questions. Answers should be brief and to the point.
2. Answers to the questions carrying 3 marks maybe from 50 to 75 words.
3. Answers to the questions carrying 4 marks maybe about 150 words.
4. Answers to the questions carrying 6 marks maybe about 200 words.
5. Attempt all parts of the questions together

1. Vedant Ltd. is a company with a decreasing EBIT. The company has a significant amount of debt in the form of debentures, and further borrowing through debentures could exacerbate the situation. Which factor determining the Capital Structure is the CFO of Vedant Ltd. primarily concerned about?
   (A) Cost of debt (B) Return on Investment
   (C) Interest Coverage Ratio (D) Debt service coverage ratio **(1)**

2. Gitanjali Madaan is a successful business leader. She believes that if jobs are made interesting by including greater variety of work content and providing a meaningful work experience, the jobs themselves become a source of motivation to individuals. The non financial incentive that has been discussed in the above case is
   (A) Employee Participation (B) Job Enrichment
   (C) Career Advancement Opportunity (D) Job Security **(1)**

3. Wizard Ltd. is a highly reputed company. The employees of this organization are very happy and they discussed how they came in contact with this organization. Veer Singh shared that he was directly called from IIM Lucknow from where he was about to complete his MBA. Identify the source of recruitment being described in the above lines.
   (A) Campus Recruitment (B) Recommendation of present employees
   (C) Casual Callers (D) Advertisements **(1)**

4. Name the type of plan, which is in the form of general statements and channelizes energies towards a particular direction.
   (A) Budget (B) Rule (C) Policy (D) Method **(1)**

5. Raman bought a room heater of a reputed brand for Rs. 3,000, but it caused an electric shock while it was being used. Raman wants to exercise his right. Identify the right under which he can be protected?
   (A) Right to seek redressal (B) Right to be assured
   (C) Right to be informed (D) Right to consumer education **(1)**

6. Alfredo Ltd. is achieving all its objectives in an effective and efficient manner. It is earning enough revenue to cover costs and the risks of the business. Now the company wants to increase the sales volume, capital investment, the number of employees and the number of products also. By doing this, the management wants to achieve the following objectives –
   (A) Survival (B) Profit (C) Personal (D) Growth **(1)**

7. Which of the following principles of management enhances the feeling of job security?
   (A) Scalar Chain (B) Stability of Tenure (C) Equity (D) Espirit de Corps **(1)**

8. Pace is a reputed Chartered Accountants Firm which renders services to big MNCs. The Chartered Accountants of the firm are required to travel to Delhi and NCR for which they use the company's cars. The firm decided to convert the Petrol cars to Electric cars in order to improve the quality of life of people. Identify the dimensions of business environment.
   (A) Political and Legal environment (B) Legal and Social environment
   (C) Technological and Political environment (D) Social and Technological environment **(1)**

9. Mr. Rajiv, the sales executive of ABC Ltd. possesses good marketing skills, his techniques include oral presentation of message, convincing the customer with face to face interaction etc. Name the element of marketing mix under which the above technique fails –
   (A) Sales Promotion (B) Product (C) Price (D) Place **(1)**

**Contd...2**

10. **Assertion (A) :** Organising leads to specialization.
**Reason (R) :** In organizing, similar jobs are grouped under one department which leads to unification of efforts. **(1)**

(A) Both the Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(B) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).
(C) Assertion (A) is true but Reason (R) is false.
(D) Assertion (A) is false but Reason (R) is true.

11. Radha started a home cooked food delivery Dabba service. Her mother, who is a great cook decided to help her. They relied on friends and family for orders and then on word of mouth. As a step in the process of ensuring that activities are performed as per her plan of supplying healthy, good quality, reasonable food and earning profit, she decided to keep both qualitative and quantitative benchmarks towards which she would strive to work. A function of management is being discussed above. An important characteristic of this function of management is

(A) It is the first function of management.
(B) It is the last function of management.
(C) It is both forward looking and backward looking.
(D) It is required only in business organisations. **(1)**

12. PK Enterprise Ltd. has sold an entire lot of 5,00,000 equity shares @ Rs. 9 each to Prosperous Bank Pvt. Ltd. The bank in turn will offer the shares to general public for subscription @ Rs. 11 per share. Identify the method of floatation being described in the given lines.

(A) Private Placement (B) Offer through Prospectus
(C) Rights Issue (D) Offer for Sale **(1)**

13. In a factory, product is manufactured, in a garment store a customer's need is satisfied and in a hospital a patient is treated. Management translates tasks in terms of goals to be achieved and assigns the means to achieve it. Identify the dimension of management discussed here:

(A) Management of operations (B) Management of work
(C) Management of people (D) Management of departments **(1)**

14. Tasty Delights Bakery have developed a strong distribution network in the country and abroad by setting up their own retail outlets and through online selling. Identify the element of marketing mix being discussed here:

(A) Product (B) Price (C) Promotion (D) Place **(1)**

15. Which principle of scientific management is needed for complete mental revolution on the part of management and workers?

(A) Science not rule of thumb (B) Harmony, not discord
(C) Cooperation not individualism (D) Functional foremanship **(1)**

16. A process to evaluate the employee-performance against the job offered is known as:-

(A) Promotion (B) Selection (C) Compensation (D) Performance Appraisal **(1)**

17. **Statement I** – Interest paid on debt is a deductible expense for computation of tax liability.
**Statement II** – Dividends are paid out of after tax profit. **(1)**

**Alternatives:**

(A) Statement I is correct and Statement II is incorrect.
(B) Statement II is correct and Statement I is incorrect.
(C) Both the statements are correct.
(D) Both the statements are incorrect.

18. During the year 2023, Prithvi Ltd. made surplus profits due to growing reputation of the business as a result of sincerity of its employees. In order to give due recognition to its employees and motivate them to continue to do the good work, the company decided to give a certain percentage of returns to them.

Identify the type of financial incentive being adopted by the company:

(A) Perquisites (B) Productivity (C) Co-partnership (D) Profit Sharing **(1)**

**Contd...3**

19. Match the following :

| COLUMN I | COLUMN II |
|---|---|
| A. Product Concept | (i) It emphsises on increasing the profit through increased sales volume by adopting aggressive selling techniques. |
| B. Production Concept | (ii) It emphsises on quality performance and features of product and thus profit maximization is through product improvement. |
| C. Selling Concept | (iii) It emphasizes on profit maximization through volume of production thereby reducing the cost of production. |
| D. Marketing Concept | (iv) It emphasizes on profit maximization through satisfaction of customer's needs and wants. |

(A) A – ii, B – iii, C – i, D – iv (B) A – i, B – iv, C – ii, D – iii
(C) A – iv, B – ii, C – i, D – iii (D) A – iv, B – iii, A – ii, D – i **(1)**

20. Identify the consumer right from the image given below:
(A) Right to Safety (B) Right to be Informed
(C) Right to be Heard (D) Right to Consumer Education **(1)**

21. A recent cut in the interest on loans announced by the banks encouraged Avinash, a science student of Horizon School to take a loan from State Bank of India to experiment and develop cars to be powered by fuel produced from garbage. He developed such a car and exhibited it in the Science Fair organized by Directorate of Education. He was awarded first prize for his invention. Identify and explain the dimensions of business environment discussed in the above case.

**OR** **(3)**

After completing his MBA from the USA Mr. Brijesh came to India to start a new business under the banner Creations Ltd. He launched a new product in e-learning for senior secondary school students in the science stream which already had an established market in the UK and the USA but not in India. His business started flourishing in India. As a result, more Indian companies entered into the market with other subjects also.

Identify and quote the lines from the above paragraph which highlights the significance of understanding business environment.

22. Differentiate between Policy and Rule on the basis of Meaning, nature and flexibility. **(3)**

23. Mr. Rishi Dutta has recently joined AMV Ltd., a company manufacturing refrigerators. He found that his department was under-staffed and other departments were not cooperating with his department for smooth functioning of the organization.

Therefore, he ensured that his department has the required number of employees and its cooperation with other departments is improved.
(a) Identify the level at which Rishi Dutta was working?
(b) State any two functions required to be performed by Mr. Dutta at this level. **(3)**

24. Textile manufacturer Super Textiles reported 43% fall in its profits in the fourth quarter ended 31st March, 2017, which is beyond the acceptable range of 25% decided by the company.
This was due to higher fuel cost and lower yield on account of demonetization. The company aims to implement cost saving measures by restructuring contracts and its business processes to meet its targets in the future.
(a) Name the function of management discussed above.
(b) Also identify and explain the steps of the function of management discussed above.

**OR** **(3)**

State the relationship between 'planning 'and 'controlling'.

25. Identify and explain the principles of management violated in the following cases and explain them.
(a) Manav, a manager, speaks to people at all levels, including his as well as other departments.
(b) Manav, a manager, expects his subordinates to work for personal satisfaction and contentment, without any monetary reward.
(c) Manav, a manager, expects that his subordinate produces instant results without giving him sufficient time to settle in the new environment.
(d) Manav. a manager is asked to receive orders from two or more superiors. **(4)**

**Contd...4**

26. There are two companies B and D. Total contribution of capital is Rs. 40 lakh each. The ratio of equity to total capital in company B is Rs. 10 lakh and debt is Rs. 30 lakh while in company D, the total equity capital is Rs. 40 lakh, sourced through equity. EBIT is Rs. 8 lakh, interest rate on debt is @ 10% and the tax rate is @30% for both companies.
(a) As per the above furnished details, which company enjoys the favourable financial leverage? Show the proper calculations.
(b) Identify, which concept is related to the above case. **(4)**

27. 'SEBI is the watch dog of security market. Do you agree? Give any one reason for the same. Explain the various functions of SEBI in brief.

**OR** **(4)**

Explain the following terms:
(a) New Issue Market (b) Depository (c) Dematerialisation (d) Rights Issue

28. X Ltd. is engaged in the manufacturing of cars. The company surveyed the market and found that customers need a car which runs on eco-friendly fuel instead of petrol or diesel. Keeping the needs of customers as well as social, ethical and ecological aspects of marketing in mind, the company launched a new model of car that runs on bio-diesel. The launch event was covered by the top news channels and newspapers. This was done to disseminate information about the car and build goodwill of the business. X Ltd. understands that it is imperative to manage public opinion and company's relations with the public on a regular basis.
(a) Identify and explain the marketing philosophy involved in the above case.
(b) Identify and explain the communication tool that was used by the company.
(c) Explain any two other promotional tools that can be used by X Ltd. to achieve its objectives. **(4)**

29. Anju purchased a food processing machine for Rs. 4,500 from Kajal Machinery Pvt. Ltd. She found that the machine was not working properly. Despite many complaints, the defect was not rectified by Kajal Machinery Pvt. Ltd.
(a) Identify and explain the consumer right that has been violated by Kajal Machinery Pvt. Ltd.
(b) Suggest the appropriate forum where Anju can file her complaint.
(c) Can she appeal to the Supreme Court if she is not satisfied with the order of the appropriate commission? Give reason in support of your answer.

**OR** **(4)**

Write about any four Consumer Rights.

30. Explain the following Scientific techniques: **(4)**
(a) Time Study (b) Fatigue Study (c) Motion Study (d) Differential Piece Wage System

31. Voltage fluctuations have been quite high in India. They harm our electrical appliances like television, refrigerators and air conditioners, often leaving them in a permanently damaged condition. N-Guard Company decided to manufacture stabilisers for North India where the voltage fluctuation ranges from 220V to 230V. Once the demand for North India was taken care of, they decided to launch stabilisers of varying voltages from 90V to 260V for meeting the requirements of voltage fluctuations in other regions of India as well.

Three engineers were appointed for South, West and East regions of India, as the voltage was different in all the three regions. Though all the engineers were appointed to manufacture stabilisers yet the product differed from region to region.
(a) Identify and quote the organizational structure of N-Guard.
(b) State any two advantages and two limitations of the structure identified in the above para.

**OR** **(6)**

Asha joins as a Regional Sales head in the export division of an FMCG company. In a departmental meeting, she asks one of her subordinates, Manik, to take charge of the company's new office in Dubai. She allocates the work to him and grants the necessary authority. However, within a month by seeking regular feedback on the extent of work accomplished from Manik, Asha realizes that Manik is not doing the work as per her expectations. So, she takes away the authority delegated to him and redelegates the work to Prateek. Due to the time wasted in this switch over, the work at the Dubai office suffers tremendously and the company is not able to meet its desired goals. In context of the above case –
(a) Why is Manik supposed to give regular feedback about work to Asha?
(b) Can the authority granted to a subordinate be taken back and re-delegated to another person?
(c) Can Manik be held responsible for not meeting the work related expectations of Asha? Give a suitable reason to support your answer.
(d) Differentiate between authority, responsibility and accountability on the basis of origin and delegation.

32. Explain any six types of external sources of recruitment. **(6)**

33. What do you mean by leadership? Explain the different types of leadership with diagram. **(6)**

34. What is marketing? Explain the different philosophies of marketing.

**OR** **(6)**

Write about Promotion Mix and its elements.

# DELHI PUBLIC SCHOOL, BHILAI

DATE : 12.12.2024
CLASS : XII
Name : _____

PREBOARD EXAMINATION 2024-'25
SUBJECT – GEOGRAPHY (029)

Time : 3 Hrs.
Max. Marks : 70
Roll No. : _____

**General Instructions:**

1. This question paper contains **30** questions. All questions are compulsory.
2. This question paper is divided into **five** sections. **Sections – A, B, C, D and E.**
3. **Section A** – Question numbers 1 to 17 are Multiple Choice type questions carrying 1 mark each.
4. **Section B** – Question numbers 18 and 19 are Source based questions carrying 3 marks each.
5. **Section C** – Question numbers 20 to 23 are Short Answer type questions carrying 3 marks each. Answer to these questions shall be written in 80 to 100 words.
6. **Section D** – Question numbers 24 to 28 are Long Answer type questions carrying 5 marks each. Answer to these questions shall be written in 120 to 150 words.
7. **Section E** – Question numbers 29 and 30 are **Map based** questions.

## SECTION – A

**Q.1** There are two statements marked as Assertion (A) and Reason(R). Mark your answer as per the codes provided below.

**Assertion (A) :** India's Human Development Index (HDI) rank in the world is 134.
**Reason (R) :** HDI measures achievement in economic growth, standard of living and mortality rate.

**Options:**

(A) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).
(B) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A)
(C) Both Assertion (A) and Reason (R) are incorrect.
(D) Assertion (A) is correct but Reason (R) is incorrect. **(1)**

**Q2.** Consider the following and choose the correct answer with the help of given codes

| **Match the following Column I (Type of Agriculture)** | **Column II (Region)** |
|---|---|
| (A) Co-operative Farming | 1. USSR |
| (B) Collective Farming | 2. N-E USA |
| (C) Dairy Farming | 3. Netherlands |
| (D) Mixed Farming | 4. N-W Europe |

**(1)**

**Options:**

| | I | II | III | IV |
|---|---|---|---|---|
| (A) | 1 | 2 | 3 | 4 |
| (B) | 3 | 1 | 4 | 2 |
| (C) | 4 | 3 | 2 | 1 |
| (D) | 2 | 1 | 3 | 4 |

**Q.3** Jobs that involve decision-making, scientific research and high-level management are known as:
(A) Quinary activities (B) Secondary activities (C) Primary activities (D) Tertiary activities **(1)**

**Q.4** Consider the following statements and choose the correct answer with the help of given Option:
Consider the following statements and choose the correct answer.

1. Productivity must be continuously enriched by building capabilities in people, as people are considered the real wealth of nations.

2. For better work efficiency, it is important to put efforts to increase their knowledge or provide better health facilities.

**Options:**

(A) Only statement 1 is correct.
(B) Only statement 2 is correct.
(C) Both the statements are correct and statement 2 correctly explains statement 1.1 **(1)**

**Q.5** Given below is a list of pillars of human development and its indicators. Which of the following pair is NOT correctly matched?
(A) Equity -Making equal access to opportunities available to everybody
(B) Sustainability - Continuity in the availability of opportunities
(C) Productivity - Resources must be used keeping in mind the future
(D) Empowerment- To have the power to make choices **(1)**

**Contd...2**

**Q.6** The statement given below describes the geographical conditions requires for the growth of a crop. Identify the crop. It a tropical plantation crop and is cultivated in the highlands of Western Ghats in Karnataka, Kerala and Tamil Nadu. Its seeds are roasted, ground and used for preparing a beverage.
(A) Barley (B) Cocoa (C) Sugarcane (D) Coffee **(1)**

**Q.7** Which country have introduced the Gross National Happiness index first?
(A) Nepal (B) Bhutan (C) Bangladesh (D) Sri Lanka **(1)**

**Q.8** Given below are the steps involved in the formation of crude petroleum.
(I) Sediment is subjected to heat and pressure over millions of years.
(II) Dead plants and animals are buried under layers of sediment.
(III) The hydrocarbons are trapped in porous rocks.
(IV) Crude petroleum is extracted from the rocks.
(V) The organic matter is converted into hydrocarbons.

Arrange these steps in the correct order of formation.
(A) II - I - V - III - IV
(B) II - V - I - III - IV
(C) I - II - III - V - IV
(D) I - III - II - IV - V **(1)**

**Q.9** Which one from the following is not related with Gathering?
(A) Gathering is practised in regions with harsh climatic conditions.
(B) People extract both plants and animals to satisfy their needs for food, shelter and clothing.
(C) Gathering is practised in mid latitude zone.
(D) In modern times some gathering is market oriented. **(1)**

**Q.10** Consider the following statements and choose the correct answer with the help of given options.

**Statement I:** High-speed trains have been introduced in many countries to provide faster and more efficient travel options.
**Statement II:** These trains are designed to cater specifically to long-distance travel, minimizing time for tourists and business travellers.

(A) Only statement I is correct
(B) Only statement II is correct
(C) Both the statements are correct, and statement II correctly explains statement I
(D) Both the statements are true but not related with each other **(1)**

**Q.11** ..... refers to the difference between the number of live births and the number of deaths occurring in a year.
(A) Growth of population (B) Natural growth rate
(C) Natural death rate (D) Crude birth rate **(1)**

**Q.12** What does the term "digital divide" refer to?
(A) The gap between people who have access to digital technologies and those who do not
(B) The difference between digital devices used by young and old people
(C) The division of internet access between rural and urban areas
(D) The disparity in digital content available across different regions. **(1)**

**Q.13** High density traffic corridor that connect India's four big metro cities of Delhi – Mumbai – Chennai – Kolkata is termed as
(A) North-South Corridor (B) East-West Corridor
(C) Border Road (D) Golden Quadrilateral **(1)**

**Q.14** Haryali program is related to development of:
(A) Forest Cover (B) Watershed Development
(C) Soil Conservation (D) Food Grain Production **(1)**

**Contd...3**

**Study the following graph and answer question no 15 to 17.**

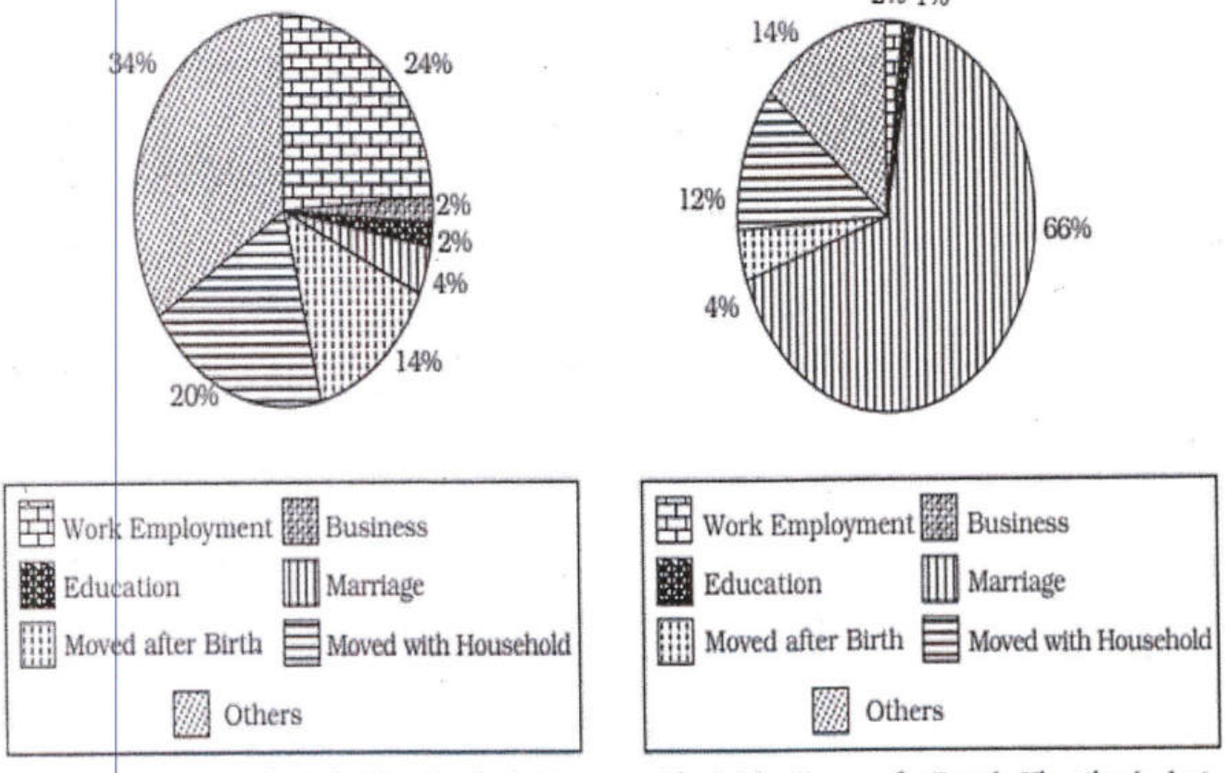



*Fig. 2.2 a : Reasons for Male Migration by Last Residence, India, 2011*

*Fig. 2.2 b : Reasons for Female Migration by last Residence India, 2011*

**Q.15** How many percentages of females have migrated after birth?
(A) 20% (B) 34% (C) 4% (D) 24% **(1)**

**Q.16** How many percentage males migrate for marriage
(A) 14% (B) 66% (C) 4% (D) 34% **(1)**

**Q.17** For what purpose maximum percentage of males and maximum percentage of females migrate?
(A) Females for marriage 34% and Males for business purpose 66%
(B) Males for Others purpose 34% and Females for marriage 66%
(C) Females for business 66% and Males for marriage 34%
(D) Males for employment 24% and Females for marriage 66% **(1)**

## SECTION – B

**Q.18** Read the given passage carefully and answer the questions that follow:

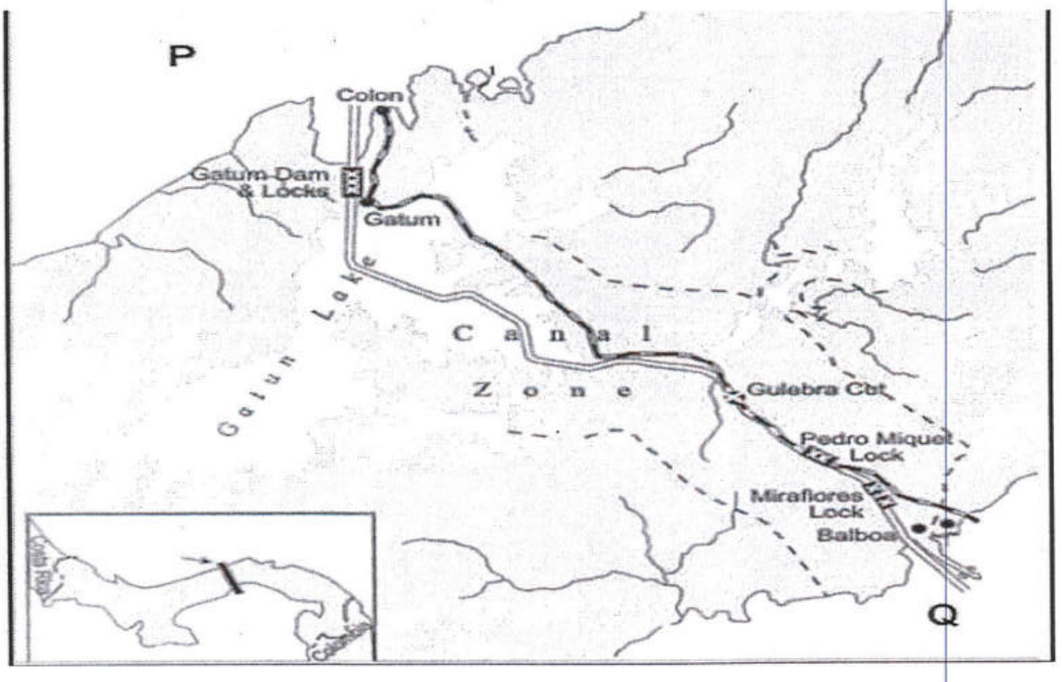
WTO is the only international organization dealing with the global rules of trade between nations. It sets the rules for the global trading system and resolves disputes between its member nations. WTO also covers trade in services, such as telecommunication and banking, and others issues such as intellectual rights. The WTO has however been criticized and opposed by those who are worried about the effects of free trade and economic globalization. It is argued that free trade does not make ordinary people's lives more prosperous. It is actually widening the gulf between rich and poor by making rich countries richer. This is because the influential nations in the WTO focus on their own commercial interests. Moreover, many developed countries have not fully opened their markets to products from developing countries. It is also argued that issues of health, worker's rights, child labour and environment are ignored.

(a) Which organization does set the rules for the global trading system and resolve disputes between the member countries? **(1)**

(b) Why the WTO has been criticized? **(1)**

(c) Why the gulf between rich and poor countries is widening? **(1)**

**Q.19** Observe the map of the region between North and South America given below and answer the questions that follow.




(A) Identify the man-made waterway depicted in the image. **(1)**
(B) Name the water bodies marked as P and Q. **(1)**
(C) How does this waterway contribute to environmental preservation? **(1)**

**SECTION – C Question numbers 20 to 23 are Short Answer type questions.**

**Q.20** Explain all the pillars of Human Development.

**OR**

Distinguish between 'Basic need approach' and 'Capability approach'. **(3)**

**Q.21** What are the features of JAL KRANTI ABHIYAN? **(3)**

**Q.22** Differentiate between 'naturalisation of human' and 'humanisation of nature'.

**OR**

Who propounded Neodeterminism? Explain about this concept. **(3)**

**Q.23** 'Outsourcing has resulted in opening up a large number of job opportunities in several countries.' Analyze the statement with three suitable examples. **(3)**

**SECTION – D Question numbers 24 to 28 are Long Answer Type questions.**

**Q.24** Why is dairy farming practised near urban and industrial centres? Name two regions of commercial dairy farming and write two reasons for its high capital requirements. **(5)**

**Q.25** What are the guidelines to promote sustainability in the Indira Gandhi Canal Command area. **(5)**

**Q.26** Describe human activities that can degrade and transform fertile land into barren wasteland. **(5)**

**OR**

The Swaachh Bharat Mission is part of the urban renewal mission launched by the Government of India to improve the quality of life in urban slums. Describe the challenges of slums in India. **(5)**

**Q.27** How has the rise of high-tech industries changed the landscape of global manufacturing?

**OR**

"Explain with examples the factors influencing industrial location. **(5)**

**Q.28** The composition of commodities in India's international trade has been undergoing a change over the years. Substantiate the statement with suitable arguments.

**OR**

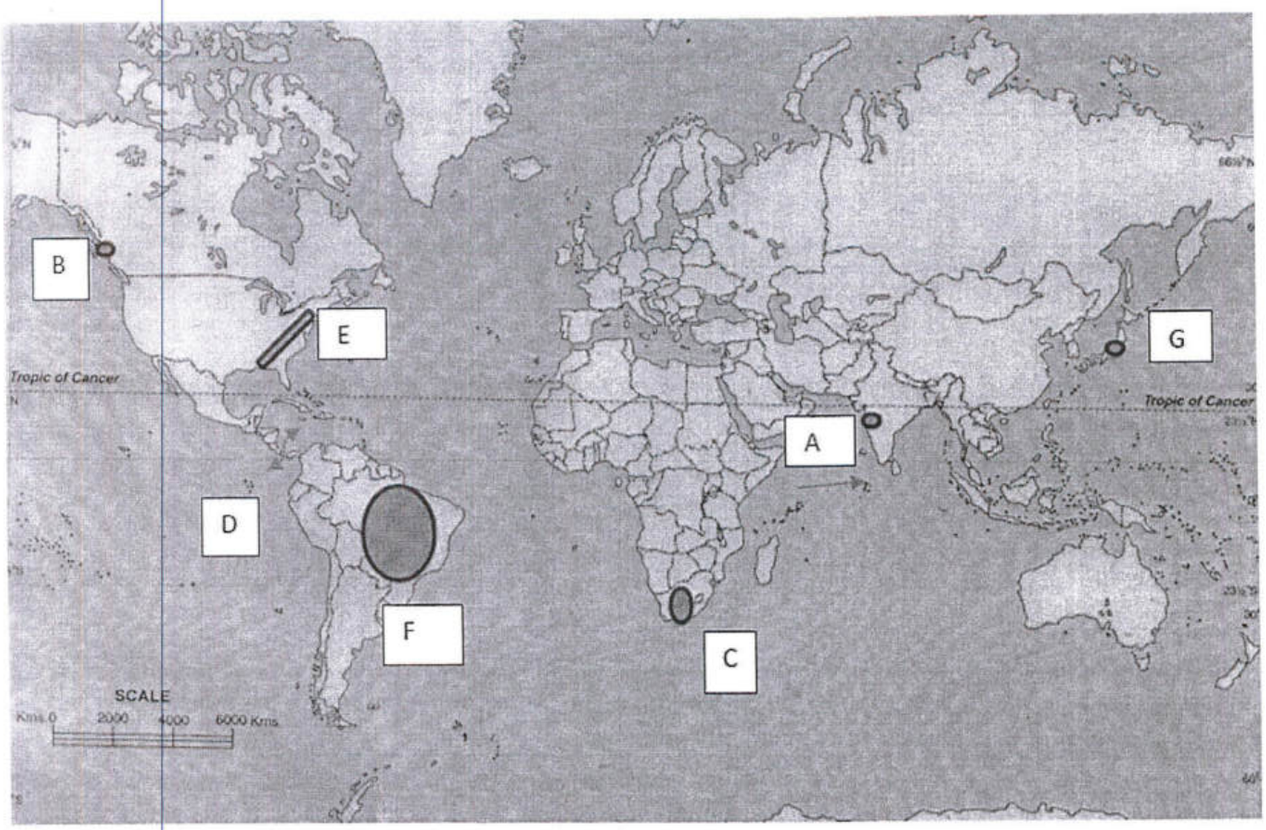
What are the modes by which cyber space will expand the contemporary economic and social space of humans.?

**Contd...5**

**SECTION – E Question numbers 29 & 30 are Map based questions having 5 sub-parts each.**

**Q.29** On the given political map of the World, seven geographical features have been marked as **A, B, C, D, E, F and G.** Identify any five with the help of the following information and write their correct names on the lines drawn near each feature.

(A) An International Airport –
(B) A major sea-port –
(C) Grasslands of Africa with extensive commercial grain farming –
(D) An important Shipping Canal –
(E) Industrial region of the US.
(F) Largest Country of South America –
(G) An International Airport –




**Q.30** Locate and label **any five** of the following geographical features on the Political Outline map of India with appropriate symbols:

(a) An important seaport in Karnataka.
(b) An important coal mine in Tamil Nadu.
(c) Khetri copper mines.
(d) An oil refinery in Gujarat.
(e) The state with highest population density.
(f) The state leading in the production of tea.

# DELHI PUBLIC SCHOOL, BHILAI

**DATE : 19.12.2024** **PREBOARD EXAMINATION 2024-'25** **Time : 3 Hrs.**

**CLASS : XII** **SUBJECT – PHYSICAL EDUCATION (048)** **Max. Marks : 70**

**General Instructions :**

(1) The question paper consists of 5 sections and 37 questions.

(2) **Section A** consists of question **1-18 carrying 1 mark** each and is **multiple choice questions**. All questions are compulsory.

(3) **Section B** consists of questions **19-24 carrying 2 marks each** and are **very short answer types** and should not exceed 60-90 words. Attempt any 5 questions.

(4) **Section C** consist of questions **25-30 carrying 3 marks each** and **are short answer types** and should not exceed 100-150 words. Attempt any 5 questions.

(5) **Section D** consist of question **31-33 carrying 4 marks each** and are **case studies**. There is internal choice available.

(6) **Section E** consist of question **34-37 carrying 5 marks each** and are **short answer types** and should not exceed 200-300 words. Attempt **any 3** questions.

## Section – A

## (Multiple Choice Questions MCQs)

**Q.1** Which of the following Pranayama is helpful to reduce obesity? **(1)**

(A) Kapalbhati Pranayama (B) Anulom Vilom Pranayama

(C) Suryabhedan Pranayama (D) Sitili Pranayama

**Q.2** International Paralympic Committee was formed in – **(1)**

(A) 1985 (B) 2003 (C) 1989 (D) 2001

**Q.3** Which of the following is not the cause of food intolerance? **(1)**

(A) Toxins formation due to food poisoning (B) Absence of an enzyme

(C) Roughage (C) Gluten

**Q.4** Given below are two statements labelled Assertion (A) and Reason (R).

**Assertion (A) :** The Basal Metabolic Rate (BMR) is the number of calories needed to maintain body function at resting condition.

**Reason (R) :** A person who does not engage in any work still requires energy for the functioning of their internal organs. **(1)**

**In the context of the above two statements, which one of the following option is correct?**

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).

(C) Assertion (A) is true, but Reason (R) is false.

(D) Assertion (A) is false, but Reason (R) is true.

**Q.5** Given below are functions of Sports Management in **List – I** and their Explanation in **List – II**. **(1)**

| List – I | List – II |
|---|---|
| a. Planning | 1. It is the function of guiding, inspiring and instructing people to accomplish organizational goals. |
| b. Controlling | 2. Preparing a layout for the future course of action. |
| c. Directing | 3. Ensuring that proper talent is serving that specific job. |
| d. Staffing | 4. Establishing performance standards, measuring actual performance and comparing them for irregularities. |

**Codes :**

| | a | b | c | d |
|---|---|---|---|---|
| (A) | 1 | 2 | 3 | 4 |
| (C) | 2 | 4 | 1 | 3 |

| | a | b | c | d |
|---|---|---|---|---|
| (B) | 1 | 2 | 4 | 3 |
| (D) | 2 | 4 | 3 | 1 |

**Q.6** In partial curl up test the difference between two parallel line is **(1)**

(A) 8 inches (B) 4 inches (C) 6 inches (D) 10 inches

**Q.7** In which of the following fitness components an athlete gives better performance. If he/she has more slow twitch fibre in comparison to fast twitch fibres? **(1)**

(A) Speed (B) Strength (C) Endurance (D) Flexibility

**Q.8** Identify the factor which decreases equilibrium: **(1)**

(A) Larger base (B) Greater weight (C) Lower centre of gravity (D) Higher centre of gravity

**Q.9** Identify the asana shown in the picture given below and choose the correct option from the following: **(1)**

(A) Bujangasana

(B) Kitichakrasana

(C) Pawanmuktasana

(D) Shalbhasana

**Contd...2**

**Q.10** Jump for smash in volleyball is an example of – **(1)**
(A) Static strength (B) Maximum strength (C) Explosive strength (D) Strength endurance

**Q.11** Which of the following is the objective of intramural competition? **(1)**
(A) To achieve high performance (B) To provide career opportunities
(C) To promote health and fitness (D) To promote cultural and economic development

**Q.12** According to World Health Organisation (W.H.O.) recommendations, Children should be engaged in physical activities for 180 minutes and should have 10 – 13 hours of good quality sleep per day.
(A) Less than 1 year (B) 1 – 2 year (C) 3 – 4 year (D) 5 – 17 year

**Q.13** Which of the main governing body responsible for the organisation of Deaflympics? **(1)**
(A) World Deaf Champions Committee
(B) National Sports Federation
(C) International Co-coordinating Committee for Disabled Sports
(D) International Committee of Sports for the Deaf.

**Q.14** Body Mass Index is one of the common ways of assessing healthy body weight. Which of the following BMI ranges is considered for healthy weight? **(1)**
(A) 25.0 – 29.9 (B) 30.0 – 34.9 (C) 18.0 – 24.9 (D) 35.0 – 39.9

**Q.15** Goal setting is a approach under which motivational technique. **(1)**
(A) Cognitive (B) Pedagogical (C) Social (D) Facilitation

**Q.16** Given below are two statements labelled Assertion (A) and Reason (R).

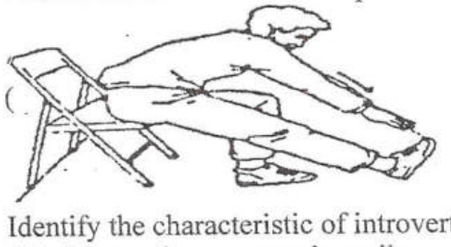
**Assertion (A) :** In a normal standing posture, both knees touch each other, while there is a gap of 3 – 4 inches between the ankles.

**Reason (R) :** It occurs due to Genu Valgum and it can develop due to an injury or infection in the knees or leg, rickets, severe lack of Vitamin D and calcium, obesity or arthritis in the knee. **(1)**

**In the context of the above two statements, which one of the following option is correct?**

(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(B) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion (A).
(C) Assertion (A) is true, but Reason (R) is false.
(D) Assertion (A) is false, but Reason (R) is true.

**Q.17** Which functional fitness component for senior citizens is determined in the test shown below? **(1)**



(A) Physical Mobility
(B) Upper Body Flexibility
(C) Lower Body Flexibility
(D) Upper Body Strength

**Q.18** Identify the characteristic of introvert personality. **(1)**
(A) Meet unknown people easily (B) Self centred
(C) Highly socialised (D) Expressive nature

## Section – B
## (Attempt any 5 Questions)

**Q.19** Describe the second class lever with suitable example from sports. **(1+1=2)**

**Q.20** Enlist **four** test items of Johnson – Metheny Test of Motor Educability. **(½x4=2)**

**Q.21** Write short note on 'Menarche'. **(2)**

**Q.22** Enlist for asanas those help to control asthma. **(½x4=2)**

**Q.23** Write any two advantages of physical activities for children with Special Needs (CWSN). **(1+1)**

**Q.24** Mention any two types of friction by giving suitable example from sports. **(1+1)**

## Section – C
## (Attempt any 5 Questions)

**Q.25** Arun performs the Harvard Step Test for 275 seconds and his pulse is 1–1.5 minute after exercise was 100. Write the formula of fitness index score for Harvard Step Test and calculate the fitness index score of Arun. **(1+2)**

**Q.26** Comment on the concept of 'Talent Identification' and 'Talent Development'. **(1½+1½)**

**Q.27** Explain the responsibilities of **any two** committees during sports competition. **(1½+1½)**

**Q.28** Explain the procedure and benefits of **any one** asana for back pain. **(2+1)**

**Q.29** Write short note on Female Athlete Triad. **(2)**

**Q.30** Describe any three physiological changes due to ageing. **(1+1+1)**

**Contd...3**

## Section – D
## (Internal Choices Available)

**Q.31** A survey in an inclusive school setup found the discrepancies between the participation of normal and special child during annual sports meet. Study the table given below carefully. **(4x1=4)**

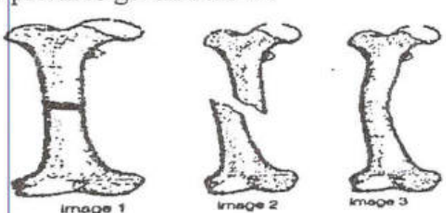
| S.No. | Event | Normal Child (150) | Special Child (10) |
|---|---|---|---|
| 1. | 100 Mtr. | 40 | 5 |
| 2. | 400 Mtr. | 25 | 2 |
| 3. | Long Jump | 20 | 0 |
| 4. | High Jump | 15 | 1 |
| 5. | Relay Race | 8 | 4 |

Based on the above study and your knowledge, answer the following questions:
(a) As per the above table, in _____ event, there is no participation of special child.
(b) Participation of student with disabilities in regular physical education classes is known as _____ .
(c) Enlist **any two** strategies to make physical activities accessible for children with special needs.
(d) The motto of special Olympics is _____ .

**OR**

The motto of Paralympic is _____ .

**Q.32** Study the pictures given below : **(4x1=4)**

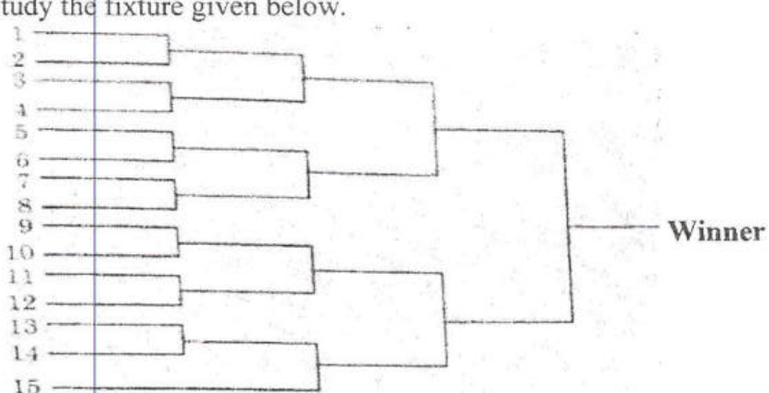



Based on the above study and your knowledge, answer the following questions:
(a) Which type of fracture you see in image 1 ?
(b) When a bone breaks diagonally as shown in image 2, it is known as _____ .
(c) ____ fracture occurs when the broken ends of the bones are jammed together by the force of the injury.
(d) In which type of fracture bone is broken, splinted or crushed into number of pieces.

**OR**

How many types of bone fractures?

**Q.33** Study the fixture given below. **(4x1=4)**




On the basis of the above study and your knowledge, answer the following questions.
(a) According to the above fixture, total number of rounds will be _____ .
(b) As shown in the fixture, if the winner team plays least number of matches, then which number of teams is the winner?
(c) What is the formula for calculating number of matches in a knockout tournament?
(d) If 15 teams are participating in a knockout tournament, then how many byes will be given to draw a knock out fixture?

**OR**

What is the formula for calculating total number of byes in upper half and lower half in a knockout tournament?

## Section – E
## (Attempt any 3 Questions)

**Q.34** What do you understand by aggression in sports? Explain **any two** types of aggression by given suitable example from sports. **(1+2+2=5)**

**Q.35** What is Balanced Diet? What is the significance of pre and post competition meal for an athlete? Explain. **(1+2+2=5)**

**Q.36** What do you understand by projectile trajectory? Explain the factors affecting projectile trajectory in sports. **(1+4=5)**

**Q.37** What is endurance? Explain any types of endurance on the basis of duration of the activity with suitable examples from sports. **(1+2+2=5)**