DELHI PUBLIC SCHOOL, BHILAI

Date : 20.02.2024	ANNUAL EXAMINATION 2023-24	Time : 3 Hrs.
Class : XI	Subject : English (Core)	Max. Marks : 80

General Instructions:
- The paper is divided into 3 sections A, B and C. All the sections are compulsory.
- Specific instructions, wherever necessary, are given. Follow them strictly.

SECTION A: READING SKILLS (26 MARKS)

Q.I Read the passage below carefully and answer the questions that follow:

1. Apollo, the Greek god of music and healing, always maintained that he was the greatest musician in the world, until Marsyas, who was part animal and part human, played the flute. Apollo's jealousy and insecurity drove him to eventually slay Marsyas so that his status as the greatest musician remained unchallenged. One's usual imagination of a god is a being who is all-knowing and pure in every intention. What makes the Greek gods interesting is that they are shown as flawed beings who do not always act like 'Gods'.

2. In appearance, the gods resemble mortals, whom, however, they far surpass in beauty, grandeur, and strength; they are also more commanding in stature, height being considered by the Greeks an attractive feature in men or women. They resemble human beings in their feelings and habits, marrying and having children with them. They require daily nourishment to maintain their strength, and sleep to restore their energy. Their blood, a bright magical fluid called Ichor, never causes disease, and, when shed, produces new life.

3. The Greeks believed that the mental qualifications of their gods were much higher than those of men, but, nevertheless, displayed human passions like revenge, deceit, and jealousy. In mythological tales, the gods always punish the evil-doer and administer dire punishments to any mortal who dares to neglect their worship. They often visit mankind and partake of their hospitality, and in many tales, both gods and goddesses become attached to mortals. Although there were so many points of resemblance between gods and men, there remained the one great characteristic distinction: immortality. Still, the gods were not invulnerable, and were often wounded and suffered so much that they'd pray for death. The gods could transport themselves to incredible distances with the speed of thought.

4. They could be invisible at will, and could take the forms of men or animals as it suited their convenience. They could also transform human beings into trees, stones, or animals. Their robes were like those worn by mortals, but were perfect in form and much finer in texture. Their weapons also resembled those used by mankind. They often used spears, shields, helmets, bows and arrows. Most of these divinities lived on the summit of Mount Olympus, each having his or her own palace. Magnificent temples were erected in their honour, rich gifts were presented to them, and living creatures were sacrificed on their altars.

5. In Greek mythology, the gods take every opportunity to reveal and establish their divinity but also fall prey to human impulses. Perhaps the Greeks did so to help generations of readers reflect on important life lessons to avoid tragic downfalls.
E. M. Berens

Answer the following questions based on the passage above. (10 marks)

i. *'... they are shown as flawed beings who do not always act like 'Gods'.* (paragraph 1) (1)
   Which of these are examples of the above statement?
   I.   Gods getting attached and falling in love
   II.   Gods punishing mortals for their wrongdoing
   III. Gods showing kindness and compassion to all
   IV.   Gods deceiving everyone for their personal gain
   V.   Gods killing a mortal out of jealousy and insecurity
   Select the correct option.
   A. Only I and III
   B. Only II and V
   C. Only I, II, and V
   D. Only II, IV, and V

ii. Which of these would Apollo most likely say about Marsyas' musical ability? (1)
   A. 'Why does everyone think he plays music well? It is obvious that he doesn't have talent.'
   B. 'Why is he challenging me like that? I wonder what is troubling him that I can heal.'
   C. 'How can an animal play the flute? Such creatures must know their place.'
   D. 'How dare he play better than me? I am supposed to be the best in the world.'

iii. Why does the author begin the passage with a description of Apollo? (1)
   A. to show that the Greek Gods have immense power and influence over the mortals
   B. to emphasise the point that the Greek Gods are based in interesting stories
   C. to highlight the point that the Greek Gods are more human-like in nature
   D. to state that the Greek Gods are also allowed to make mistakes

iv. Based on your reading of paragraph 3, explain what 'invulnerable' means. Answer in one sentence.
(1)

v. Complete the given sentence with ONE word.
   From the fact that the Greek gods punish any mortal who neglects their worship, we can infer that they are _____.
(1)

vi. Imagine that someone was born from Ichor. In which of these situations would the Ichor be most useful?
(1)
   A. a natural disaster that causes the earth to split apart
   B. a pandemic that has been caused by a contagious virus
   C. a war that requires transforming into another form quickly
   D. a competitive entrance exam that is very tough to qualify for

vii. What is ironic about Apollo being the one who slays Marsyas? Answer in about 30-40 words. (2)

viii. In 30-40 words, state any two ways that the Greek gods are superior to human beings. (2)

Q.II Read the passage given below and answer the questions that follow: **(8 marks)**

1. Zebras are known for their distinctive black and white stripes. The intriguing enigma of these stripes lies in their function and nature. Specifically, two scientific studies have sought to understand the purpose and underlying mechanisms of zebras' unique stripes.

2. **Study 1 – The Case of Alison & Stephen Cobb's Study:**
   (Published in The Journal of Natural History, Volume 53, Issue 13-14)
   i. Researcher couple, Alison and Stephen Cobb, conducted an experiment that explored the idea of zebras' stripes helping to keep them cool and shared that thermoregulation was the primary function of zebra stripes.
   ii. They measured the temperatures of black and white stripes on two zebras, throughout separate sunny days in Kenya. There was a $12–15°C$ difference between zebras' stripe temperatures, throughout the middle seven daytime hours.
   iii. They shared that the movement of sweat, away from the skin is accelerated by the surfactant equid protein -latherin - a vital component of cooling in racehorses.
   iv. They noted that latherin decreases the surface tension of the sweat, facilitating evaporative cooling at the hair tips.
   v. Their theory was that the abrupt temperature difference between the stripes causes chaotic air movement above the hair surface, thus enhancing evaporative heat dissipation.

   Study -2 –The Case of Prof. Tim Caro's Experiment:
   (Published in The Journal of Experimental Biology, Volume 226, Issue 4)
   i. Prof. Caro and four other researchers investigated what deters horseflies from landing on zebras.
   ii. Their experiment involved close-up observations of fly behaviour around zebras. They also observed the flies' interactions with domestic horses, some of which were dressed in striped jackets, and others left without.
   iii. The results of the study showed that flies approached all three groups—the zebras, the horses with striped jackets, and the plain horses—similarly. However, they behaved differently around the zebras and the horses with striped jackets. Flies approaching these animals merely bounced off, whereas they could land on plain horses.
   iv. The researchers concluded that the sharply outlined and thin stripes are the deterrent to horseflies as it is the occurrence of only large monochrome dark patches that are highly attractive to horseflies at close distances.

Answer the following questions, based on the given passage. **(8marks)**

i. What might be the MOST likely purpose of the author's use of "intriguing enigma", while referring to the zebra stripes? (1)

ii. Supply the response to the following, in a phrase, from (para 2) of the text given above. According to the Cobb's study, what is the relation between zebras' stripes and thermoregulation? (1)

iii. Complete the sentence with an appropriate inference.
   The choice of "middle...daytime hours" is likely driven by the need to study zebras under the condition of_____. (1)

iv. Select the option that DOES NOT display the nature of these experiments correctly. (1)
   A. Collaborative   B. Observational
   C. Analytical   D. Fictional

v. In the absence of latherin, a surfactant protein, what is the likely consequence for an equid, such as a zebra or a horse? (1)
A. Improved thermoregulation in hot conditions.
B. Enhanced evaporative cooling.
C. Impaired sweating
D. Increased resistance to heat stress.

vi. Which of the following can we cite as an example, to explain the meaning of "deterrent", as used in the line - *The researchers concluded that the sharply outlined and thin stripes are the **deterrent** to horseflies ...?* (1)
A. Installing security cameras on a property will act as a deterrent for burglars.
B. Planting flowers in a garden will become a deterrent for pollinators like bees.
C. Painting a room in bright, for a welcoming atmosphere will be a perfect deterrent.
D. Hanging wind chimes on a porch is a common deterrent for the area's visual appeal.

vii. In terms of the purpose of the zebra stripes, examine, in 30-40 words, one finding each of the Cobb's study and Prof. Caro's experiment. (2)

Q.III Read the following passage and answer the questions that follow: (8 marks)

Climate change represents one of the most critical global challenges of our time, driven by a complex interplay of factors, including carbon emissions, volcanic eruptions, and solar radiation. However, it's the impact of human activities, particularly fossil fuel combustion, deforestation, and vehicular pollution, that has significantly accelerated this phenomenon. These activities have resulted in more frequent and severe extreme weather events, posing a grave threat to the planet's biodiversity.

Forests, which play a vital role in carbon absorption, are facing the risk of mass extinctions. The polar regions, crucial for regulating Earth's climate, are particularly vulnerable, with many species at the brink of extinction. Erratic rainfall patterns have led to catastrophic events like floods and droughts, disrupting water systems and impacting communities.

Various species, from polar bears struggling to find food due to melting ice caps to tigers facing habitat loss, are in jeopardy due to changing climates.

To address this monumental challenge, immediate and concerted efforts are paramount. It involves reducing carbon emissions through transitioning to cleaner energy sources, promoting sustainable practices in agriculture and land use, and adhering to international agreements such as the Paris Agreement.

Individuals, communities, governments, and businesses all have roles to play in combatting climate change. Raising awareness, adopting greener technologies, and advocating for responsible policies are crucial steps towards mitigating the impact of climate change. The preservation of Earth's climate is not just an environmental imperative but a collective responsibility that requires global cooperation to ensure a sustainable and habitable future for generations to come.

i. On the basis of your reading of the above passage, make notes on it using headings and sub headings. Use recognizable abbreviations wherever necessary. (4-6). Supply an appropriate title to it. (5)

ii. Write a summary of the above passage in about 50 words. (3)

SECTION B -GRAMMAR AND WRITING (23 MARKS)

Q.IV Do as directed: (1x7=7)

i. **Rearrange the words to make a meaningful sentence:**
India/ and women's/men's/basketball /national/ both/has /teams

ii. Old people are usually more conservative then young people. **(Edit the sentence)**

iii. Anil said to his sister, "Please don't tell mother I broke the vase."
(Complete the sentence beginning with -' Anil begged his sister not.............')

iv. **Fill in the blank by choosing the correct option to complete this advertisement.**

Are you looking for more books to read? Due to popular demand, we _____ back our 'Buy One Get One Free' offer next weekend!

A. brings   B. brought   C. will bring   D. were bringing

v. **Fill in the blank by choosing the correct option, to complete the text message below.**
Let's meet another day since neither Kavi nor Samantha _____ free today as they have tennis practice.
A. were   B. are   C. be   D. is

vi. **Change into passive voice:**
He agreed to my proposal.

vii. **Reorder the following sentences to form a coherent passage.**
a. The chef prepared a gourmet meal.
b. The restaurant was fully booked.
c. The diners savoured every bite.
d. It received rave reviews.
e. The ambience was elegant and inviting.
A. e b a d c   B. b e a c d   C. a c d b e   D. b e a d c

Q.V   Attempt <u>any one</u> of the following   in about 50 words: **(3marks)**

   A)   Sita Travels , 227 Jagriti Enclave, Delhi offers a package tour for 3 nights 4 days in Lakshdweep for ₹ 10,000 per person. Draft an advertisement for publication in a national daily, giving all necessary details.

<div align="center">OR</div>

   B)   You are Pratik / Pranita, the General Manager of P.K. Industries, Hyderabad. You need an accountant to be placed in your company. Draft an advertisement for the same, to be published in the classified columns of The Hindu. Furnish the relevant details.

Q.VI   Attempt <u>any one</u> of the following   in about 50 words: **(3marks)**

   A)   In a recent survey, it was found that your city has the highest rate of pollution in the country. Innumerable vehicles on the road and lack of green cover have made the air unfit to breathe. Draft a poster in about 50 words, creating awareness about the need to keep your city clean and green. You are the Municipal Commissioner, Raipur.

<div align="center">OR</div>

   B)   Your school is organizing a SPICMACAY programme on the occasion of the World Dance Day wherein the renowned Bharatanatyam dancer, Geeta Chandran would be giving a Lecture-cum-Demonstration. As the President, Cultural Society of your school, draft a poster in about 50 words, informing the students about the same. You are   Aarushi/Aarush of Sainik School, Naya Raipur.

Q.VII   Attempt <u>any one</u> of the two in about 120-150 words: **(5marks)**

   A)   "Academic Excellence is the only Requirement for a Successful Career." Write a debate either **for** or **against** the motion. You are Hritik/Ritika

      In Favour – strengthens competencies and skills – helps in clearer understanding of the subject, in – depth knowledge, decision making ability – ensures admission to higher centres of learning – prepares one for competitions.

      Against – Academic Excellence : may not be sufficient to ensure success in life, skills are more important, academics does not ensure all round personality/ confidence / multitasking abilities / leadership qualities – skills and talents can give more options .

<div align="center">OR</div>

   B)   Although students have been using cell phones consistently in their daily lives for almost a decade, schools continue to resist allowing the devices into the classroom. Schools generally grapple with new technologies, but cell phones' reputation as a nuisance and a distraction has been hard to dislodge. Using information given below, prepare a speech **in favour of** or **against** the cell phones being allowed in schools.

- devices will only encourage their non-educational use in school
- significant distraction for students
- a potential tool for cheating
- could foster cyber bullying
- But on the other hand BYOD-Bring Your Own Device is gaining momentum as a learning tool, not just a toy for entertainment
- cost effective for the schools instead of having to purchase technology for students
- banning any type of technology can foster inequity
- Schools can develop rules for how students physically handle the device in the classroom.

Q.VIII   Attempt <u>any one</u> of the two in about 120-150 words: **(5 marks)**

   A)   On the occasion of International Museum Day, prepare a speech for the morning assembly, on the role of museums in preserving history and heritage. Also mention how students can benefit from visiting museums. You are Karuna/Karan.

- cultural institutions of a country
- Preserve and display artefacts and exhibits of rare value
- Invaluable source of information and knowledge
- students develop pride in their cultural heritage
- part of their informal education

<div align="center">OR</div>

   B)   You are Sanju/Sanjana, a member of Health Club of your school. You are disturbed by the increasing instances of students facing stress due to examinations. Write a speech to be delivered in the morning assembly of your school on "How to Beat Examination Related Stress".

- prepare in advance
- get organized
- take breaks
- eat well and exercise
- reach out for support

SECTION C -LITERATURE (31 Marks)

Q.IX Read the extracts given below and answer <u>any one</u> of the following: (3 marks)

A) Silence surrounds us. I would have
   Him prodigal, returning to
   His father's house, the home he knew.
   Rather than see him make and move
   His world. I would forgive him too,
   Shaping from sorrow a new love.

   i) The extract displays an element of _____.
      a) inspiration   b) yearning   c) ambition   d) hostility
   ii) The poetic device used in 'silence surrounds us' is
      a) oxymoron   b) simile   c) metaphor   d) alliteration
   iii) 'Him prodigal, returning to His father's house' refers to
      a) a fairy tale   b) a folk tale   c) a Biblical story   d) a fable

OR

B) I descend to lave the droughts, atomies, dust layers of the globe,
   And all that in them without me were seeds only, latent, unborn;
   And forever, by day and night, I give back life to my own origin,
   And make pure and beautify it;

   i) The lines in the extract can be read as a reply to a question.
      Select the option that includes the most likely question.
      a) What's your purpose on Earth?
      b) Do you work randomly?
      c) Is there a fixed way you function?
      d) Do you believe in rebirth?
   ii) The literary device used in the first line of the extract is
      a) simile   b) alliteration   c) personification   d) metaphor
   iii) 'I give back life to my origin' – What is 'its' origin?
      a) the land   b) the bottomless sea c) the poet's heart   d) both (a) and (b)

Q.X Read the extracts given below and answer <u>any one</u> of the following: (3marks)

A) But Gangadharpant had the experience of speaking at 999 meetings and had faced
   the Pune audience at its most hostile. He kept on talking. He soon became a target
   for a shower of tomatoes, eggs and other objects. But he kept on valiantly to correct
   this sacrilege. Finally, the audience swarmed to the stage to eject him bodily.

   i) Where was Gangadharpant talking ?
      a) in Azad Maidan   b) in the Forbes Building c) at the Town Hall d) at the Victoria Terminus
   ii)   Another word for 'sacrilege' is
      a) curse   b) disrespect   c) glorification   d) reverence
   iii) What made the audience hostile?

OR

B) I didn't think he was from those parts because he was wearing a windcheater and metal –
   rimmed spectacles of a Western style. He was a Tibetan, he told me, but worked in Beijing
   at the Chinese Academy of Social Sciences, in the Institute of Ethnic Literature. I assumed he
   was on some sort of fieldwork.

   i) Who is being described in the given extract?
      a) Norbu   b) Tsetan   c) Daniel   d) Lhamo
   ii) Where did the narrator notice the stranger?
      a) At Darchen's only cafe
      b) In a restaurant in Hor
      c) In the guest house at Darchen
      d) In a hotel in Ravu
   iii) What sort of field work was the stranger there for?

Q.XI Read the extracts given below and answer <u>any one</u> of the following: (4 marks)

A) *You made certain amendments to*
   The plans when I showed them to you.'
   The King heard this. The King saw red.
   In fact he nearly lost his head;
   But being a just and placid King
   He said, 'This is a tricky thing.

   i. The phrase 'The King saw red' means
      a) the king was looking at red objects   b) the king was embarrassed
      c) the king was nervous and scared   d) the king was very angry

ii) 'I ' in the above lines refers to

    a) the architect   b) the chief of builders   c) a councillor   d) the old man

iii) The architect passed on the blame to

    a) the workmen   b) the old man   c) the Chief of Builders   d) the King

iv) 'Amendments' here means

    a) modification   b) correction   c) alteration   d) all of the above

OR

B) **I was in a room I knew and did not know. I found myself in the midst of things I did want to see again but which oppressed me in the strange atmosphere.**

i) Who does 'I' refer to in the above lines?

    a) Mrs. S   b) Mrs. S's daughter   c) Mrs. Dorling   d) Mrs. Dorling's daughter

ii) What prompted her to make this observation?

    (a) She saw familiar things but in unfamiliar surroundings

    (b) She saw unfamiliar things but in familiar surroundings

    (c) She did not recognize the things she saw

    (d) She did not want to remember anything

iii) Where were 'the things' kept?

    a) in the narrator's mother's house   b) in Mrs. Dorling's house

    c) in the narrator's house   d) in a neighbour's house she was visiting

iv) Which of the following word is not a synonym of 'oppressed'?

    a) distressed   b) dispirited   c) gloomy   d) comforted

Q.XII Answer the following questions in 40-50 words. **(6marks)**

  A) **Answer <u>any one</u> of the following two questions:** **(1x3=3)**

    i) Write any three incidents from the lesson to show grandmother was very fond of her grandson. (The Portrait of a Lady)

OR

    ii) Mention any three things that Professor Gaitonde noticed as the train entered the British Raj territory? (The Adventure)

  B) **Answer <u>any one</u> of the following two questions:** **(1x3=3)**

    i) How does the poet Shirley Toulson contrast the two pasts : of her mother and her own? (A Photograph)

(OR)

    ii) How did the speaker realize the hypocrisy of the adults, in the poem 'Childhood'?

Q.XIII Attempt <u>any one</u> of the following questions in 40-50 words: **(1x3=3)**

    i) What does John Byro mean when he tells the boys that 'a suspicious man would believe his eyes instead of his heart?' (The Summer of the Beautiful White Horse)

(OR)

    ii) Explain any two instances of humour in the poem, 'The Tale of Melon City' by Vikram Seth.

Q.XIV Attempt <u>any one</u> of the following questions in 120 to 150 words. **(6 marks)**

    i) What do you learn about Tut's dynasty from the extract 'Discovering Tut: The Saga Continues'? Write a paragraph.

    Begin your paragraph with the following line: King Tut was the last heir of a powerful dynasty ...

(OR)

    ii) Imagine you were one of the crewmen on the boat 'Wavewalker'. Draft a speech highlighting the values you learnt from the hazardous experience.

    You may begin like this... Good morning principal sir, teachers and my dear friends. Today I stand before you to share with you ....

Q.XV Attempt <u>any one</u> of the following questions in 120 to 150 words. **(6 marks)**

    i) As Mrs. Pearson, write a letter to Mrs. Fitzgerald, two months after having exchanged personalities. Also tell her about the changes that have taken place in your family and express your gratitude to her for all that she did for you.

You may begin like this ....

    Dear Mrs. Fitzgerald

        I'm really grateful to you for ....

End the letter like this ....

    Yours affectionately

(OR)

    ii) After Dr. Andrew Mason reached home, he wrote an account of the entire episode in his diary. As Dr. Mason, write a diary entry giving details of the emotional trauma you went through in saving the life of the mother and child.

    You may begin like this ....

    20 August 20xx , Blaenelly

    I've done something; oh, God! I've done something real at last...............

DELHI PUBLIC SCHOOL, BHILAI

Date : 01.03.2024   ANNUAL EXAMINATION 2023-24   Time : 3 Hrs.

Class : XI   Subject : Mathematics   Max. Marks : 80

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 18 MCQ's and 02 Assertion Reason based questions 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 each case-study.
8. 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 of the alternatives in all such questions.

SECTION – A

1. A survey shows that 63% of the people watch a news channel whereas 76% watch another channel. If x% of the people watch both channel, then
   (a) x = 76   (b) x = 63   (c) $39 \leq x \leq 63$ (d) x = 39

2. If A and B are two sets, then $A \cap (A \cup B)$ equals
   (a) B   (b) A   (c) U   (d) $\emptyset$

3. The range of the function $y = sgn(x - 1)$
   (a) set of integers   (b) {-1, 1}   (c) {-1, 0, 1}   (d) set of real numbers

4. If $[x]^2 - 5[x] + 6 = 0$, where [.] denotes the greatest integer function, then
   (a) $x \in [3, 4]$ (b) $x \in (2, 3)$ (c) $x \in [2, 3]$ (d) $x \in [2, 4[$

5. The value of $cos^2 48^0 - sin^2 12^0$ is
   (a) $\frac{\sqrt{5}+1}{8}$ (b) $\frac{\sqrt{5}-1}{8}$ (c) $\frac{\sqrt{5}+1}{5}$ (d) $\frac{\sqrt{5}+1}{2\sqrt{2}}$

6. Which of the following is correct
   (a) $\sin 1^0 > \sin 1$ (b) $\sin 1^0 < \sin 1$ (c) $\sin 1^0 = \sin 1$ (d) all of the above

7. Cot x Cot 2x – cot 2x Cot 3x – Cot 3x Cot x is equal to
   (a) -1   (b) 0   (c) 1   (d) none of these

8. The value of $\sqrt{-49} \times \sqrt{-64}$ is
   (a) 56   (b) -56   (c) 7i   (d) 8i

9. If -3x + 17 < -13, then
   (a) $x \in (10, \infty)$ (b) $x \in [10, \infty[$ (c) $x \in]-\infty, 10]$ (d) $x \in [-10, 10[$

10. The value of $^{15}C_8 + {}^{15}C_9 - {}^{15}C_6 - {}^{15}C_7$ is
    (a) 0   (b) $2\,{}^{16}C_9$ (c) $2\,{}^{16}C_7$ (d) none of these

11. The number of terms in the expansion of $(x + 2)^{50}(x - 2)^{50}$
    (a) 50   (b) 100   (c) 51   (d) none of these

12. $(1.1)^{10000}$ ___ 1000
    (a) >   (b) <   (c) =   (d) can't be determined

13. *The 3rd term in the expansion of* $(x^2 - 2x + 1)^2$ is
    (a) $-4x^3$ (b) $6x^2$ (c) $-4x$ (d) $-6x^2$

14. *If the sum of n terms of an AP is given by* $S_n = 4n + 3n^2$ then common difference of the A.P. is
    (a) 3   (b) 4   (c) 6   (d) 8

15. If the slope of the line passing through the points (3, -2) and (-1, k) is $-\frac{3}{2}$, then k is

    (a) 2   (b) 3   (c) 4   (d) 0

16. The centre and radius of the circle $x^2 + y^2 - 2x + 4y = 8$

    (a) (1, 2), $\sqrt{13}$ (b) (1, -2), 13   (c) (1, -2), $\sqrt{13}$ (d) (-1, 2), $\sqrt{13}$

17. The length of Latus Rectum of the ellipse $3x^2 + y^2 = 12$ is

    (a) 4   (b) 3   (c) 8   (d) $\frac{4}{\sqrt{3}}$

18. $\lim_{x \to 1}[x-1]$ where [.] is the greatest integer function is equal to

    (a) 1   (b) 2   (c) 0   (d) doesn't exists

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 (i), (ii), (iii) and (iv) as given below:

  (i) Both A and R are true and R is the correct explanation of the assertion.

  (ii) Both A and R are true and R is not the correct explanation of the assertion.

 (iii) A is true, but R is false.

 (iv) A is false, but R is true

19. A : $\lim_{x \to \pi} \frac{\sin(\pi - x)}{\pi(\pi - x)} = \frac{1}{\pi}$

    R : $\lim_{x \to 0} \frac{\cos x}{(\pi - x)} = \pi$

20. A : $^{17}C_5 = {}^{17}C_{12}$

    R : $^nC_r = {}^nC_{n-r}$

SECTION – B

21. Using properties of sets show that $(A \cup B \cup C) \cap (A \cap B' \cap C')' \cap C' = B \cap C'$

22. Prove that $2\sin^2 \frac{\pi}{6} + \csc^2 \frac{7\pi}{6} \cos^2 \frac{\pi}{3} = \frac{3}{2}$

    OR

    Prove that $\cos\left(\frac{3\pi}{4} + x\right) - \cos\left(\frac{3\pi}{4} - x\right) = -\sqrt{2}\sin x$

23. If $(x + iy)^{\frac{1}{3}} = a + ib$, where $x, y, a, b \in R$ show that $\frac{x}{a} - \frac{y}{b} = -2(a^2 + b^2)$

24. The marks obtained by a student of class XI in first and second terminal examination are 62 and 48, respectively. Find the number of minimum marks he should get in the annual examination to have an average of at least 60 marks.

25. Using Binomial theorem, show that $9^{n+1} - 8n - 9$ is divisible by 64, whenever n is a positive integer.

    OR

    In the expansion of $(1 + a)^{m+n}$, prove that coefficients of a^m and a^n are equal.

SECTION – C

26. Let $f(x) = \left\{\left(x, \frac{x^2}{1+x^2}\right), x \in R\right\}$ be a function from R into R. Determine the range of R.

    OR

    Let $f(x) = \{(1,1), (2, 3), (0,-1), (-1,-3)\}$ be a linear function from Z into Z. Find f(x).

27. If all permutations of the letters of the word EVENT are arranged in the order as in a dictionary. What is 49th word?

    OR

    A student has to answer 10 questions, choosing at least 4 from each of parts A and B. If there are 6 questions in part A and 7 in part B, in how many ways can the student chose 10 questions?

28. If n is a positive integer, find the coefficient of x^{-1} in the expansion of $(1 + x)^n \left(1 + \frac{1}{x}\right)^n$.

29. Calculate the mean deviation about median for the following data:

Class	0 - 10	10 - 20	20 – 30	30 - 40	40 - 50	50 – 60
Frequency	6	7	15	16	4	2

30. Using first principle find the derivative of $f(x) = \frac{2x+3}{x-2}$

31. Suppose $f(x) = \begin{cases} a + bx, x < 1 \\ 4, \quad x = 1 \\ b - ax, x > 1 \end{cases}$ and if $\lim_{x \to 1} f(x) = f(1)$. What are the possible values of 'a' and 'b'?

32. The sum of two positive numbers 'a' and 'b' (a>b) is four times their Geometric mean. Prove that $a : b = 2 + \sqrt{3} : 2 - \sqrt{3}$

OR

If 'a' and 'b' are roots of $x^2 - 3x + p = 0$ and 'c' and 'd' are roots of $x^2 - 12x + q = 0$ where a, b, c, d form a geometric progression. Prove that $(q + p) : (q - p) = 17 : 15$

33. Find the distance of the line $4x - y = 0$ from the point P(4, 1) measured along the line making an angle of 135^0 with the positive x-axis.

34. Calculate mean, variance and standard deviation for the following distribution

Class- Intervals	30-40	40-50	50-60	60-70	70-80	80-90	90-100
frequency	3	7	12	15	8	3	2

35. Find the value of $\tan 9^0 - \tan 27^0 - \tan 63^0 + \tan 81^0$.

OR

Prove that $\cos^2 x + \cos^2 \left(x + \frac{\pi}{3}\right) + \cos^2 \left(x - \frac{\pi}{3}\right) = \frac{3}{2}$

SECTION – E

36. A train is travelling on a circular curve of 1500 meters radius at the rate of 66 km/h. Based on this information answer the following :
    (i) Find the angle in radians by which it turned in 10 seconds.
    (ii) Find the degree measure of the angle turned by train in 10 seconds.
    (iii) How much degree will train turn in 20 seconds?

OR

    (iii) If train changes its speed to 60 km/h, then what angle will train turn in 10 seconds?

37. A man is running a race course such that the sum of distances of two flag posts from him is always 26 m and distance between two flag posts is 10 m. Based on the above information answer the following:
    (i) Find the equation of the path.
    (ii) Find the eccentricity of the path.
    (iii) Find the coordinates of vertices of the path.

OR

Find the coordinates of foci of the path.

38. Many candidates applied for a job in a company. Company short listed few candidates. The particular of candidates are as follows :

S. NO.	Name	Gender	Age(in years)
1	Kokila	F	30
2	Shubh	M	33
3	Indu	F	46
4	Shyam	M	28
5	Arindam	M	41

Based on the above information answer the following: If two persons are selected at random. What is the probability that
    (i) both are male?
    (ii) both are female?
    (iii) one is male and one is female?

OR

    (iii) both must be below 35 years?

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DATE : 01-03-2024   ANNUAL EXAMINATION, 2024   Time : 3 Hours
CLASS : XI   BIOTECHNOLOGY   M.M : 70

<u>General Instructions</u> : Read the following instructions very carefully and strictly follow them :

1) This question paper contains 33 questions. All questions are compulsory.

2) This question paper is divided into five 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 (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 subject.

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 diagrams should be drawn.

<div align="center"><u>SECTION A</u></div>

1) Which of the following is not a micronutrient   (1)

   (a) Zinc (b) Boron (c) Molybdenum (d) Magnesium

2) Formation of both peptide and glycosidic bond involve   (1)

   (a) Hydration (b) Dehydration (c) Esterification (d) Acidification

3) An enzyme used in food industry   (1)

   (a) Endonuclease   (b) Papain

   (c) Streptokinase   (d) Transpeptidase

4) GFP found in jelly fish shows   (1)

   (a) Primary structure of protein (b) Secondary structure of protein

   (c) Tertiary structure of protein (d) Quarternary structure of protein

5) The moiety present at the 5' end of a ribose sugar in a polynucleotide is   (1)

   (a) OH (b) CH_2 (c) Phosphate (d) Adenine

6) Non reducing sugar among the following is   (1)

   (a) Lactose (b) Sucrose (c) Maltose (d) Glucose

7) Chromosomes are counted best at the stage of   (1)

   (a) Interphase (b) Anaphase (c) Metaphase (d) Telophase

8)   (1)

Which stage of mitosis is shown in the figure.

   (a) Interphase (b) Prophase (c) Telophase (d) Anaphase

9) The basic unit of chitin is   (1)

   (a) Glucose (b) Fructose (c) N Acetylglucosamine (d) Galactose

10) A chlorophyll molecule contain   (1)

   (a) Iron (b) Sulphur (c) Calcium (d) Magnesium

11) Eicosanoids are signaling molecules. It consist of   (1)

   (a) Proteins (b) Lipid (c) Carbohydrate (d) Pyrimidines

12) The codons used to signal the termination of protein synthesis   (1)

   (a) UGA, UAA, UAG   (b) UUU, UAC, UAG .

   (b) UUU, UCC, UAA   (b) UGA, UCU, UAG

13) Assertion [A] – Endosperm provides nutrition to the developing embryo (1)
Reason [R] – It is formed from primary endosperm nucleus by mitotic divisions.

14) Assertion [A] – Telophase in a sense is reversible process of prophase. (1)
Reason [R] – Nuclear membrane and nucleolus reappear in this stage.

15) Assertion [A] – Microbe produces heat as they metabolize substrate in a fermenter. (1)
Reason [R] – Cooling water is circulated through coils or jackets to counter metabolic heat.

16) Assertion [A] – Lysosomes are double membrane bound organelles containing hydrolytic enzymes. (1)
Reason [R] – Hydrolytic enzymes helps to digest materials.

SECTION B

17) a) How many hydrogen bonds are formed between AT and GC. (2)

b) State the difference between nucleotide and nucleoside.
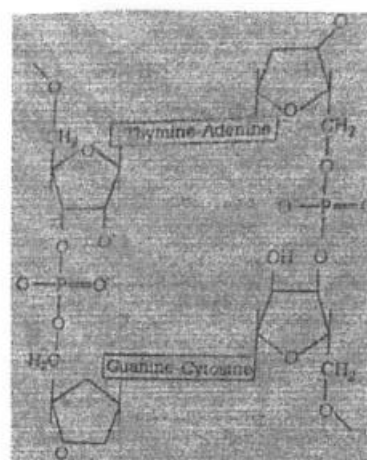
18) (2)

a) Identify the level of protein structures shown in the diagram A and B.

b) State the difference between the two.

19) (2)

Identify A,B and C. Write the function of B.

20) Explain symbiotic nitrogen fixation in plants by giving an example. (2)

21) What are sequenators? A protein has molecular weight of 33000 Da. How many amino acid
residues are present? (2)

(OR)

Expand IU. State two factors that affect the structure of enzyme.

SECTION C

22) Can a child have blood group O if his parents have blood group A and B. Explain. (3)

23) A student is given three colourless soultions in three test tubes, containing protein, lipid and sugar.
How will he identify the presence of protein, sugar and lipids. (3)

24) What led to genomic revolution? (3)
State the application of biotechnology in the field of :
a) Health industry b) Agriculture

25) Write the structure of the following : (3)

    a) Sucrose b) Lactose c) βD Glucose

26) Draw a well labeled diagram of an immunoglobulin molecule. (3)

<div align="center">(OR)</div>

Draw a well labeled diagram of the internal structure of an ovule.

27) How do enzyme catalyse a metabolic reaction? Explain with the help of graph a typical enzyme catalyzed reaction. (3)

28) State the function of the following in a fermenter (3)

    (a) (i) Baffles (ii) pH portal system

    (b) What is the key requirement of successful fermentation?

<div align="center">SECTION D</div>

29) <u>Case based study questions</u> (4)

    a) Identify the genetic disorder given in the figure.

    b) What causes this disorder?

    c) State the difference between paracentric and pericentric mutation

<div align="center">(OR)</div>

State the difference between Transition and Transversion.

30) (4)

    a) Identify the disorder shown in the given figure.

    b) What causes the disorder?

    c) What is frame shift mutation? Name a chemical mutagen.

<div align="center">(OR)</div>

What is aneuploidy? State an application of it.

<div align="center">SECTION E</div>

31) a) Name two unusual base pairs found in tRNA (5)
     b) How does one tRNA molecule recognizes more than one codon.
     c) How does tRNA gets charged for translation.

<div align="center">(OR)</div>

     a) Name the key players involved in the replication of DNA.
     b) DNA replication is semi discontinuous. State the reason. Explain with the help of diagram.

32) a) In a Mendelian monohybrid cross the F_2 generation shows identical genotype and phenotypic ratio. What does it tell about the nature of allele involved? (5)

    b) Justify and work out the cross giving an example.

<div align="center">(OR)</div>

    a) In a plant tallness is dominant over dwarfness and red flower is dominant over white. Starting with parents work out a dihybrid cross.

    b) What is a standard dihybrid ratio? Do you think the value will deviate if the genes in question are interacting with each other.

33) Living cells have evolved a variety of mechanism to repair damaged DNA. Explain any one of the repair system. (5)

<div align="center">(OR)</div>

Plant do not have antibodies. How do they protect themselves from abiotic and biotic stress? State the difference between necrosis and apoptosis.

<div align="center">*********</div>

General Instructions:
1. This Question paper contains - five sections A, B, C, D and E. Each section is compulsory. However, there are internal choices 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)-type questions of 2 marks each.
4. Section C has 6 Short Answer (SA)-type questions of 3 marks each.
5. Section D has 4 Long Answer (LA)-type questions of 5 marks each.
6. Section E has 3 source based/case based/passage based/integrated units of assessment of 4 marks each with sub-parts.

SECTION-A
[This section comprises of Multiple Choice Questions (MCQ) of 1 mark each]

1. The decimal value of the difference between $(110)_2$ and $(101)_2$ is
   (a) 10   (b) 1   (c) 2   (d) 9

2. The sum of first 10 even natural numbers is
   (a) 101   (b) 22   (c) 110   (d) 11

3. From a committee of 8 persons, in how many ways can you choose a Chairman and a Vice-chairman, assuming that one cannot hold more than one position?
   (a) 56   (b) 28   (c) 336   (d) 168

4. If $y = \log\left(\frac{1-x^2}{1+x^2}\right)$, $|x| < 1$, then $\frac{dy}{dx}$ is equal to
   (a) $\frac{4x}{(x^2-1)^2}$ (b) $-\frac{4x}{1-x^4}$ (c) $\frac{1-x^2}{4x}$ (d) $\frac{4x}{x^2-1}$

5. The difference of the compound interest on ₹1000 for 2 years at 4% per annum compounded yearly and compounded half-yearly is
   (a) ₹ 0.79   (b) ₹ 0.80   (c) ₹ 0.83   (d) ₹ 0.96

6. A card is drawn from a deck of 52 cards. The probability of drawing a king or a heart or a red card is
   (a) $\frac{11}{26}$ (b) $\frac{15}{26}$ (c) $\frac{4}{13}$ (d) $\frac{7}{13}$

7. If the function 'f' defined by $f(x) = \begin{cases} ax + 1, & if\ x \le 3 \\ bx + 3, & if\ x > 3 \end{cases}$, is continuous at x = 3, then the relationship between 'a' and 'b' is
   (a) 3a = 3b + 2   (b) 3a = b + 3   (c) a = 3b + 1   (d) 3a = 3b − 2

8. The value of $(\sqrt{32} - \sqrt{5})^{\frac{1}{3}} \times (\sqrt{32} + \sqrt{5})^{\frac{1}{3}}$ is
   (a) 27   (b) 5   (c) 3   (d) 12

9. Calculation of electricity bill is done using the formula
   (a) Energy charge + Fixed charge + Electricity charge
   (b) Energy charge + Fixed charge + Energy charge + Sewerage
   (c) Energy charge + Fixed charge + Energy Tax + Surcharge
   (d) Energy charge + Fixed charge + Surcharge + Sewerage

10. In an examination there are four multiple choice questions and each question has 4 choices. Number of ways in which a student can fail to get all answers correct is
    (a) 256   (b) 255   (c) 63   (d) 64

11. Consider the function $f(x) = \begin{cases} 4x - 5, & if\ x \le 2 \\ x - k, & if\ x > 2 \end{cases}$. If $\lim\limits_{x \to 2} f(x)$ exists, then the value of 'k' is
    (a) 0   (b) 1   (c) -1   (d) 2

12. The mean of 100 observations is 50 and their standard deviation is 10. If 5 is added to each observation, then new mean and new standard deviation respectively will be
    (a) 55, 10   (b) 50, 10   (c) 50, 15   (d) 60, 10

13. If $\log_5 (0.04) = x$, then the value of 'x' is
    (a) 2   (b) 4   (c) -4   (d) -2

14. A and B are two mutually exclusive events of an experiment. If P(not A) = 0.65, P(A U B) = 0.65 and P(B) = p, then the value of 'p' is
    (a) 0.35   (b) 0.30   (c) 0.25   (d) 0.40

15. The average of five numbers is 30. If one number is excluded, their average becomes 28. Then the excluded number is
    (a) 38   (b) 28   (c) 30   (d) 35

16. The difference between the compound and simple interest on an amount of ₹ 1000 for 2 years is ₹ 64. Then the rate of interest per annum is
    (a) 6%   (b) 8%   (c) 9%   (d) 10%

17. The number of proper subsets of a set containing four elements is
    (a) 4^2 (b) $4^2 - 1$ (c) 2^4 (d) $2^4 - 1$

18. The domain of the function 'f' defined by $f(x) = \log_e (5 - 6x)$ is
    (a) $(-\infty, \frac{5}{6})$ (b) $(\frac{5}{6}, \infty)$ (c) $(-\infty, \frac{5}{6}]$ (d) $[\frac{5}{6}, \infty)$

ASSERTION REASON BASED QUESTIONS

In the following questions, a statement of Assertion(A) is followed by a statement of Reason (R). Choose the correct answer out of the following choices
(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 but R is true.

19. **Assertion (A) :** The domain of the function $f(x) = \frac{x+2}{|x+2|}$ is $R - \{-2\}$.

    Reason (R) : The range of the function $f(x) = 1 - |x - 2|$ is $(-\infty, 1]$.

20. **Assertion (A) :** For x = ±1, the numbers $\frac{-2}{7}$, x, $\frac{-7}{2}$ are in G.P.

    Reason (R) : Three numbers a, b, c are in G.P. if $b^2 = ac$.

SECTION – B
[This section comprises of very short answer type questions (VSA) of 2 marks each]

21. Convert the decimal numbers 26 and 7 to binary numbers and find the product of these binary numbers.

22. I roll two dice and get a sum more than 9. What is the probability that the number on the first die is even?

23. Find the domain and range of the function $f(x) = \sqrt{x^2 - 4}$.

    OR

    If $f(x) = x + \frac{1}{x}$, prove that $(f(x))^3 = f(x^3) + 3f(\frac{1}{x})$

24. Find the nominal rate (compounded quarterly) which is equivalent to 5% effective rate of interest. Given $(1.05)^{1/4} = 1.01227$.

25. A housewife buys a dozen eggs of which two turn out rotten. She chooses four eggs to scramble for breakfast. Find the chance that she chooses
    (i) three good and one bad egg.
    (ii) at least one bad egg.

    OR

    The probability that a student will pass the examination in both English and Hindi is 0.5 and the probability of passing neither is 0.1. If the probability of passing the English examination is 0.75, then what is the probability of passing the Hindi examination?

SECTION - C
[This section comprises of short answer type questions (SA) of 3 marks each]

26. A cuboidal gold block of dimensions 9cm x 11cm x 12cm is melted and recast into spherical balls of radius 3mm. Find the number of spherical balls formed.

    OR

    The volume of a conical tent is $1232m^3$ and the area of the base floor is $154m^2$. Calculate the:
    (i) Radius of the floor.
    (ii) Height of the tent.
    (iii) Length of the canvas required to cover this conical tent if its width is 2m.

27. Evaluate $\frac{(27.8)^{\frac{1}{2}} \times (58.49)^{\frac{2}{3}}}{(0.0007)^{\frac{1}{4}}}$, using log tables.

28. In a class having 60% boys, 5% of the boys and 10% of the girls have an IQ of more than 150. A student is selected at random and found to have an IQ of more than 150. Find the probability that the selected student is a boy.

29. Mr Jain lives in Dehradun, Uttrakhand. He has an electricity connection of 4kW. He consumed 329 units of electricity in January 2019. Calculate his electricity bill for the month of January 2019 according to the tariff plan given below.

No. of Units (in kWh)	Price per unit (in ₹)	Fixed charges per month (in ₹)
0 - 100	2.75	55
101 - 200	3.55	85
201 - 400	4.90	145
>400	5.65	230

Surcharge – Nil, Energy duty - ₹ 0.15 per unit.

30. In a survey of 60 people, it was found that 21 people liked product A, 26 liked product B and 29 liked product C. If 14 people liked products A and B, 12 liked products C and A, 14 people liked products B and C and 8 people liked all the three products, find
    (i) how many people liked product C only?
    (ii) how many people liked at least one of the three products?
    (iii) how many people do not like any of the three products?

OR

From the adjoining Venn diagram, determine the following sets:
(i) A U B
(ii) A∩B
(iii) A – B
(iv) (A∩B)'
(v) A'∩B'
(vi) A' U B
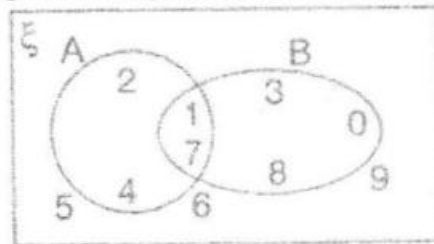
31. Find the mean, variance and standard deviation for the following frequency distribution:

Classes	0 – 10	10 – 20	20 – 30	30 – 40	40 - 50
Frequency	5	8	15	16	6

SECTION – D
(This section comprises of long answer type questions (LA) of 5 marks each)

32. (a) Determine 'x' so that the inclination of the line containing the points (x, -3) and (2, 5) is 135°.
    (b) The vertices of a quadrilateral are (-4, 2), (2, 6), (8, 5) and (9, -7). Using slopes, show that the mid-points of the sides of the quadrilateral form a parallelogram.

OR

(a) Find the equation of the line whose slope is $\frac{3}{2}$ and which passes through P, where P divides the line segment joining A(-2, 6) and B(3, -4) in the ratio 2:1.
(b) Find the equation of the line passing through the point of intersection of the lines 2x + y = 5 and x + 3y + 8 = 0 and parallel to the line 3x + 4y = 7.

33. (a) Differentiate $\sqrt{3x + 2} + \frac{1}{\sqrt{2x^2+4}}$ with respect to 'x'.

(b) If $x^{\frac{2}{3}} + y^{\frac{2}{3}} = 2$, find $\frac{dy}{dx}$ at (1,1).

34. (a) Insert two arithmetic means between 1 and 31.
    (b) Find the sum of the integers from 100 to 500 that are divisible by 2 and 3

OR

(a) If a, b, c are in A.P., then show that $3^a, 3^b, 3^c$ are in G.P.
(b) Three numbers are in A.P. and their sum is 15. If 1, 4 and 19 are added to these numbers respectively, the resulting numbers are in G.P. Find the numbers.

35. Calculate the Karl Pearson's coefficient of skewness for the following data:

Age (in years)	20 - 30	30 - 40	40 – 50	50 – 60	60 – 70	70 – 80	80 - 90
No. of persons	3	61	132	153	140	51	2

SECTION E

[This section comprises of 3 case- study/passage based questions of 4 marks each with sub parts. The first two case study questions have three sub parts (i), (ii), (iii) of marks 1, 1, 2 respectively. The third case study question has two sub parts of 2 marks each.)

36. **CASE STUDY – 1**

Independence Day is a national holiday in India. It is celebrated religiously throughout the country on the 15th of August every year. It holds tremendous ground in the list of national days, since it reminds every Indian about the dawn of a new beginning, the beginning of an era of deliverance from the clutches of British colonialism of more than 200 years.
Answer the following questions based on the word 'INDEPENDENCE'.

(a) Find the number of permutations of the letters of the word. (leave your answer in the factorial form).

(b) Find the number of 3-letter words, with or without meaning, that can be formed from the letters of the word, if repetition is not allowed.

(c) On this occasion, the school appointees of a school shook hands with each other. The number of handshakes was counted to be 66. How many appointees were there?

OR

As a part of this celebration in our school, appointees were asked to send entries to deliver a speech. 3boys and 5 girls sent their entries. In how many ways can a teacher choose 2boys and 2girls, if the head boy and head girl have to be included.

37. **CASE STUDY – 2**

For a function f(x), $\lim_{x \to c} f(x) = l$ if and only if $\lim_{x \to c^-} f(x) = l = \lim_{x \to c^+} f(x)$. This value 'l' is called the limit of the function.

(a) Evaluate $\lim_{x \to 2} \frac{3x^2 - x - 10}{x^2 - 4}$

(b) Evaluate $\lim_{x \to 0} \frac{\sqrt{2+x} - \sqrt{2}}{x}$

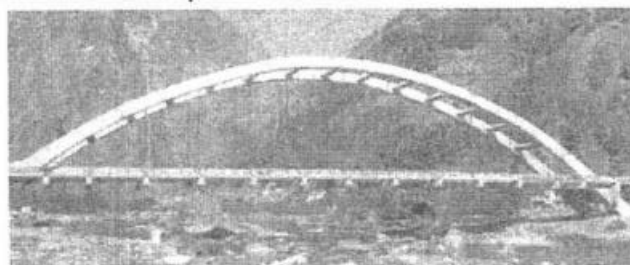(c) Evaluate $\lim_{x \to 0} \frac{e^x - e^{-x}}{x}$

OR

Is the function 'f' defined by f(x) = x -|x| continuous at x = 0.

38. **CASE STUDY – 3**

The girder of a railway bridge is a parabola, as shown in the figure, with its vertex at the highest point, 10m above the ends and span is 100m.

Based on the above information, answer the following

(a) Find the height of the bridge at a point 20m from the mid-point.

(b) If a circle was to be constructed with centre at the focus of the parabola and passing through the vertex of the parabola, what would its equation be?

DELHI PUBLIC SCHOOL, BHILAI

Date : 28.02.2024   ANNUAL EXAMINATION 2023-24   Time : 3 Hrs.

Class : XI   Subject : Physics   Max. Marks : 70

General Instructions:
(1) There are 33 questions in all. All questions are compulsory.
(2) This question paper has five sections: **Section A, Section B, Section C, Section 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.

SECTION-A

1. The pair of physical quantities that have same dimensions-
   (a) pressure and force
   (b) linear momentum and wavelength
   (c) Impulse and linear momentum
   (d) energy and angular momentum   (1)

2. $\vec{a}$ and $\vec{b}$ are the two vectors and θ is the angle between them; if $|\vec{a} \times \vec{b}| = \sqrt{3}\, \vec{a} \cdot \vec{b}$ then the value of θ is:
   (a) 90°   (b) 60°   (c) 45°   (d) 30°   (1)

3. Limiting friction of a body depends on –
   (a) Area of contact of the surfaces
   (b) The volume of the smaller body on larger surface
   (c) Nature of surfaces
   (d) The periphery of the contact surfaces   (1)

4. 'When a hanging carpet is beaten with a stick, dust particles start coming out of it.' This phenomena is an example of –
   (a) Newton's first law (b) Newton's second law (c) Newton's third law (d) Newton's law of gravitation   (1)

5. *The Moment of Inertia* does not depend on :-
   (a) mass   (b) mass distribution   (c) location of axis   (d) angular speed   (1)

6. The direction of angular velocity vector is along –
   (a) the tangent   (b) radially inwards   (c) radially outwards   (d) the axis of rotation   (1)

7. The rotational analogue of mass in linear motion is -
   (a) Weight   (b) Moment of inertia   (c) Torque   (d) Angular momentum   (1)

8. Which of the following is correct?
   (a) Weight is a scalar quantity.
   (b) Weight is not a fundamental quantity.
   (c) Weight does not depend on acceleration due to gravity.
   (d) None of these   (1)

9. The weight of a body on the earth is 400 N. Then weight of the body when taken to the centre of the earth will be:
   (a) Zero   (b) 300 N   (c) 100 N   (d) More than 300N   (1)

10. Young's moduli of the material of wires A and B (equal length) are in the ratio of 1 : 4, while its area of cross section are in the ratio of 1 : 3. If the same amount of load is applied to both the wires, the amount of elongation produced in the wires A and B will be in the ratio of –
    (a) 36 : 1   (b) 12 : 1   (c) 1 : 36   (d) 1 : 12   (1)

11. What would be the frequency of beats (in Hz) when two sounds of frequencies 300 Hz and 303 Hz superimpose ?
    (a) 30   (b) 2   (c) 603   (d) None of above   (1)

12. If 'a' is acceleration and 'x' displacement, then which of the following represents a simple harmonic motion?
    (a) $a = -10x$ (b) $a = 0.7x$ (c) $a = -200\, x^2$ (d) $a = 100\, x^3$ (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 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.

13. **Assertion (A) :** Two balls of different masses are thrown vertically upwards with the same speed. They wil will pass through their point of projection in downward direction with same speed.
    Reason (R) : The maximum height and downward velocity attained at point of projection are independent of mass of the ball.   (1)

14. **Assertion (A) :** The force exerted by moon on the earth is very small as compared to the force exerted by earth on Moon.
    Reason (R) : Mass of moon is very large as compared to earth. (1)

15. **Assertion (A) :** If there is no external torque on a body about its centre of mass, then the velocity of centre of mass must remain constant.
    Reason(R) : The linear momentum of an isolated system remains variable. (1)

16. **Assertion (A) :** Steel is used in the construction of buildings and bridges.
    Reason (R) : Steel is more elastic and its elastic limit is high. (1)

SECTION-B

17. The velocity –time graph is shown. Calculate the displacement in 6 sec. (2)
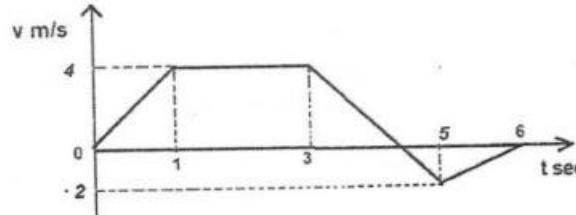
18. Using the method of dimensions, convert 10 Joule in terms of erg. (2)

19. What is 'centre of mass' ? Derive a formula for centre of mass of a two particle system ? (2)

20. State – (a) Stefan's law   (b) Wien's law. (2)

OR

Write four important properties of thermal radiation. (2)

21. A body of mass m is attached to the lower end of a spring whose upper end is fixed .The spring has negligible mass. When the mass m is slightly pulled down and released, it oscillates with a time period of 3 s. When the mass m is increased by 1 kg, the time period of oscillation becomes 5 s. Find the value of m . (2)

SECTION-C

22. Discuss the motion of a car on a banked circular road having coefficient of friction μ. Hence find the expression for maximum velocity for a safe turn. (3)

23. (a) State – triangle law of vector addition. (3)
    (b) Define unit vector and null vector.

24. Explain the variation of acceleration due to gravity with altitude. Also draw the graph showing its variation with height. (3)

25. (a) What is the angle of contact ? (3)
    (b) Explain the capillary rise with diagram. Derive formula for the capillary rise.

26. Derive expression for the pressure exerted by a gas on the walls of a vessel on the basis of Kinetic theory. (3)

27. Show that the motion of a simple pendulum is a simple harmonic motion and hence derive an expression for its time period. (3)

28. What are stationary waves ? Using necessary diagrams, show that for the stretched string fixed at both ends, the frequency of first three harmonics are in the ratio 1: 2: 3 . (3)

OR

Show that in a closed ended organ pipe, the frequencies generated are in the ratio 1:3:5:... so on. Name the kind of wave produced in it. (3)

SECTION-D

Case Study Based Questions
**Read the following paragraphs and answer the questions that follow-** (1X4=4)

29. **Impulse and force** – The product of force and time which is the change in momentum of the body remains a measurable quantity. This product is called impulse Impulse = Force × time duration = Change in momentum Large force acting for a short time to produce a finite change in momentum is called an impulsive force.
    The second law says that force is the rate of change of linear momentum.
    The third law of motion states that when one object exerts a force on another object, the second object instantaneously exerts a force back on the first.
    (i) Figures show variation of force with time. The impulse is highest in which case?
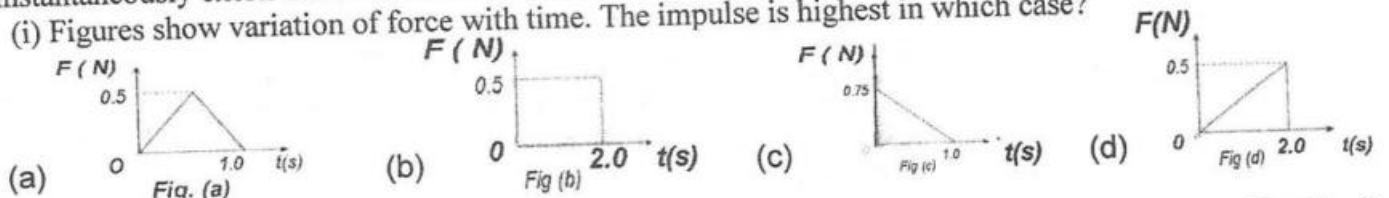
(ii) Which of the following is correct about action reaction forces?
    (a) They act on different objects
    (b) They are equal in magnitude and opposite in direction
    (c) Both forces acted on different object simultaneously
    (d) All the above

(iii) Which of the following is not a vector- -
    (a) momentum   (b) Kinetic energy   (c) acceleration   (d) force

<center>OR</center>

The linear momentum of a body 2 kg is $p = 3t^2 + 4 \, kgm/s$. It has:
    (a) constant speed   (b) variable acceleration
    (c) constant acceleration   (d) variable retardation

(iv) A diwali rocket ejects 0.05 kg of gases per second at a velocity of 400 m/s. The force on rocket is-
    (a) 5 N   (b) 10 N   (c) 50 N   (d) 20 N

Read the following paragraphs and answer the questions that follow-   (1x4=4)

30. **Work energy principle :** When a force is applied on a body and the body is displaced in the direction of force, then the kinetic energy of the body changes. This change in the kinetic energy of the body is measured in terms of work, i.e. the change in kinetic energy of the body must be equal to work done. It is also known as work energy theorem. If m is the mass of body, u is initial velocity of body, v is final velocity of body then Work done = Change in kinetic energy, $W = \frac{1}{2}mv^2 - \frac{1}{2}mu^2$
The rate of doing work is also called power.

(i) The mass of a body is halved and its speed is doubled. What happens to the Kinetic energy?
    (a) Doubled   (b) halved   (c) Eight times   (d) Remains unchanged
(ii) Two bodies of mass m and 4m have equal kinetic energies. Ratio of their linear momenta is:
    (a) 1:2   (b) 1:4   (c) 1:1   (d) 2:1
(iii) A boy pushes a wall and fails to displace it. Therefore, he does –
    (a) positive work   (b) negative work   (c) positive but not maximum work   (d) no work at all

<center>OR</center>

The energy that will be ideally radiated by a 100 kW transmitter in 1 hour is
    (a) $1 \times 10^5 \, J$ (b) $36 \times 10^4 \, J$ (c) $36 \times 10^5 \, J$ (d) $36 \times 10^7 \, J$
(iv) Which of the following must be known in order to determine the power output of an automobile?
    (a) Final velocity and height   (b) Mass and amount of work performed
    (c) Force exerted and distance of motion   (d) Work performed and elapsed time of work

<center>**SECTION-E**</center>

31. (a) A particle is projected at an angle θ from ground with speed v. Derive expression for maximum height and horizontal range.
    (b) The maximum vertical height to which a man can throw a ball is 136 m. Find the maximum horizontal distance upto which he can throw the same ball.   (5)

<center>OR</center>

    (a) An object is moving with uniform speed v in a circle of radius 'r'. Derive expression for centripetal acceleration. Write its direction. Draw necessary diagrams.
    (b) Find the angle between *vectors* $\vec{P} = 3\hat{\imath} - 2\hat{\jmath} + 6\hat{k}$ and $\vec{Q} = -3\hat{\imath} - 5\hat{\jmath} + 8\hat{k}$

32. (a) Write SI unit of coefficient of viscosity .
    (b) State Stoke's law.
    (c) Derive an expression for terminal speed. Draw necessary diagram.   (5)

<center>OR</center>

    (a) State and prove Bernoulli's principle with necessary diagram.
    (b) Explain any one of its applications with necessary diagram.

33. (a) Express first law of thermodynamics in case of an isothermal process.
    (b) Derive an expression for work done during an isothermal process.
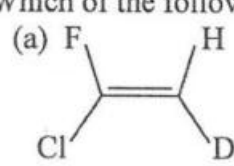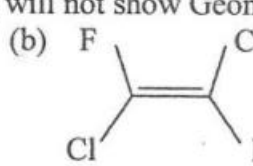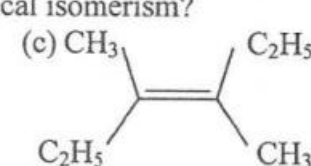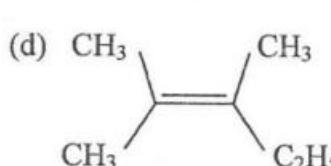   (c) Define Latent heat.   (5)

<center>OR</center>

    (a) Express first law of thermodynamics in case of an adiabatic process.
    (b) Derive an expression for work done during an adiabatic process.
    (c) Define specific heat capacity.

<center>ಆಆಆ ಜಜಜ</center>

General Instructions :
(1) There are **33** questions in this question paper with internal choice.
(2) **Section A** consists of **16 Multiple Choice Questions** carrying **1 mark** each.
(3) **Section B** consists of **5 short answer questions** carrying **2 marks** each.
(4) **Section C** consists of **7 short answer questions** carrying **3 marks** each.
(5) **Section D** consists of **2 Case-Based questions** carrying **4 marks** each.
(6) **Section E** consists of **3 Long Answer Questions** carrying **5 marks** each.
(7) All questions are compulsory.
(8) Use of log table and calculators is not allowed.

Section – A
The following questions are multiple choice questions with one correct answer. Each question carries 1 mark.

01.   8 g of O_2 has the same number of molecules as
    (a) 7 g CO   (b) 14 g N_2 (c) 22 g CO_2 (d) 32 g SO_2 (1)

02.   Which one of the following options does not represent ground state electronic configuration of an atom ?
    (a) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^8 4s^2$ (b) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^9 4s^2$
    (c) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^{10} 4s^1$ (d) $1s^2 2s^2 2p^6 3s^2 3p^6 3d^5 4s^1$ (1)

03.   The correct order of decreasing electronegatives of N, O, F and P is
    (a) F>N>P>O   (b) F>O>P>N   (c) F>O>N>P   (d) N>O>F>P   (1)

04.   Which of the following species contains three bond pairs and one lone pair around the central atom?
    (a) H_2O (b) BF_3 (c) NH_2^- (d) PCl_3 (1)

05.   For the reaction $2Cl(g) \rightarrow Cl_2(g)$ the correct option is
    (a) $\Delta H > 0$ and $\Delta S > 0$ (b) $\Delta H < 0$ and $\Delta S > 0$
    (c) $\Delta H < 0$ and $\Delta S < 0$ (d) $\Delta H > 0$ and $\Delta S > 0$ (1)

06.   Which of the following species cannot act as both Bronsted acid and base ?
    (a) H_2O (b) HCO_3^- (c) HSO_4^- (d) NH_2^- (1)

07.   The reaction $P_4 + 3NaOH + 3H_2O \rightarrow 3NaHPO_2 + PH_3$ is an example of
    (a) displacement reaction   (b) disproportionation reaction
    (c) decomposition reaction   (d) combination reaction   (1)

08.   The effect that make 2, 3 – dimethyl but – 2 – ene more stable than but – 2 – ene is
    (a) Resonance   (b) electromesic effect   (c) hyper conjugation   (d) inductive effect   (1)

09.   Which of the following will not show Geometrical isomerism?   (1)

10.   The emphrical formula and molecular mass of a compound are C_2H_4O and 88 g respectively. What will be molecular formula of the compound
    (a) CH_2O (b) $C_6H_{12}O_6$ (c) $C_2H_4O_2$ (d) $C_4H_8O_2$ (1)

11.   What is the maximum number of electrons that can be associated with the following set of quantum number? $n = 3, l = 1, m = -1$
    (a) 10   (b) 6   (c) 4   (d) 2   (1)

12.   The correct order of hybridization of the central atom in the following species: NH_3, PCl_5, BCl_3 is
    (a) dsp^3, sp^2, sp^3 (b) sp^3, dsp^3, sp^2 (c) sp^2, dsp^3, sp^3 (d) sp^3, dsp^2, dsp^3 (1)

In the question **13 to 16** two statements are given. One labelled as Assertion (A) and other labelled as Reason (R). Select the most appropriate answer 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) and Reason (R) are false.

13.   **Assertion (A) :** BF_3 is planar but NF_3 is pyramidal.
    Reason (R) : N atom is smaller than B.   (1)

14. **Assertion (A) :** For the reaction $2NH_3(g) \rightarrow N_2(g) + 3H_2(g)$; $\Delta H > \Delta E$.
    Reason (R) : Enthalpy change is always greater than internal energy. (1)

15. **Assertion (A) :** In polyprotic acids, first ionization constant is lowest.
    Reason (R) : Removal of first proton is difficult. Further ionization becomes easier. (1)

16. **Assertion (A) :** Benzene does not decolourise Br_2 water.
    Reason (R) : Benzene stabilized by resonance due to delocalization of $\pi - electron$. (1)

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. According to the following chemical reaction $4HCl(aq) + MnO_2(s) \rightarrow 2H_2O(l) + MnCl_2(aq) + Cl_2(g)$
    How many grams of HCl react with 8.79 g of Mangnese dioxide?(Atomic mass of Mn=55u, Cl=36.5u) (1)

18. For element A, B, C and D along with their electronic configuration are given below :

Elements :	A	B	C	D
Electronic Configuration :	2, 1	2, 8	2, 8, 1	2, 8, 8

    Answer the following questions :
    (i) Which two elements belong to the same period?
    (ii) Which out of A and C is more reactive and why?
    (iii) Which two elements belong to the 18th group?
    (iv) Which out of A and B forms more compounds and why? (2)

    OR

    A part of periodic table is given below :

Group → / Period↓	1	2	3 to 12	13	14	15	16	17	18
2		A				D	E	F	
3	X							G	I
4	Y		B	C				H	
5	Z								

    Now answer the following questions. Identify
    (i) The most reactive metal and non metal.
    (ii) The element which is called alkaline earth metal.
    (iii) The gases which are present in atmosphere.
    (iv) Formula of the compound formed by A with E and G.

19. At certain temperature T the endothermic reaction $A \rightarrow B$ proceeds to the end. Determine
    (i) sign of ΔS for the reaction.
    (ii) sign of ΔG for the reaction $B \rightarrow A$ at the temperature T. Will it be spontaneous at low temperature or high temperature. (2)

20. (a) In the following reaction which reactant is oxidized and which reactant in the oxidant?
    $$2Fe^{3+}(aq) + 2I^-(aq) \rightarrow I_2(s) + 2Fe^{2+}(aq)$$
    (b) What is the oxidation no. of P in $H_4P_2O_6$ and $H_4P_2O_5$? (2)

21. Write the chemical equation showing the preparation of propene from (i) alcohol (ii) alkylhalide. (2)

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. 3 g of H_2 react with 29.0 g of O_2 to form H_2O.
    (a) Which is the limiting reactant ?
    (b) What is the maximum amount of water that can be formed. (3)

23. (a) State Pauli's exclusion principle.
    (b) How many electrons are present in all subshells (fully filled) with $n + l = 5$?
    (c) What are the subshells associated with $n = 4$. (3)
    OR
    (a) State Heisenberg's uncertainity principle.
    (b) If position of the electron is measured with in an accuracy of $\pm 0.002 \ nm$, calculate the uncertainity in momentum of the electron.

24. (a) Give reasons for the following :
   (i) Electron gain enthalpy of fluorine is less negative than that of chlorine.
   (ii) Oxygen has lower ionisation enthalpy than nitrogen.
   (b) Arrange the following in the increasing order of size Mg, Mg^{2+}, Al, Al^{3+} (3)

25. (a) Write the relationship between ΔH and ΔU.
   (b) Under what condition ΔH becomes equal to ΔU ?
   (b) The molar enthalpy change for water at 1 bar and $100°C$ is 41 KJ/mol. Calculate internal energy when 1 mol of water is converted in to ice. (3)

26. (a) Consider the following two decomposition reaction :
   (i) $CaCO_3 \rightarrow CaO + CO_2$ (ii) $2H_2O \rightarrow 2H_2 + O_2$ which of the two is a redox reacton? Explain.
   (b) Balance the following redox reaction in the acidic medium $MnO_4^- + Cl^- \rightarrow Cl_2 + Mn^{2+}$.

27. (a) What is the relationship between A, B and C ?

   A   B   C
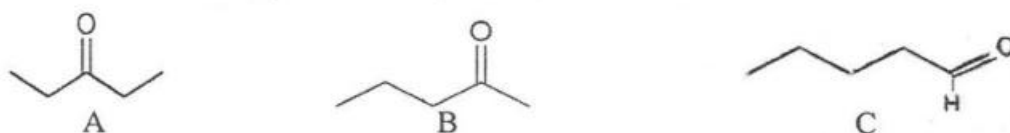
   (b) $CH \equiv CH$ is more acidic than $CH_2 = CH_2$. Why ?
   (c) Arrange the following in the decreasing order of stability
      $CH_3CH_2^+$, $C_6H_5CH_2^+$, $(CH_3)_3C^+$, $CH_2 = CHCH_2^+$ (3)

28. (a) Out of Benzene, m–dinitrobenzene and toluene which will undergo halogenation most easily and why? (1)
   (b) How will you convert benzene in to m-nitro chlorobenzene ?

   (c) Write the IUPAC name of $CH_2 - CH_2CH = CH_2$

Section – D
(The following questions are Case based questions. Each question has an internal choice and carries 4 marks (1+1+2) each. Read the passage carefully and answer the questions that follow)

29.   **Bohr's model of atom**

Bohr's model of atom was put forward postulating that electrons are revolving around the nucleus in circular orbits. He then found energies of the electrons revolving in different orbits, radii of the different orbits and the velocities with which electrons were revolving in different orbits. He derived a formula for calculation of energies in different orbits which is known as Bohr's formula. Subsequently formulae is derived for calculation of radii of difference orbits. The radius of first orbit is called Bohr's, radii

Answer the following questions :
(a) Why electronic energy taken as negative? (1)
(b) Calculate the radius 5th orbit for hydrogen atom. (1)
(c) Calculate first excitation energy of the electron in the hydrogen atom. (2)
                          OR
(c) (i) Why Bohr's orbits called stationery state?
   (ii) Which transition between Bohr's orbits corresponds to third line in the Balmer series?

30.   **Electron displacements**

In organic reaction, the organic compound called substrate, react with a suitable attacking reagent, which may be ether electron deficient (electrophiles) or electron rich (Nucleophile). But most of the substrate molecule as a whole is neutral. Evidently the reagent can attack the substrate molecule successfully only if the substrate possess oppositely charged centres. This is possible only if the displacement of bonding electrons occurs either partially or completely creating centres of low and high electron density in the substrate molecule. This is called electron displacements. These are of the following four types. (i) Inductive effect (ii) electromeric effect (iii) resonance effect (iv) hyper conjugation effect. These factors play a vital role in determining the reactivity of any substrate molecule in a given reaction.

Answer the following questions :
(a) Identify the electrophile and nucleophile from the following : H_3O^+ , $AlCl_3$, CH_3OH , CH_4 (1)
(b) Give reason : The ethyl anion is less stable than methyl anion but ethyl radical is more stable than methyl radical. (1)
(c) (i) Arrange the following in the increasing order of acidity. Acetic acid, chloro acetic acid, dichloro acetic acid, trichloro acetic acid.
   (ii) Which out of two excepted to be more stable? $O_2NCH_2CH_2O^-$ OR $CH_3CH_2O^-$ why ? (2)
                          OR
   (i) Draw the resonance structures of phenol.
   (ii) Why alkyl group act as electron donors when attached to a $\pi - system$?

Section – E
(The following questions are Long answer type questions and carry 5 marks each.
Two questions have an internal choice.)

31.   Answer **any five** of the following: (1x5=5)
 (a) On the basis of VSEPR theory predict the shapes NH_4^+ and PF_5 molecule/ion.
 (b) What is the total number of sigma and pi bonds in the following molecule ? $CH_3 - CH = CH - C \equiv CH$
 (c) Why two hydrogen atoms combine to form H_2 but two helium atoms do not combine to form He_2 ?
 (d) Predict which out of the following molecule will have higher dipole moment and why ? CS_2 and OCS
 (e) Arrange the given dicarbon species in order of their bond length C_2 , C_2^- , C_2^{2-} using MOT
 (f) Draw the orbital diagram of ethyne.

32. (a) What is the effect increasing pressure on the equilibrium $N_{2\,(g)} + 3H_{2\,(g)} \rightleftharpoons 2NH_{3\,(g)}$?   (1)

 (b) What is Kc and Kp ? Derive a relationship between them.   (2)

 (c) What will be Kp for the reaction ?

$$2NOCl_{(g)} \rightleftharpoons 2NO_{(g)} + Cl_{2\,(g)} \text{ at 1000 K if Kc at 1000 K is } 3.75 \times 10^{-6}$$ (2)

OR

 (a) What are acids and base according to Bronsted Lowry theory?

 (b) The concentration of hydrogen ion in a sample of soft drink is $3.8 \times 10^{-3} M$. What is the pH?

 $(log\ of\ 3.8 = 0.58)$

 (c) Define degree of ionization. Derive an expression relating degree of ionization and concentration.

33. (a) Solution salt of which acid will be needed for the preparation of propane in sodalime decarboxylation? (1)

 (b) An alkene on ozonalysis gives a mixture of ethanol and pentan – 3 – one.

  Write the structure and IUPAC name of A.   (2)

 (c) Draw the cis and trans isomer of hex – 2- ene. Which will have higher boiling point and why?   (2)

OR

 (a) Write the chemical equation involved in the Friedel craft alkylation reaction.

 (b) Write the mechanism of nitration of benzene.

 (c) How will you prepare benzene from (i) Ethyne   (ii) phenol (Write chemical equation)

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<u>**General Instructions**</u> : **Read the following instructions very carefully and strictly follow them :**

1) This question paper contains 33 questions. All questions are compulsory.

2) This question paper is divided into five 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 (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 subject.

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 diagrams should be drawn.

Section A

1) Given below is the diagram of a stomatal apparatus. In which of the following all the four parts labelled as A,B,C and D are correctly identified?   1
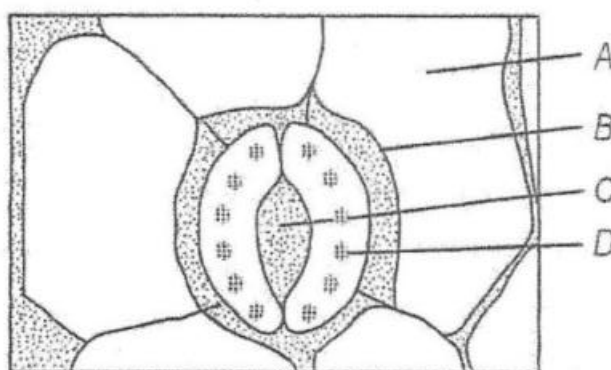
	A	**B**	**C**	**D**
(a)	Subsidiary cell	Epidermal cell	Guard cell	Stomatal aperture
(b)	Guard cell	Stomatal aperture	Subsidiary cell	Epidermal cell
(c)	Epidermal cell	Guard cell	Stomatal aperture	Subsidiary cell
(d)	Epidermal cell	Subsidiary cell	Stomatal aperture	Guard cell

2) Which type of protein is present in human haemoglobin?   1

(a) Secondary protein   (b) Tertiary protein (c) Quartenary protein   (d) None of these

3) Which of the following features distinguish a male frog?   1

(a) Vocal sacs   (b) Copulatory pad (c) Tympanum (d) Both (a) and (b)

4) Given below are some related pair of type of vertebrae with respect to their number. Find the incorrect one.   1

	Types of vertebrae		**Number**
(a)	Cervical vertebrae	1	7
(b)	Thoracic vertebrae	2	12
(c)	Lumbar vertebrae	3	5
(d)	Sacral vertebrae	4	2

5) Which of the following is correctly matched?   1

   (a)   Basophils   Immunity

   (b)   Neutrophils   Phagocytes

   (c)   Eosinophils   Secrete histamine, serotonin and heparin

   (d)   Lymphocytes   Allergic reactions

6) Which of the following statements are correct for the given bryophyte species?   1
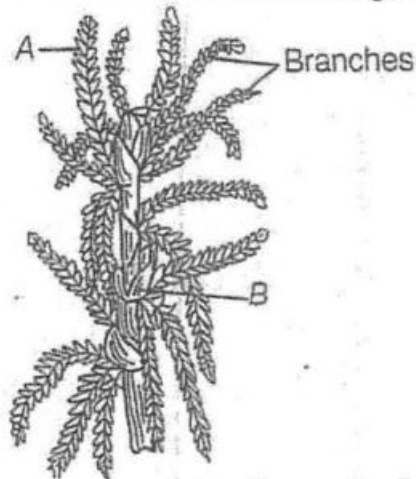
I) The given diagram represent Sphagnum gametophyte.

II) The given species is a liverwort.

III) It provides peat.

IV) Scales and elaters are not found in it.

Codes :

(a) II and III (b) I and IV (c) II, III and IV (d) I, III and IV

7) Which of the following is the smallest region of the root?

(a) Root cap (b) Region of elongation

(c) Region of meristematic activity (d) Region of maturation

8) Why terrestrial organism excrete lesser toxic nitrogenous waste?   1

(a) For conservation of water   (b) For maintaining Osmolarity

(c) To facilitate simple diffusion (d) It is easy to excrete less toxic substances

9) Observe the diagram shown below and find out the parts labelled as A,B,C and D in the shown figure :   1
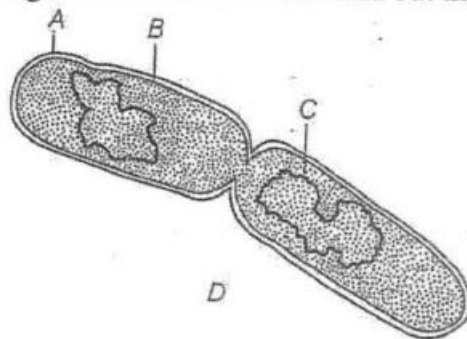
(a) A-Plasma membrane, B- Cell wall, C-RNA, D-spore formation

(b) A-Cell wall, B- Cell membrane, C-DNA, D- Binary fission

(c) A-Plasma membrane, B-Mucilaginous, C-DNA, D- Transformation

(d) A-Mucilaginous, B-Cell membrane, C-RNA, D- Conjugation

10) What happens when pacemaker is non-functional?   1

(a) Only the auricle will contract rhythmically

(b) The cardiac muscle do not contract in a coordinated manner rhythmically

(b) Only ventricles will contract rhythmically

(c) Cardiac muscle will contract in a coordinated manner.

11) In an observation scientist kept two plates, one is of virus and other is of viroid. He forget to mark the plate and now he is confused which plate is of virus and viroids. Viroid differ from viruses in having :   1
   (a) DNA molecules with protein coat   (b) DNA molecules without protein coat.
   (c) RNA molecules with protein coat   (d) RNA molecules without protein coat

12) Which of the following is a non-hyphal unicellular fungus?   1
   (a) Yeast   (b) Puccinia   (c) Ustilago   (d) Alternaria
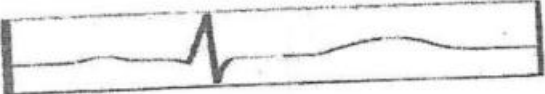
In each of the following questions, a statement of Assertion (A) is given followed by corresponding statement of Reason (R). Of the statements, mark the correct answer as
   a) If both A and R are true and R is the correct explanation of A.
   b) If both A and R are true, but R is not the correct explanation of A.
   c) If A is true, but R is false.
   d) If A is false and R is true.

13) Assertion (A) : The presence of accessory pigments increase the rate of photosynthesis.
   Reason (R) :   These pigments absorb the light of different wavelength and transfer it to reaction centre.

14) Assertion (A) : Diakinesis is final stage of prophase-I.
   Reason (R) :   Terminalisation of chiasmata occurs in diakinesis.

15) Assertion (A) : True fruits develop from ovary.
   Reason (R) :   Leaves arise from the nodes of a stem.

16) Assertion (A) : Ribosomes are considered as the most primitive cell organelles.
   Reason (R) :   They occur in all eukaryotic organisms.

Section B

17) Both bryophytes and pteridophytes require water for fertilization; yet they differ from each other in many aspects. Differentiate between the two (four points)   2

18) Oxygen dissociation curve is obtained by plotting percentage saturation of Hb with O_2 against PO_2 2
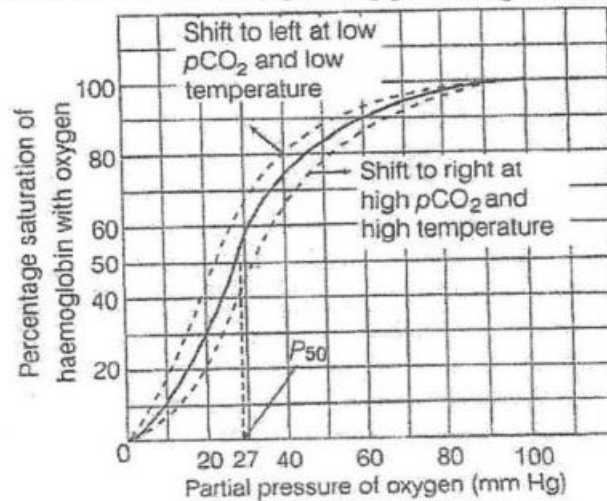
   (i) How will an increase in temperature affect this curve?
   (ii) When the curve shifts to left, what does it indicate?

19) (a) Name the waves of a standard ECG.   2
   (b) What do they represent?

20) Expand RuBisCO. Why does it have a dual function?   2

(OR)

What is RQ? Give an example of any respiratory substrate.

21) Plant growth regulators have innumerable practical applications. Name the PGR you should use to
   (a) increase yield of sugarcane   2
   (b) promote lateral shoot growth.
   (c) bolting in beet and cabbage.
   (d) inhibit seed germination.

Section C

22) What do the symbols of (a) Br (b) $\oplus$ (c) $\cdot\vdash\cdot$ (d) $\underline{G}$ (e) K(5) (f)P in a floral formula represent. Give the floral formula of the family Solanaceae.

3

23) Given below are the pairs of animals and phylum which they belong to. Which out of these is not a matching pair and why? Give two reasons.

3

(i) Taenia – Playtyhelminthes

(ii) Adamsia – Coelenterata

(iii) Asterias - Mollusca

24) Answer the following with reference to the anatomy of <u>monocot stem</u> :
   a) How are the vascular bundles arranged?

   b) How are the xylem vessels arranged in each bundle?

3

   c) What do you call such an arrangement?

   d) Vascular bundles are closed ones. What type of tissue is lacking in them?

(OR)

Answer the following with reference to the anatomy of <u>dicot root</u>:

   a) Where is pericycle located?

   b) How are the xylem vessels arranged?

   c) What do you call such an arrangement?

   d) Which type of cells constitute the cortex?

25) Draw a well labelled diagram of the male reproductive system of frog.   3

26) Write the chemical reactions wherein NADH and $FADH_2$ are produced in Kreb's cycle.   3

27) Blood carries carbondioixde from the tissues. Discuss the ways by which it is transported.   3

28) Golgi apparatus consist of flat, disc- shaped, parallely stacked structure, possess cis (forming) and trans (maturation) faces. Observe the figure carefully and answer the following questions.   3
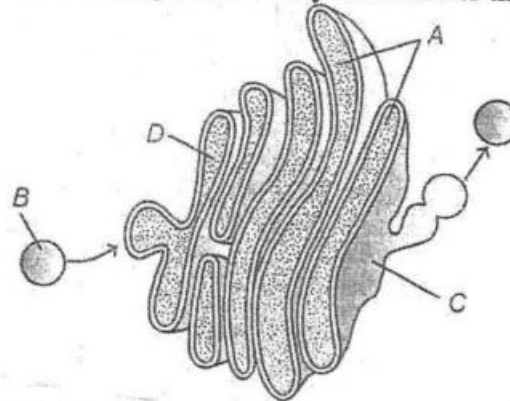
(i) Identify the labels A, B, C and D

(ii) What is the function of Golgi apparatus and explain endomembrane system.

SECTION D

29) Observe the given figure related to enzyme action and answer the questions that follows.
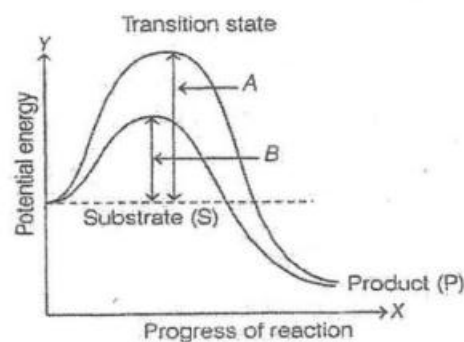
(i) What is the figure showing?   1

(ii) What does arrow A and B indicated?   1

(iii) What happens when P is at a lower level than S?   2

(OR)

(iv) Formation of Enzyme Substrate (ES) complex is the first step in catalyzed reactions. Describe the other steps till the formation of product.   2

30) The graph is showing the action spectra of the photosynthetic pigments. The first action spectrum was studied by Engelmann by using to green algae which liberated oxygen according to the rate of photosynthesis in different wavelength of light.
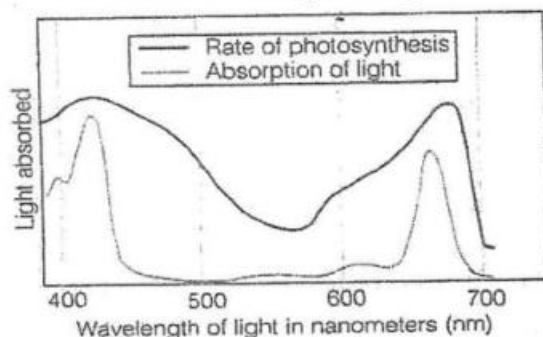
(i) What is the action spectrum? How is it related with the absorption of light at different wavelength?   1

(ii) In which region, rate of photosynthesis is maximum?   2

(iii) Give one difference between action and absorption spectrum on the basis of the light energy.   1

(OR)

(iii) Study the graph below showing the absorption spectrum of chlorophyll-a,b and the carotenoids. Identify the labels A,B and C.   1
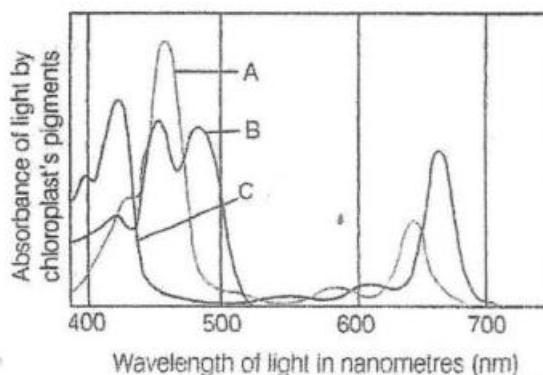
SECTION E

31) Explain Metaphase and Anaphase of mitotic cell division (2n=4) in a plant cell.   5

(OR)

Explain the following terms :

(a) Chiasmata

(b) Crossing over

(c) Interkinesis

(d) Synaptonemal complex

(e) Dyads

32) a) Draw the basic structure of a chemical synapse between neurons and label any six parts.   5

   b) The membrane of a nerve fibre is said to be in a polarized state. What is meant by this statement?

(OR)

Draw the structure of a nephron and label the parts. Explain the mechanism of regulation of the kidney function in the human body.

33) Draw a flowchart of the Calvin Cycle. Where does Calvin Cycle take place in chloroplast? Explain the steps in the cycle.   5

(OR)

(a) Name the hormones secreted by the pancreas. How is glucose homeostasis in our blood maintained by these hormones?

(b) How does thymus gland play a major role in the development of immunity? Explain.

****

General Instructions:

This question paper contains five sections, **Section A to E.**

1. All questions are compulsory. Internal choice has been given in some questions.
2. **Section A** have **18 questions** carrying **01 mark each.**
3. **Section B** has **07 Very Short Answer type questions each.**
4. **Section C** has **05 Short Answer type questions** carrying **03 marks** carrying **02 marks each.**
5. **Section D** has **03 Long Answer type questions** carrying **05 marks each.**
6. **Section E** has **02 questions** carrying **04 marks each.** One internal choice is given in **Q35** against part iii. only.
7. All programming questions are to be answered using Python Language only.

Q.no.	Questions	Marks
	SECTION – A	18
1.	Which of the following is a valid data type in Python? a. Real b. Floating Point c. Decimal d. Letter	1
2.	What will the following expression be evaluated to in Python? 2**2**2 a. 16 b. 128 c. 64 d. 8	1
3.	State True or False for the following statement:"Python is a low-level language"	1
4.	Consider the following logic gate diagram: What must be the value of x for which the above diagram is accurate ? a . 1 b. 0 c. both a and b	1
5.	1 KB of data is equivalent to a. 1024 bits b. 2^{20} bytes c. 2^{-10} Mb d. 2^{13} bits	1
6.	IDLE stands for a. Information Development Logic Environment b. Interaction Development Logic Environment c. Integrated Development and Learning Environment d. Interaction Developer and Logic Environment	1

7.	The following code produces an error:
	     a=int(input('Enter a number'))
	     c=a+b
	     print(b)
	 What is the name of the error?
	 a. Name Error b. Undefined Error c. Type Error d. Syntax Error
		1

8.	Select the correct output for the following code:
	     L=[]
	     for i in range(1,10):
	        if i%2==0:
	           L.append(i)
	     print(L,end='')
	 a. [2,4,6,8] b. [2 4 6 8 10] c. [1 2 3 4 5 6 7 8 9] d. [2 4 6 8]
		1

9.	Fill in the blank: _____function is used to create an empty tuple. a. len() b. tuple() c. tup() d. T()	1
10.	Which of the following is not a browser now? a. Google Chrome b. Microsoft Edge c. Mozilla Firefox d. Windows Explorer	1
11.	Which of the following is a wrong pair of application and category? a. WhatsApp: General Purpose software b. Gmail: Customised software c. Python: Free and Open-Source software d. MS Word: Proprietary software	1
12.	Fill in the blank _____is a language translator which reads a program line-by-line when run. a. Compiler b. Assembler c. Transmitter d. Interpreter	1
13.	Which of the following is true for Secondary memory? a. It is faster than Primary memory b. It is directly accessed by the CPU c. It is faster than RAM d. It is a non-volatile memory	1

14.	The base values of binary, octal and hexadecimal are a. 10, 80 and 160 respectively. b. 4, 8 and 16 respectively. c. 2, 8 and 16 respectively. d. 1, 8 and 16 respectively.	1
15.	Ram was asked to write an essay on World Environment Day; He copied Preeti's project and submitted it the next day. What type of violation of IPR did Ram commit? a. Plagiarism b. Copyright infringement c. Trademark infringement d. All of the above	1
16.	Ram wanted to make a program which takes in two numbers from the user and print the two numbers as shown below: Input: Enter number 1=>23 　　　　Enter number 2=>24 Output: 23.0,24.0 He wrote the following code but doesn't know what the last line is supposed to be 　　　a=float(input('Enter number 1=>')) 　　　b=float(input('Enter number 2=>')) 　... What would be the last line of his code which produces his desired output? 　a. print(a+b)　　　b. print(a,b)　　　c. print('a', ', ', 'b')　　　d. print(a,b,sep=', ')	1
	The following questions 17 and 18 are Assertion-Reasoning based, answer the questions by choosing one of the following responses: **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.**	
17.	A: Python is not a low-level language. R: It uses English-like words and simple syntax which is very easy to understand to humans.	1
18.	A: It is legal to download and watch movies online for free without the consent of the owner. R: Use of proprietary software for free without the consent of the owner is a form of piracy.	1
	SECTION – B	14
19.	Rewrite the following operations in a syntax followed by Python: a) $2^{23} - \left(\frac{2}{76} \times 3\right)$　(b) $\frac{17 \times 34^7}{24}$ **OR** Evaluate the following operations as a Python interpreter would: a.　2//3*6+9　　　b. (2+2)**(2 1)/2	2

20.	Khaled wrote the following code to input a number and check whether it is a prime number or not. His code is having errors. Rewrite the correct code and underline the corrections made.
	n=int (input("Enter number to check=")
	　　for i in range (2, n//2):
	　　　if n%i=0:
	　　　　print (Number is not prime)
	　　　break
	　　else:
	　　　　print ("Number is prime')
		2

21.	Write two differences in the functions of pop() and remove(). **OR** Write two differences in the functions of sort() and sorted().	2
22.	Verify the following using truth table. X + Y.Z = (X + Y) (X + Z)	2
23.	You are planning to go for a vacation. You surfed the Internet to get answers for the following queries: 1.　Weather conditions in Mumbai 2.　Availability of air tickets and fares from Dimapur to Mumbai Give one reason each of how these search queries may have created a digital footprint of you. **OR** After practicals, Arbhav left the computer laboratory but forgot to sign off from his email account. Later his classmate Revaan started using the same computer. He is now logged in as Arbhav. He sends rude and inappropriate emails to few of his classmates using Arbhav's email account. Revaan's activity is an example of which of the following cyber-crime? Justify your answer. a) Hacking　　　b) Identity Theft　　　c) Cyber Bullying　　　　d) Plagiarism	2

24.	Write the output of the following code:
	　i.　a=6
	　　　b=2
	　　　for i in range(1,a):
	　　　　if a+b>=6:
	　　　　　print('*')
	　　　　print('',end='')
	　ii.　list=['Red','Green','Magenta','Blue','Cyan','Yellow']
	　　　print(list[-6:-2])
		2

25.	Identify the error this code will produce and rewrite it in correct syntax: my_dict = {"name": "Aman", "age": 26} my_dict["age"] = 27 my_dict["address"] = Delhi print(my_dict.items())	2

SECTION – C		15

26.	Review the following code: 1. dict={"Name":'Aman',"Class":7} 2. keys.dict()=A 3. values.dict()=B 4. for i,j in A,B: 5. print(A,B,sep=,) 6. print('dict') Identify the errors, rewrite the code and name the number of line where corrections were made.	3

27.	a) Predict the output of the following code:
	tuple1 = (11, 22, 33, 44, 55 ,66)
	list1 =list(tuple1)
	new_list = []
	for i in list1:
	    if i%2==0:
	        new_list.append(i)
	new_tuple = tuple(new_list)
	print(new_tuple)
		1 ½

	b) Write a program to find and print the grade of a student when the user inputs their percentage. Grades are allocated as given in the table below:	1 ½

Percentage of Marks	Grade
Above 90%	A
80% to 90%	B
70% to 80%	C
60% to 70%	D
Below 60%	E

28.	a) Write a python program to find out the greater of two user defined numbers.	1
	b) Write a python code to create a dictionary with the following data:	2

Aman	12
Riya	78
Raveena	56
Pranjol	68
Kumar	27

Add a new key-value pair ('Ranjan':42)

29.	Write a program using math module to find the hypotenuse of a right-angled triangle when lengths of two sides are user defined. **OR** Write a program using statistics module to create a user defined list of 7 elements and to print the mean, median and mode of the list.	3

30.	i. What is the need of RAM? How does it differ from ROM?	2
	ii. What is the need for Secondary Memory?	1
	OR Draw the block diagram of a computer system. Briefly write about the functionality of at least 3 components.	3

SECTION – D		

31.	Write two points of differences between the following: i. Copyrights and Patents. ii. Plagiarism and Copyright Infringement. iii. Non-Ethical hacking and Ethical Hacking. iv. Free Software and Free and Open-Source Software. v. Active and Passive digital footprints. **OR**	5
	i. What is Ergonomics? How does Ergonomics have an impact on our health?	2
	ii. What is the Indian Information Act? What provisions are provided in this Act?	2
	iii. List three ways in which Cyber Crimes can be prevented from happening to you.	1

32.	Write the output of the following code:
	
	i. (a,b,c)=(10,20,30)
	    (p,q,r)=(c–5,a+3,b–4)
	    print('a,b,c:',a,b,c,end='')
	    print("p,q,r:",p,q,r)
	
	ii. (a,b)=(10,5)
	    print(a/b)
	    print(a//b)
	    print(a%b)
	    print(a**2)
	
	iii. A=[2,6,5,3,12]
	    for i in range(1,2):
	      if i%2 not in A:
	        print('BA',end='')
	      for j in A:
	        j*=2
	        if j//i!=0:
	          print('La',end='')
	
	iv. for i in range(1,5):
	    for j in range(i):
	      print('*',end='')
	    print()
	
	v. a=20
	    b=10
	    a//=b
	    print(c+2/2)
		5

33.	Write a program that prints a user defined number of terms of Fibonacci series and sum of all the n number of terms of this series. Example: suppose series contain 10 number of terms then the program should print : Fibonacci series: 0 1 1 2 3 5 8 13 21 34 Sum of series: 88 **OR** Write a menu driven program to implement a simple calculator in python. The program reads two integer values and provides choice for the user to perform Addition, Subtraction, multiplication, and division operations on those values. The program continuously gives choice for the user to perform the above operations till the user select exit option.	5
	SECTION – E	8
	Case Study – 1	

34.	Barsha works at as a receptionist at a hotel. She has to note down numbers of numerous people every day. She decided that she must make a program to keep a log of names with their contact number. Here is what she worked on. Help her in completing her code by filling in the blanks:
	
	contacts={}
	a=1
	while a==1:
	    print('Enter 1 to add new contact')
	    print('Enter 2 to view all contacts')print()
	    Ask=int(input('Enter='))
	    if Ask==1:
	      (a) N=_____ #Take input of Name
	      (b) C=_____ #Take input of Number
	      (c) contacts([_____ #Make a key-value pair of Name and Number
	    Names=list(a.keys())
	    Numbers=list(a.values())
	    if Ask==2:
	      for i in range (d)_____ #Repeat loop from 1 to max no. of elements
	        print(Names[i])
	        print(Numbers[i])
	  i. What should she write in (a) to take an input of Name from the user?
	  ii. What should she write in (b) to take the input of Contact Number from the user?
	  iii. What should she write in (c) to create a key-value pair in contacts? What should she write in (d) to create a loop starting from 1 till the maximum number of elements in contacts ?
		
		1
		1
		
		2

	Case Study – 2	
35.	You received an SMS shown below from your bank querying a recent transaction. Answer the following:	

Bank has noticed that your ATM card was recently used at XYZ online storeon 21 November, 2023 at 1:00 P.M. for Rs. 20000. If the transaction was not carried by you, urgently SMS your pin number on 03036665458.

i. Would you SMS your pin number to the given contact number? Justify your answer.

ii. Will you call the bank helpline number to recheck the validity of SMS received? Justify your answer.   1

iii. Your Grandfather, who actively uses the internet and technology, is not aware of scams found online. You are trying to discuss some points which can help identify if a certain offer is a scam or not. Choose **any four** appropriate points below: 1

2

- Checking the attractiveness of the offer.
- If discount is less or more to ensure full profit.
- Checking the authenticity of the offer through the internet.
- If message is asking for password or pin of account, which is unusual for someone to ask.
- Checking whether bank offers such messages.
- Messages claiming you've won ridiculous value of gifts is probably a scam.

OR

iii. Match the following:

Being Secure	Choose password wisely
	Think before uploading
Being Reliable	Beware of fake information
	Know who you befriend

🛕 **DELHI PUBLIC SCHOOL, BHILAI**

Date : 05.03.2024   **Annual Examination 2023-24**   Time : 3 Hrs.

Class : XI   **Subject : Engineering Graphics**   Max. Marks : 70

....

General Instructions :
  (i) Attempt all questions.
 (ii) Internal choice is given in some questions.
(iii) Use both side of drawing sheet if necessary.
(iv) All dimensions are in mm.
 (v) Missing and mismatching dimension if any may be suitably assumed.
(vi) Follow the SP: 46-2003 revised codes with first angle method of projection.

....

1. Construct a quadrilateral with AB = 45 mm, BC = 55 mm, CD = 40 mm, AD = 60 mm, AC = 70 mm. **(04)**

<div align="center">OR</div>

Draw an internal tangent to two circles, each of radius 20 mm when their centres are 60 mm apart.   **(04)**

2. Draw the projections of the following points on the same XY line,
    (a) A, in the H.P. and 20 mm in front the V.P.   **(02)**
    (b) B, in the V.P. and 30 mm above H.P.   **(02)**
    (c) C, in both V.P and H.P.   **(02)**

3. Solve **any three** questions.
    (A) Draw the projections of a 60 mm long, Straight line AB in the following positions.
        (i) Parallel to both H.P. and V.P. and 25 mm above H.P. and 20 mm in front of V.P.   **(03)**
        (ii) Perpendicular to the V.P., 20 mm below the H.P. and its one end in the V.P.   **(03)**
        (iii) Inclined at 45° to the H.P. and its one end 15 mm above it; parallel to and 20 mm infront of V.P. **(04)**

    (B) Draw the projections of a regular pentagon of 30 mm edge when it is resting on one of its edge on the
        ground and its plane is inclined at 45° to H.P. and perpendicular to V.P.   **(10)**

    (C) A Hexagonal prism having a 25 mm edge of its base and an axis of 60 mm length is resting on one of
        its rectangular faces on H.P., with the axis parallel to both H.P. & V.P. Draw the projections of the
        prism.   **(10)**

    (D) A square pyramid is resting on its base on the ground with one of its base edge of length 40 mm,
        parallel to and near to V.P. A horizontal section plane, bisects the 80 mm long axis. The axis is
        perpendicular to H.P. Draw the Front View and sectional Top View.   **(10)**

4. (a) Draw front view, top view and side view of the given machine block.   **(08)**

(a)   (b)
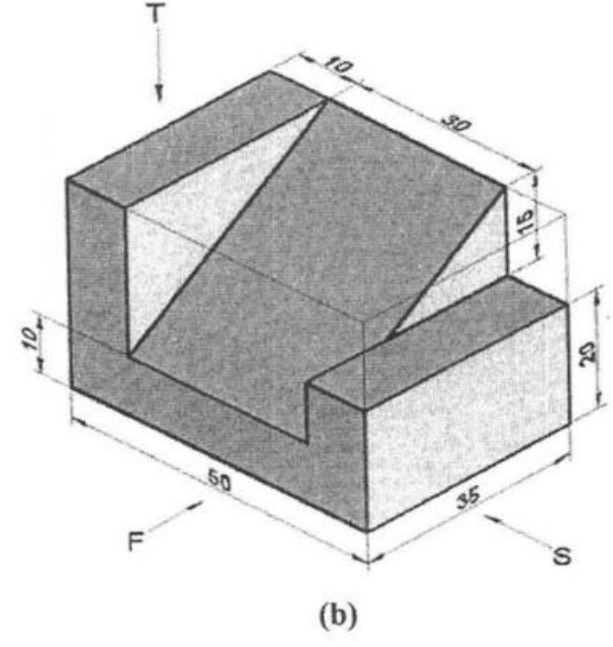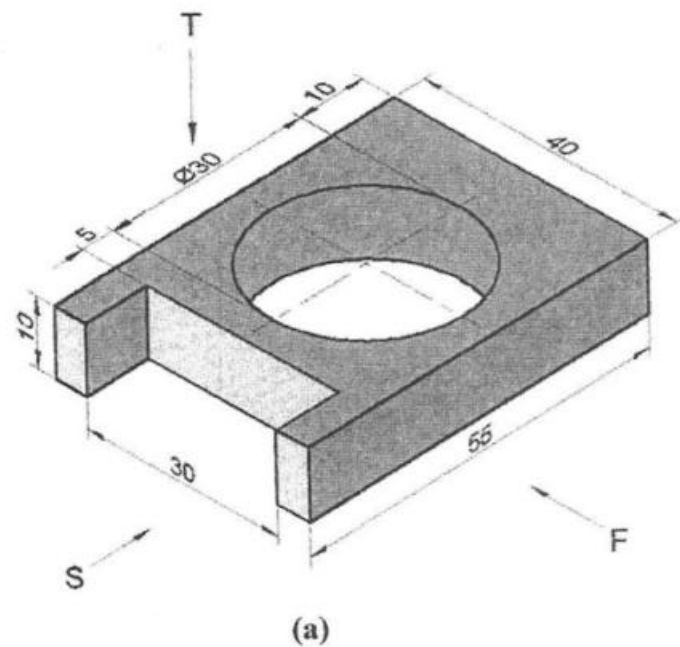
(b) Draw front view, top view and side view of the given machine block.   **(07)**

5. (a) Construct an isometric scale.   **(05)**
    (b) Draw isometric projection of a regular triangle of 50 mm long side in vertical position if it is resting on
        a corner on H.P. and an edge on top is parallel to H.P.   **(05)**
    (c) Draw isometric projection of a circle of diameter 60 mm in horizontal position.   **(05)**

<div align="center">ଏଓଓଓ ଃଓଃଓଃ</div>

DELHI PUBLIC SCHOOL, BHILAI

Date : 01.03.2024   ANNUAL EXAMINATION 2023-24   Time : 3 Hrs.
Class : XI   Subject : Geography   Max. Marks : 70

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 number 1 to 17 are Multiple Choice type questions carrying 1 mark each.
   Section B – Question number 18 and 19 are Source based questions carrying 3 marks each.
   Section C – Question number 20 to 23 are Short Answer type questions carrying 3 marks each. Answer to these questions shall be written in **80 to 100 words**.
   Section D – Question number 24 to 28 are Long Answer type questions carrying 5 marks each. Answer To these questions shall be written in **120 to 150 words**.
   Section E – Question number 29 and 30 are Map based questions.

SECTION – A

There are two statements marked as Assertion(A) and Reason(R). Mark your answer as per the codes provided below.

Q.1   **Assertion (A) :** The most popular argument regarding the origin of the Universe is the Big Bang Theory.
   Reason : Big Bang theory is also called the expanding Universe hypothesis.   (1)
Options :
(a) Assertion (A) and Reason (R) both are true but Reason (R) is not the correct explanation of Assertion (A).
(b) Assertion (A) and Reason (R) both are true and (R) is the correct explanation of Assertion (A).
(c) Assertion (A) and Reason (R) Both are incorrect.
(d) Assertion (A) is correct but Reason (R) is incorrect.

Q2.

	River		Sources
1	Troposphere	I	Constant temperature
2	Stratosphere	II	Electrically charged particle
3	Ionosphere	III	Weather changes
4	Exosphere	IV	Highest layer

Consider the following and choose the correct answer with the help of given codes :   (1)
Options :

	I	II	III	IV
(a)	1	2	3	4
(b)	4	1	2	3
(c)	4	3	2	1
(d)	3	1	2	4

Q.3 Given below is a list of division of northern plains. Which of the following pair is NOT correctly matched?   (1)
(a) Bhabar – Located at the foot of Shiwaliks, a narrow 8 to 16 km wide belt of pebbles.
(b) Terai – Located next to Bhabar, a wet and marshy area with wildlife and forests.
(c) Bhangar – Older alluvium plain which lies above the level of the flood plains and presents a terrace like structure.
(d) Khadar – Calcerous deposition found in Northern plains.

Q.4 Consider the following statements and choose the correct answer with the help of given Option:
Statement I : The rotation of the earth affects the direction of the wind.
Statement II : The land and sea breezes are developed due to Coriolis force.   (1)
Options
(a) Both the statements are true.   (b) Only statement I is true.
(c) Only statement II is true.   (d) Both the statements are wrong.

Q.5 Which one of the following is the deepest relief feature of ocean floor?   (1)
(a) Continental shelf   (b) Mid oceanic Ridge   (c) Oceanic Trenches   (d) Deep sea plain

Q.6 Stalactites, Stalagmites and Pillars are the depositional landforms of ....?   (1)
(a) Running Water   (b) Ground water   (c) Waves   (d) Winds

Q.7 If you intend to visit Kavarati during your summer vacations, which one of the following Union Territories of India you will be going to   (1)
(a) Puducherry   (b) Lakshadweep   (c) Andaman and Nicobar   (d) Daman and Diu

Q.8 Uttarakhand, Uttar Pradesh, Bihar, West Bengal and Sikkim have common frontiers with   (1)
(a) China   (b) Bhutan   (c) Nepal   (d) Myanmar

Q.9 Tropical evergreen forests are found in those areas where: **(1)**
(a) 200 cm of rainfall takes place   (b) 100 cm of rainfall takes place
(c) 50 cm of rainfall takes place   (d) Less than 50 cm of rainfall takes place

Q.10 The Himalayas consist of three parallel ranges in its longitudinal extent. Which of the following is the name of the southern-most range? **(1)**
(a) The Shivaliks   (b) The Himachal   (c) The Himadri   (d) The Purvanchal

Q.11 The only active volcano in India is ....? **(1)**
(a) Saddle Peak   (b) Mount Thuiller   (c) The Barren Island   (d) Manikiran

Q.12 The advantage of the Himalayas is **(1)**
(a) Prevention of invasions
(b) That they cause rains by interrupting the monsoon winds to cross the country
(c) That they protect India from icy cold winds of the north
(d) All of the above

Q.13 If you are asked to formulate the National River Policy, what will be the utmost important priority for you. **(1)**
(a) To remove silt from river water   (b) To control river water pollution
(c) To solve river water disputes between states   (d) All of the above

Q.14 Salt resistant plants are common in .... **(1)**
(a) Moist deciduous forest   (b) Littoral and swamp forest   (c) Montane forest   (d) Tropical thorn forest

Q.15 Most widespread vegetation in India is **(1)**
(a) Moist deciduous forest   (b) Littoral and swamp forest
(c) Montane forest   (d) Tropical thorn forest

Q.16 In which one of the following states is the Pachmarhi Biosphere Reserve **(1)**
(a) Madhyapradesh   (b) Chhattisgarh   (c) Bihar   (d) Jharkhand

Q.17 Which one of the water bodies seperate the Andaman from the Nicobar. **(1)**
(a) Andaman sea   (b) 10th Channel   (c) 11th Channel   (d) Gulf of Mannar

SECTION – B

Q.18 **Read the passage carefully and answer the questions that follow:**

India is a vast country. Lying entirely in the Northern hemisphere the main land extends between latitudes 8°4'N and 37°6'N and longitudes 68°7'E and 97°25'E.

India has a land boundary of about 15,200 km and the total length of the coastline of the mainland, including Andaman and Nicobar and Lakshadweep, is 7,516.6 km. India is bounded by the young fold mountains in the northwest, north and northeast. South of about 22° north latitude, it begins to taper, and extends towards the Indian Ocean, dividing it into two seas, the Arabian Sea on the west and the Bay of Bengal on its east. The latitudinal and longitudinal extent of the mainland is about 30°. Despite this fact, the east-west extent appears to be smaller than the north-south extent. From Gujarat to Arunachal Pradesh, there is a time lag of two hours. Hence, time along the Standard Meridian of India (82°30'E) passing through Mirzapur (in Uttar Pradesh) is taken as the standard time for the whole country. The latitudinal extent influences the duration of day and night, as one moves from south to north.

(a) How does the latitudinal extent of India influence day and night duration ? **(1)**
(b) How many hours of time lag exist between Gujarat and Arunachal Pradesh ? **(1)**
(c) What is the latitudinal extent of India's mainland? **(1)**

Q.19 Study the following map which shows temperature distribution for the month of January and answer question no (i) to (iii).
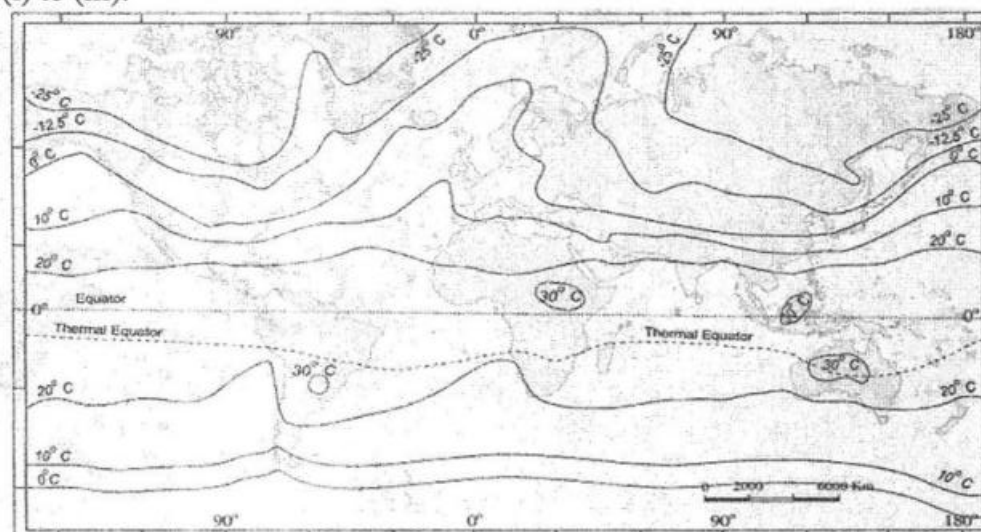
(i) **Isotherm** is a line drawn on a map or chart joining points with the same ....? **(1)**
(ii) Name a country or region which is experiencing -20 degree Celsius (minus) of temperature during the month of January? **(1)**
(iii) Identify the average monthly of temperature for the southern part of Africa. **(1)**

SECTION – C

Q.20 Differentiate between Physical and Human Geography on the basis of their branches (3)

OR

Describe the physiographic features of Lakshadweep islands.

Q.21 What are the factors that control temperature distribution on the surface of the earth? (3)

Q.22 Describe various movements of ocean water on the basis of their formation? (3)

Q.23 Explain why Western coastal plain and Meghalaya are experiencing heavy rainfall in India? (3)

SECTION – D

Q.24 "In fact the soil forming factors act in union and affect. The action of one another" Support the statement with suitable examples of factors controlling the formation of soil. (5)

Q.25 " It is now a well-accepted fact that oceans and continents will not continue to enjoy their present positions" Explain the features how these changes are happening on the basis of continental drift theory. (5)

Q.26 (a) Differentiate between Himalayan and Peninsular Rivers.

OR

(b) Describe the relief features of the Northern Plain (5)

Q.27 (a) Describe the steps taken by the government to protect wildlife in India. (5)

OR

(b) Why is the monsoon considered a unifying bond?

Q.28 (a) "Most of our knowledge about interior of the earth is largely based on estimates. Yet a part of the information is obtained through observations". Write about any three sources of information about the interior of the earth in detail.

OR

(b) Describe the interior layers of the earth. Support your answer with the suitable diagram. (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. (5)

(a) The Himalayan Peak marked as – P   (b) The Plateau marked as – T

(c) The part of the Western Coastal Plains marked as – W   (d) The peninsular river marked as – R

(e) The lake marked as – L   (f) The Ghats marked as – G
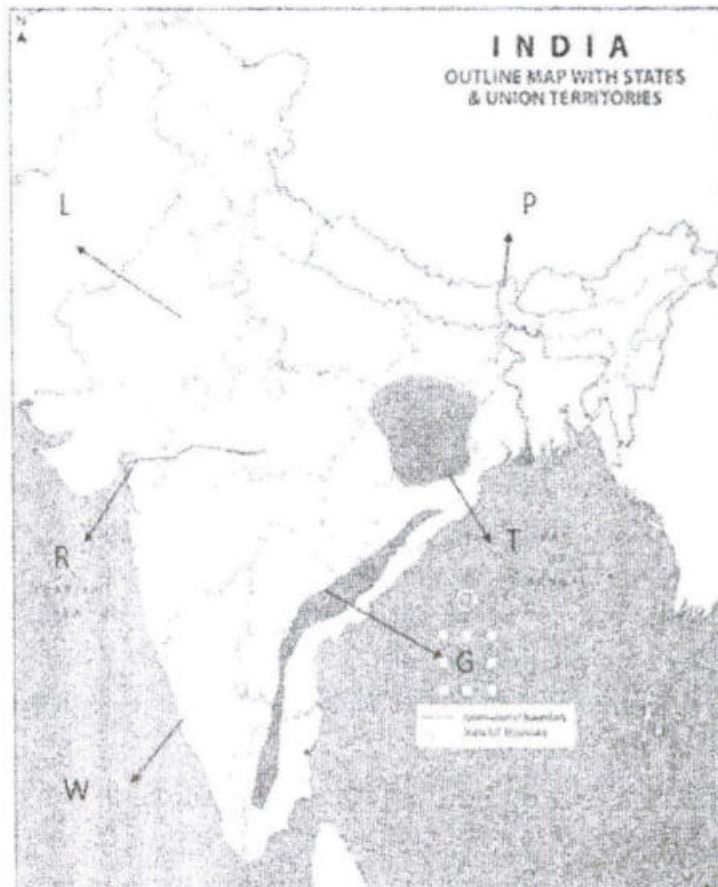
Q.30 Locate and label any five of the following geographical features on the Outline map of the world. (5)

(a) Sahara Desert   (b) Arctic sea   (c) Mediterranean sea

(d) Alaska Current   (e) Eastern Madagascar, Africa   (f) Western Ghats India

DELHI PUBLIC SCHOOL, BHILAI

Date : 05.03.2024   ANNUAL EXAMINATION 2023-24   Time : 3 Hrs.

Class : XI   Subject : Economics   Max. Marks : 80

General Instructions-
1. This question Paper contains 34 questions. All questions are compulsory.
2. This question paper contains 20 MCQ of 1 mark each.
3. There are 4 short answer questions of 3 marks each to be answered in 60-80 words.
4. There are 6 short answer questions of 4 marks each to be answered in 80-100 words.
5. There are 4 short answer questions of 6 marks each to be answered in 120 words.
6. Attempt all questions together.

PART-A (STATISTICS)

1. Census of Population in Indian is a ....   **(1)**
   (a) Primary data   (b) Secondary data   (c) Either of two   (d) None of these

2. Which is most popular method of collection of data-   **(1)**
   (a) Primary   (b) Secondary   (c) Primary and Secondary   (d) None of these

3. If mid values are given as 35,40, 45, 50, then first class of distribution is-   **(1)**
   (a) 30-35   (b) 25-30   (c) 30-40   (d) 32.5 – 37.5

4. **Assertion (A) :** The width of the bars should be equal in bar graph.
   Reason(R) : Bar graph is two dimensional.   **(1)**
   Alternatives:
   (a) Both assertion and reason are true and reason is the correct explanation of assertion.
   (b) Both assertion and reason are true and reason is not the correct explanation of assertion.
   (c) Assertion is true, but Reason is false.
   (d) Assertion is false, but Reason is true.

5. What is meant by footnote in the table-   **(1)**
   (a) Source of table   (b) total in the table   (c) Body of table   (d) None of these

6. For finding out median graphically which of following graph is drawn?   **(1)**
   (a) Histograms   (b) Frequency Polygon   (c) Cumulative Frequency Curve   (d) both (b) & (c)

7. When X and Y values rise in same direction, coefficient of correlation will be –   **(1)**
   (a) Negative   (b) Positive   (c) any of these   (d) None of these

8. **Assertion (A) :** Less than or more than ogive can be used to calculate correlation.
   Reason (R) : When changes in two related variables are in same ratio, then it is a case of perfect correlation.   **(1)**
   Alternatives:
   (a) Both assertion and reason are true and reason is the correct explanation of assertion.
   (b) Both assertion and reason are true and reason is not the correct explanation of assertion.
   (c) Assertion is true, but Reason is false.
   (d) Assertion is false, but Reason is true.

9. **Statement 1 :** Base year can be assumed as any previous year.
   Statement 2 : Median is used in the construction of index numbers.   **(1)**
   Alternatives:
   (a) Statement 1 is true and statement 2 is false
   (b) Statement 1 is false and statement 2 is true
   (c) Both the statements are true
   (d) Both the statements are false

10. For determining inflation rate which one of the following indices are considered?   **(1)**
    (a) Consumer Price Index   (b) Industrial Indices   (c) Wholesale Price Index   (d) None

11. "You have unlimited wants with limited resources to satisfy them". Discuss the concept by giving two examples.   **(3)**

12. As an investigator, why do you prefer to classify data? Discuss.   **(3)**

    OR

    Distinguish between Individual, Discrete and continuous series using example.

13. Determine mean value from the following- (4)

X (More than)	0	5	10	15	20	25	30	35
Frequency	50	48	45	40	35	23	12	2

14. Explain the concept of sample, population and variables give imaginary examples with valid reasons. (4)

OR

Compute mode for the following- (by grouping method)

Age	20-25	25-30	30-35	35-40	40-45	45-50	50-55
No. of students	5	7	8	28	15	12	7

15. Write short notes on- (4)
    (a) Consumer Price index
    (b) Limitations of Index Number

16. What are the various degrees of coefficient of correlation? Find rank correlation for following: (2+4=6)

X-	75	73	72	72	63	62	55	50
Y-	10	11	13	13	13	20	16	28

OR

What are the various methods of calculating co-efficient of correlation? Explain scatter diagram of finding correlation. (2+4=6)

17. In order to evaluate economic condition or situation or study, we need to summarise the whole set of data. This can be done by use of central tendency which summarises the data into single value in such a way that this single value can represent all the values. An average value is the single value within the range of data that is used to represent all the values. The purpose of an average is to represent the group of complex data into simple and concise manner. An average also acts as a common denominator for making comparisons between two set of data. Average help in estimation, setting standards and making such areas where decision making is very essential and average becomes the basis for all decisions. Whenever cause and effect relationship between two or more variables is to be studied, an average is very helpful. Average form the basis to compute various other measures such as skewness, dispersion etc. A good average should possess essentials like average should be clearly and rigidly defined, average should be based on all the items, the methods used to calculate an average should be simple and which does not reduce the accuracy of the average, an average should possess some important mathematical properties so that it can be used for further statistical analysis. An average should be least affected by fluctuations of a sampling, average should be able to located graphically. An average should be measured in an absolute number. This value in percentage or in relative form will not serve the purpose of having a single value which represents the universe.

   (i) Which of the following summarises the data in a single value in such a way that this single value represents the entire data- (1)
       (a) Mode (b) Central tendency (c) Median (d) Skewness

   (ii) What is alternative name for average? (1)
       (a) Measure of central tendency (b) Absolute number
       (c) weighted mean (d) Sum of deviation

   (iii) ....value is a single value within the range of data that is used to represent all the value – (1)
       (a) Positional average (b) constant (c) Histogram (d) Average

   (iv) Average form the basis to compute various other measures such as – (1)
       (a) Median (b) Mode (c) Skewness & dispersion (d) All of these

   (v) Read the following statements carefully and choose the correct alternative- (1)

   Statement 1 : An average value in percentage or in relation form will serve the purpose of having a single value which represent the universe.
   Statement 2 : An average should be based on all the items.
       Alternatives-
   (a) Statement 1 is true and statement 2 is false
   (b) Statement 1 is false and statement 2 is true
   (c) Both the statements are true
   (d) Both the statements are false

   (vi) an average should be measured in- (1)
       (a) Percentage (b) relative number (c) Absolute number (d) both (b) & (c)

PART-B (MICROECONOMICS)

18. Opportunity cost arises- (1)
    (a) When there is only course of action   (b) When there are two or more alternative courses of action
    (c) Both (a) and (b)   (d) Neither (a) nor (b)

19. Suppose a consumer's preferences are monotonic. What can you say about his preference ranking over the
    bundles (9, 9), (10, 9) and (10, 10). (1)

20. Expansion in demand is caused due to……………………………………….. (1)

21. **Assertion (A) :** Change in quantity demanded of one commodity due to change in price of other
                      commodity is cross demand.
    Reason (R) : Change in consumer income leads to a change in demand. (1)
        Alternatives:
    (a) Both assertion and reason are true and reason is the correct explanation of assertion.
    (b) Both assertion and reason are true and reason is not the correct explanation of assertion.
    (c) Assertion is true, but Reason is false.
    (d)Assertion is false, but Reason is true.

22. Both AP and MP curves are generally- (1)
    (a) U-shaped   (b) Rising   (c) Inversely U-shaped   (d) Falling

23. Calculate TFC, if AC and AVC are Rs. 22 and Rs. 18 respectively, at output of 10 units. (1)

24. Which one of the following is also know fixed cost- (1)
    (a) Supplementary cost   (b) Prime cost   (c) Direct cost   (d) Avoidable cost

25. In case of perfect market, price is determined at- (1)
    (a) Equilibrium price of the firm   (b) Equilibrium price of Industry
    (c) Between MR and MC   (d) None

26. If increase in demand is greater than the increase in supply, then the equilibrium price- (1)
    (a) Decrease   (b) Increase   (c) Does not change at all   (d) cannot be determined

27. Suppose consumers taste shifts in favour of an apple. As a result, equilibrium quantity will…………and
    equilibrium price will……………… . (1)
    (a) Increase, decrease   (b) Decrease, increase   (c) Increase, increase   (d) Decrease, decrease

28. Explain the central problems of allocation of resources with example. (3)
    OR
    Why PPC is concave to origin? Justify giving example.

29. Define perfect competition. Discuss free entry and exit & large no. of buyers and seller features of it . (3)

30. (a) Write the effect of nature of commodity and availability of substitute on elasticity of demand. (2+2=4)
    (b) A consumer buys 18 units of a commodity at a price of Rs 9 per unit. The price elasticity of demand is
    (-1). How many units the consumer will buy at a price of Rs 10 per unit?

31. Define Prime cost. Discuss the nature of total variable cost. Use diagram. (4)

32. Explain the situation of increase in supply using diagram. What are the various causes of it? (4)
    OR
    Explain through a diagram the effect of a rightward shift of both the demand and supply curves on
    equilibrium price and quantity.

33. (a) A consumer wants to consume two goods. **Good A** is priced at ₹ 2 per unit and **Good B** at ₹ 4 per unit.
    The income of the consumer is fixed at ₹ 20. On the basis of this information answer the following – (3)
        (i) Find out the bundles which cost exactly Rs. 20.
        (ii) Write down the algebraic expression of budget line.
        (iii) How much units of Good A can be purchased if entire income is spent for it?
    (b) Explain normal good and inferior good with example. (3)

34. Explain various revenue concepts. What changes should take place in total revenue so that- (3+3=6)
        (i) Marginal revenue is positive and constant
        (ii) Marginal revenue is positive and falling.
    OR
    Explain Law of return through behaviour of both total physical product and Marginal physical product.
    Use schedule and diagram. (6)

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General Instructions :
(i) This question paper contains 34 questions. All questions are compulsory.
(ii) This question paper is divided into two parts, Part A and B.
(iii) Question 1 to 16 and 26 to 29 carries 1 mark each.
(iv) Questions 17 to 20, 30 and 31 carries 3 marks each.
(v) Question from 21, 32 and 33 carries 4 marks each.
(vi) Questions from 22 to 25 and 34 carries 6 marks each.
(vii) 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.

1.	Accounting Cycle starts with: (a) Recording of transactions in ledger (b) Recording of transactions in journal (c) Preparing trial balance (d) Preparing trading account OR Which of the following limitations of accounting states that accounts may be manipulated to conceal vital facts? (a) Accounting is not fully exact (b) Accounting may lead to window dressing (c) Accounting ignores price level changes. (d) Accounting ignores qualitative elements	1
2.	At the time of goods sold, output CGST/SGST/IGST account is credited because , it is a/an (a) Revenue income (b) Assets (c) Accrued incomes (d)Liability OR The basic objective of levying GST is: (a) Removed of double taxation (b) Uniformity of Tax Structure (c) To develop common nation market for buying and selling of Goods. (d) All the above	1
3.	Goods costing ₹ 20,000 is sold at a profit of 20% on cost and trade discount is allowed @ 10% and cash discount of 10% is also allowed. Half the payment was received at the time of sale. What is the amount of cash received at the time of sale? (a) ₹9,720 (b) ₹10,800. (c) ₹11,880 (d) ₹10,820	1
4.	Bricks, cement etc. for ₹ 1,50,000 and timber for ₹ 2,00,000 were purchased for the construction of building. Payment was made by cheque. _____ A/c will be debited with ₹ _____. (a) Bricks and Cement A/c, ₹ 50,000 (b) Purchase A/c , ₹ 3,50,000 (c) Building A/ c, ₹ 3,50,000 (d) Bank A/c , ₹ 3,50,000	1
5.	Which of the following statement is not true? (a) Vouchers are prepared with the help of supporting documents. (b) Cash-memo, Invoice are the examples of supporting documents. (c) Debit note and Credit note are not the examples of supporting documents. (d) To record credit transaction a transfer voucher is prepared.	1
6.	**Assertion (A) :** Purchase Book is a part of journal, whereas purchase account is a part of Ledger. **Reason (R) :** Purchase Book records only credit purchase of goods, whereas only cash purchase of goods are posted in purchase account. (a) Both Assertion (A) and Reason (R) are correct, and Reason (R) is the correct explanation of Assertion (A). (b) Assertion (A) and Reason (R) are correct but Reason (R) is not the correct explanation of Assertion (A). (c) Only Assertion (A) is correct, but Reason (R) is False. (d) Assertion (A) and Reason (R) are False.	1
7.	Voucher is kept for evidence according to which concept: (a) cost concept. (b) matching concept (c) revenue concept (d) objectivity concept OR Which of the following evidences is the valid voucher in a business transaction? (a) Cash-memo. (b) Invoice (c) Cheques. (d) None of the above	1
8.	Allowance allowed to Samyak & Co. on account of mistake in invoice.Transaction will be recorded in : (a) sales return book (b) purchases return book (c) journal proper (d) purchases book	1
9.	Amount of sales can be ascertained from which of the following? (a) Journal (b) Cash book (c) Sales Book (d) Sales Account	1

| 10. | **Assertion (A)** : Nominal Accounts are not balanced.
Reason (R) : Nominal Accounts are transferred to the Trading and Profit and Loss Account at the end of financial period.
(a) Both Assertion (A) and Reason (R) are correct, and Reason (R) is the correct explanation of Assertion (A).
(b) Assertion (A) and Reason (R) are correct but Reason (R) is not the correct explanation of Assertion (A).
(c) Only Assertion (A) is correct, but Reason (R) is False.
(d) Assertion (A) and Reason (R) are False. | |

| 11. | Match the following items of column I with column II | 1 |

	Column – I		Column – II
(i)	Furniture Purchased was entered Into Purchase account ₹ 10,000	(a)	Error of Omission
(ii)	Sales book is overcast by ₹ 1000	(b)	Compensating Error
(iii)	Amar's account was debited with ₹ 1,000 instead of ₹ 5,000 and Samar's account was debited with ₹ 5,000 instead of ₹ 1,000	(c)	Error of Principle
(iv)	Goods taken by proprietor of ₹ 2,000 for his personal use were not recorded at all.	(d)	Error of Commission

(a) (i) – d, (ii) – a, (iii) – b, (iv) – c   (b) (i) – c, (ii) – d, (iii) – b, (iv) – a
(c) (i) – c, (ii) – a, (iii) – b, (iv) – d   (d) (i) – d, (ii) – a, (iii) – c, (iv) – b

| 12. | If Bank Reconciliation is prepared from the debit balance as per Passbook, we will get:
(a) debit balance as per cash book   (b) credit balance as per cash book
(c) credit or debit balance as per cash book   (d) none of the above
<div align="center">OR</div>Mr. Rahul is preparing bank reconciliation statement with debit balance as per cash book ₹ 92,000. One cheques of ₹12,000 sent to bank for collection but not collected by the bank. ₹5,000 wrongly credited by the bank (no entry made in cash book). what will be the balance as per pass book?
(a) ₹ 85,000   (b) ₹1,09,000   (c) ₹92,000   (d) ₹99,000 | 1 |

| 13. | Machine costing ₹2,00,000 has a scrape value of ₹40,000 after 8 years. What will be the rate of depreciation charged under straight line method?
(a) 8% p.a.   (b) 10% p.a.   (c) 12% p.a.   (d) None of these
<div align="center">OR</div>Charging depreciation on Tangible Fixed asset is
(a) Optional   (b) Compulsory   (c) Depend on the condition   (d) All of the above | 1 |

| 14. | Which of the following is not an example of Capital Reserve?
(a) profit on sale of investments (b) profit on sale of furniture (c) general reserve (d) none of the above | 1 |

| 15. | Depreciation is calculated from the date of:
(a) Purchase of an asset   (b) Asset put to use
(c) After the installation   (d) Receipt of an asset at business premises | 1 |

| 16. | Profit on sale of fixed assets is used to create:
(a) Capital Reserve   (b) Revenue Reserve   (c) General Reserve   (d) Specific Reserve
<div align="center">OR</div>Which of the following statements are correct about a provision?
 (i) Provision reduces the profit   (ii) Provision are created out of divisible profits
(iii) Provision is created for known liability   (iv) Provision cannot be invested
    (a) (i), (ii) and (iii)   (b) (i) , (ii) and (iv)   (c) (i) ,(iii) and (iv)   (d) (ii) ,(iii) and (iv) | 1 |

| 17. | Why the following parties are interested in accounting information:
(a) Investors   (b) Government   (c) Management
<div align="center">OR</div>Explain any three attributes of accounting? | 3 |

| 18. | Explain the following Principles:
(a) Accounting Period Assumption   (b) Accrual Concept   (c) Materiality | 3 |

| 19. | Journalise the following transactions
(i) Received order for goods from M/s Ranbir & Co. of ₹5,00,000 along with a cheque for ₹1,80,000 as advance.
(ii) Received from Salesman ₹ 60,000 for goods sold by him after deducting his travelling expenses ₹4,000.
(iii) Sold goods to Vishesh costing ₹40,000 at a profit of 25% and allowed him 10% trade discount and paid for cartage ₹1,000 to be charged from him. | 3 |

20.	What do you mean by Trial Balance? State its objectives. **OR** Prepare trial balance from the following balances extracted from the books of Anant as on 31st March, 2023 Capital ₹1,80,000; Sales ₹ 1,60,000; Furniture ₹50,000; Cash ₹16,000; Bank overdraft ₹ 14,000; Purchases ₹ 1,24,000; Patents ₹32,000; Drawing ₹30,000; Bills Receivable ₹24,000; Creditors ₹ 44,000; Salaries ₹30,000; Bills Payable ₹16,000; Bad debts ₹2,000; Depreciation ₹6,000; Purchase return ₹4,000; Sales return ₹5,000; Discount allowed ₹3,000; Opening stock ₹46,000; Investment ₹50,000; Closing Stock ₹36,000.	3
21.	Explain revenue expenditure and capital expenditure with two examples of each? **OR** From the following, identify Capital Expenditure, Revenue Expenditure and Fictitious Assets. (a) Purchase of Machinery. (b) Rent paid. (c) Preliminary Expenses. (d) Advertisement Suspense (e) Salaries paid. (f) Purchase of Furniture. (g) Purchase of goods. (h) Underwriting Commission.	4

22. Prepare two column cash book of Rajkumar from the following transactions: | 6

Date	Particulars	₹
2023		
Oct 1	Cash in hand	12,000
	Bank overdraft	15,000
Oct 2	Goods purchase for cash, Trade discount 10%	10,000
Oct 3	Cash Sales discount allowed 5%	30,000
Oct 4	Sold goods to Mahesh and received a cheque	18,000
Oct 7	Mahesh's Cheque deposited in Bank	
Oct 10	Drew from bank for private use	8,000
Oct 17	Withdraw from bank	5,000
Oct 25	Paid Income Tax by cheque	2,000
Oct 30	Received repayment of a Loan from Guru ₹6,000 and deposited out of it ₹2,000 into the bank	
Oct 31	Interest debited by the Bank	800
Oct 31	Deposited with bank the balance after retaining ₹20,000 at office	

23.	Prepare Bank Reconciliation Statement of Kanchan Ltd as on 31/3/2023 from the following informations given below; (i) Credit balance (overdraft) as per Cash book shown ₹50,000. (ii) A cheque of ₹3,000 issued to a creditors, was entered by mistake in the cash column. (iii) A cheque of ₹12,000 issued on 27th March was not presented for payment whereas it was recorded twice in cash book. (iv) Cheques paid into bank for collection ₹40,000 but cheques of ₹18,000 could only be collected in month of March. (v) Interest on overdraft debited by the bank but no advice received till 31st March ₹2,000 (vi) Amount wrongly credited by the bank ₹1,000.	6
24.	Trial Balance of Rahul did not agree, Rahul put the difference to Suspense account subsequently he located the following errors: (i) Wages paid for installation of Machinery ₹600 was posted to wages account. (ii) Goods of ₹ 3,000 sold to Mahesh recorded in the Purchase Book. (iii) Own business material ₹8,000 and Wages ₹2,000 were used for constriction of Building. No adjustment was made in the books. (iv) A sum of ₹ 470 received from Garima was posted to her debit ₹740. (v) Old Machinery sold to Karim at a book value of ₹2,000 was recorded through sales Book. (vi) Total of Sales return book ₹3,000 was not posted to the ledger. Pass Rectifying Journal Entries.	6
25.	On 1st August 2020, Gati Ltd. purchased a Machinery for ₹3,00,000. On 1st November, 2021 another machinery was purchased for ₹1,80,000. On 1st July, 2022 the machine which was purchased on 1st August, 2020 was sold for ₹1,68,000 and on the same date a fresh machinery was purchased for ₹ 2,00,000. Depreciation was provided @ 10% p.a. on the Reducing balance method. Books are closed on 31st March every year. You are required to prepare Machinery Account for three years ending 31st March, 2023. **OR** A company whose accounting year is the calendar year, purchased on April 1, 2020 Machinery costing ₹30,000. It purchased further Machine on October 1, 2020, costing ₹20,000 and July 1, 2021 costing ₹10,000. On January 1, 2022, one- third of the Machinery which was Installed on April 1, 2020 became obsolete and was sold for ₹3,000. Show how the Machinery account would appear in the books. It being given that Machinery was depreciated by Fixed Instalment at 10% p.a.	6

	Part -B (Financial Statements & Incomplete Records)	
26.	Which of the following is correct: (a) Operating Profit = Net Profit – Non-Operating incomes – Non-operating expenses (b) Operating Profit= Net Profit + Non-expenses + Non-operating Incomes (c) Operating Profit = Net Profit + Non-operating expenses - Non-operating Incomes (d) Operating Profit = Net Profit - Non-operating expenses + Non-operating incomes	1

27.	Rearrange the following assets in order of liquidity:
	  (i) Debtors
	  (ii) Closing Stock
	  (iii) Cash in hand
	  (iv) Cash at Bank
	     (a) (iii) (iv) (ii) (i)
	     (b) (iii) (iv) (i) (ii)
	     (c) (iv) (iii) (i) (ii)
	     (d) (iv) (iii) (ii) (i)
	              OR
	Which statement shows the performance of the business?
	(a) Trial Balance (b) Balance Sheet (c) Trading and Profit and Loss Account (d) All of the above
		1

28.	Which principle is not followed by the Single Entry System ; (a) Matching Concept (b) Dual Concept (c) Revenue Recognition (d) All of the above	1
29.	Generally accounts under Single Entry System maintained by: (a) Company (b) Partnership firm (c) Hindu undivided family (H.U.F) (d) Sole trader	1
30.	Give two examples of each (a) Current Assets (b) Current Liabilities (c) Contingent Liabilities	3
31.	Calculate the missing values in the following cases:	3

Case	Cost of Goods Sold (₹)	Gross Profit (₹)	Sales(₹)
1	3,00,000	25% on Sales	?
2	4,00,000	?	125% of Cost of Goods Sold
3	?	25% of Cost of Goods Sold	8,00,000

32.	Mr. Mohit deals in sports items. He was maintaining only some records, which he thought, was sufficient to run the business. On 1st April 2022 available information from the records indicated that he had the following assets and liabilities; Machinery ₹80,000, Furniture ₹ 20,000, Stock ₹70,000, Sundry Debtors ₹ 40,000, Bank balance ₹2,000 credit, Sundry Creditors ₹ 50,000.
	He withdrew ₹ 10,000 every month for meeting his personal expenses. He also withdrawn sports items of ₹ 12,000 for his son and paid life insurance premium of ₹ 7,000 from the business. He had also introduced ₹ 40,000 during the year as additional capital. On 31st March 2023 her position was as under:
	
	Machinery ₹1,00,000, Furniture ₹20,000, Stock ₹50,000, Sundry Debtors ₹45,000, Bank balance ₹18,000, Sundry Creditors ₹35,000.
	
	On the basis of above information, answer the following questions.
	  1. Which system of accounting should be followed by Mr. Mohit?
	  2. How will be additional capital treated for calculating profit under this statement?
	  3. What are the total amount of drawing for the year?
	  4. What are the amount of capital at the beginning?
		4

33.	Calculate the amount of gross profit and operating profit on the basis of the following balances extracted from the books of M/s Anand & Sons for the year ended March 31, 2023.	4

Particulars	₹
Opening Stock	50,000
Net sales	11,00,000
Net Purchases	6,00,000
Direct Expenses	60,000
Administrative expenses	45,000
Selling and Distribution Expenses	65,000
Loss on sale of Land	20,000
Closing Stock	70,000

34. Following are the balances from the trial balance of Vishnu traders on 31st March, 2023   6

Particulars	₹	Particulars	₹
Opening stock	5,620	Securities	6,00,000
Purchases	1,54,200	Cash in hand	25,600
Sales	3,74,800	Bank overdraft	3,40,000
Wages	1,26,000	Discount allowed	1,500
Carriage inward	900	Discount received	420
Freight on Purchase	700	Bills payable	4,000
Salaries	8,000	Loan (Cr)	11,000
Insurance	2,800	Bills Receivables	7,000
Duty on import of Goods	4,200	Capital Account	13,47,600
Repair to machinery	1,400	Suppliers' a/c	40,000
Drawing	5,600	X's Loan (Cr)	18,600
Customers' A/c	15,800	Plant and machinery	1,82,000
Postage	500		
Trade expenses	1,000		
Interest on securities	6.400		
Land and Building	10,00,000		

Prepare trading and profit and loss account for the year ended 31st March 2022 and balance sheet a at that after taking into account the following adjustments:

(i) Closing Stock was valued at ₹19,000.

(ii) Depreciation to be provided on Land and Building 5% p.a. and Plant and Machinery @ 10% p.a.

(iii) Wages Include ₹4,800 for installation of a new Machinery.

(iv) Insurance was prepaid ₹ 700

OR

Following is the extract from the trial balance of Sethi as at 31st March, 2023:

Name of the Account	L.F	Debit (₹)	Credit (₹)
Sundry Debtors		1,20,000	
Bad Debts		4,000	
Provision for Doubtful Debts			10,000

Additional Information's:

Further Bad debts ₹ 8,000

Maintain the Provision for Doubtful debts @ 10% on Sundry Debtors.

Pass necessary journal entries and show them in the profit and loss account and the balance sheet.

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DELHI PUBLIC SCHOOL, BHILAI

Date : 23.02.2024	ANNUAL EXAMINATION 2023-24	Time : 3 Hrs.
Class : XI	Subject : Business Studies	Max. Marks : 80

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

1. Akshat is working as a Sales Executive in Unique Ltd. Co. He is getting Rs. 40,000 per month. His job is to enhance the sales of the company. Identify which type of economic activity is highlighted in the case?
   a) Profession   b) Employment   c) Business   d) Commerce   (1)

2. It can continue as long as the partners want and is terminated when any partner gives a notice of withdrawal from partnership to the firm.
   a) Partnership at will   b) Particular partnership
   c) General partnership   d) Unlimited partnership   (1)

3. An organization is working for the purpose of public welfare as a ministry of government. It is financed by the government and all its income is deposited in the government treasury. Identify which kind of public sector enterprise is it?
   a) Partnership   b) Departmental Undertaking   c) Sole proprietorship   d) Company   (1)

4. When the loss is the result of two or more causes, which of the following terms refer to the direct cause of which the loss is the natural consequence?
   a) Subrogation   b) Proximate cause   c) Mitigation   d) Indemnity   (1)

5. Mr. Vicky wants to buy a new double bed, but he did not have space to keep it. He plans to sell the old double bed through Quikr, so that he can get some extra money and space for the new double bed. He got a lot of calls and out of many buyers, he chooses the best buyer who gave him the best price. Identify the branch of business being described above.
   a) C2C Commerce   b) B2B Commerce   c) B2C Commerce   d) Intra-B Commerce   (1)

6. **STATEMENT I** – Business should adopt eco-friendly production and marketing processes to ensure environmental protection.
   STATEMENT II – Expenditure on social cause is a drain on business resources.
   Choose the correct option from the following options: (1)
   a) Statement I is true but II is false.
   b) Statement II is true but I is false.
   c) Both the statements are true.
   d) Both the statements are false.

7. Equity share capital represents:
   a) Fixed capital of the company   b) loan capital of the company
   c) Permanent capital of the company   d) Fluctuating capital of the company   (1)

8. Match the following:

COLUMN I	COLUMN II
A. Copyright	i. Differentiation of one good of a company from another.
B. Trademark	ii. Protection of an eye catching feature of an article.
C. Patents	iii. Not to copy the original idea
D. Designs	iv. Protect the scientific inventions

   a) A(iii) B(i) C(iv) D(ii)   b) A(i) B(ii) C(iii) D(iv)
   c) A(iv) B(iii) C(ii) D(i)   d) A(ii) B(iii) C(iv) D(i)   (1)

9. Apollo Pharmacy has retail outlets running 24 hours a day and 7 days a week. These retail outlets are spread across the country and have centralized purchasing and decentralized sales mechanism for sale of medicines and health care related goods to its customers. Which type of business outlet is highlighted in this paragraph?
   a) Departmental Store   b) Chain Stores   c) Malls   d) Super markets   (1)

10. Which of the following is a document related to payment in connection with export transactions?
    a) Export Invoice   b) Shipping Bill   c) Cart Ticket   d) Letter of Credit   (1)

11. Directors of SSS Ltd. want to expand the company, for this they need land, new factory shed and machines. Being the financial advisor of the company which source of finance from the following will you recommend them?
    a) Debentures   b) Inter-corporate Deposits   c) Equity Shares   d) Loans from commercial banks   (1)

12. The cooperative society is compulsorily required to be registered under the Cooperative Society Act,_____
    a) 1912   b) 1932   c) 1956   d) 1921   (1)

13. Mr. Pankaj, a businessman, has a current account in SBI. His current account shows a balance of just ₹40,000, while he urgently needs ₹2,50,000 to pay off one of his creditors. He approaches SBI to allow him to withdraw ₹2,50,000, using the facility extended by the bank to him due to his credit worthiness. The bank agrees to it.
    Identify the facility extended by SBI to Pankaj.
    a) Loan   b) Bank overdraft   c) Banker's Cheque   d) Installments   (1)

14. **Assertion (A) :** Every profession restricts the entry on the basis of examination or education.
    Reason (R) : A strict code of conduct exists in every business.   (1)
    (a) Both Assertion (A) and Reason (R) are true and (R) is the correct explanation of (A).
    (b) Both Assertion (A) and Reason (R) are true, but (R) is not the correct explanation of (A).
    (c) Assertion (A) is true, but Reason (R) is false.
    (d) Assertion (A) is false, but Reason (R) is true.

15. _____ is the funding of a project by raising money from a large number of people for a common goal.
    a) Boot strapping   b) Crowd funding   c) Venture capitals   d) Angel investments   (1)

16. Which type of GST is payable on all interstate supply of goods and services?
    a) CGST   b) SGST   c) IGST   d) FGST   (1)

17. Which is the chief managing body of a company?
    a) Shareholders   b) Managing Director   c) Board of Directors   d) Registrar of Companies   (1)

18. Identify the itinerant trader shown in the picture :

    a) Cheap jacks   b) Hawkers and Peddlers   c) Market traders   d) Street trader   (1)

19. In Hindu Undivided Family Business, members of the family other than the Karta are known as
    a) Dharma   b) Partner   c) Co-Kartas   d) Co-Parcener   (1)

20. **STATEMENT I** – In a life insurance policy, the element of risk is uncertain.
    STATEMENT II – Marine insurance policy is a contract of indemnity.
    Choose the correct option from the following options:
    a) Statement I is true and II is false.
    b) Statement II is true and I is false.
    c) Both the statements are true.   (1)
    d) Both the statements are false.

21. Kiya Ltd. has good prospects, so it is planning to expand the business. For this the company needs additional funds. The Finance Manager reports that the company is not in a position to bear extra burden of paying any fixed financial charges like interest or dividend. They do not want to bear any flotation cost even. Also, the equity shareholders insist not to issue any further shares as there is risk of dilution of control

    Identify the source of finance most suitable for Kiya Ltd. Explain any two features of the same.
    OR   (3)
    What do you understand by shares, share capital and shareholders? Explain the terms with the help of an example.

22. Sana and Shane are friends who have been planning for a start-up. With the money they had they did initial research. To fund their idea, a professionally managed fund institution provided them the funding. Identify and explain this source of fund for startup by quoting the line from the case.   (3)

23. 'Easy Day', 'D Mart' and 'Walmart' are the examples of which type of fixed shops? Give any two merits of the same.
    OR   (3)
    What are the services offered by retailers to wholesalers?

24. What is Bill of Lading? How does it differ from Bill of Entry?   (3)

25. Harsh is a well known orthopedic doctor in Agra. He runs his private clinic under the name of "Joint and Bone Clinic"
In context of the above case:
a) Identify the type of economic activity that Harsh is engaged in
b) State any three features of the type of economic activity as identified in in part (a) of the question.   (4)

26. Differentiate between private and public sector enterprises on the basis of Ownership, purpose, Social objectives and Government control.
OR   (4)
Multinational companies are considered a mixed blessing to the developing countries. Do you agree? Give any three reasons to support your answer.

27. Avinash wanted to sell his mobile phone but did not get any buyer. On his friend's suggestion he posted the mobile for sale on www.olx.com and found a buyer within two days. Name and explain the type of e-business. Name two more types of e-business.   (2+2)

28. Sarthak is a consumer. List certain responsibilities that he will expect from a businessman.
OR   (4)
What steps can an enterprise take to protect the environment from the dangers of pollution?

29. Rita is a graduate from the University of Delhi. She decided to do a Start-up just after the graduation. She took the ongoing edtech wave in her stride and set up a blended (offline + online) model of learning extra-curricular activities. She started boot strapping with the savings of her internship stipend. However, she is struggling to expand on the model because of lack of funds. Suggest her some more ways to raise more capital.
     (4)

30. The brand 'Vishwas' was established in the year 1970 by PR Enterprises Ltd. to produce all kinds of stainless steel tableware and kitchenware products. In due course of time the brand became popular among consumers in India and enjoys a huge market share. The company sells its products through a wide distribution network comprising of different kinds of retailers. Pranav has been selling the company's products for over two decades and now owns a retail outlet in Nagpur where all kinds of tableware and cooking ware are available for sale.
In context of the above case:
a) How would you classify Pranav as a type of retailer?   (4)
b) Name the category of the type of retail trade as identified in part (a) of the question under which he should be placed.
c) List any two features of the type of retail trade as identified in part(a) of the question.

31. Mr. Lalit Jaiswal owns an ancestral house in Shimla. On the advice of his friend he converts it into a lodge after renovation. The revenue from the lodge helps to supplement his income substantially. On his death the property (lodge) is inherited by his three sons in order of their age namely, Lakshya, Luv and Lucky who carry on the business under the form of Joint Hindu Family Business.
In context of the above case:
a) Name the law which governs the Joint Hindu Family Business.
b) Who amongst the three brothers has the right to exercise control over the family business? Justify.
c) Comment upon the liability of the three brothers   (1+2+3)

32. What is E-Banking? Name any two E-banking services offered by banks. Write any 3 benefits of E-Banking.
     (1+2+3)

33. Rehaan Garments has received an order to export 2000 men's shirts to Swift Imports Ltd. located in Australia. Discuss the procedure that Rehaan Garments would need to go through for executing the export order after production or procurement of goods.
OR   (6)
Explain the following documents used in Foreign trade:
a) Certificate of Origin   b) Mate's Receipt   c) Bill of Lading
d) Shipping Bill   e) Letter of Credit   f) Indent

34. Explain briefly any four long term sources of funds and two short term sources of funds.
OR   (6)
What do you mean by debentures? What advantages does issue of debentures provide over the issue of shares?

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DELHI PUBLIC SCHOOL, BHILAI

Date : 01.03.2024	Annual Examination 2023-24	Time : 3 Hrs.
Class : XI	Subject : Informatics Practices	Max. Marks : 70

General Instructions:
1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each.
8. All programming questions are to be answered using Python Language only.
9. Internal choice is given in Sections B-E.

Section –A

Q1. _____ component of CPU which is responsible for comparing the contents of two pieces of data   **1**
   a. ALU   b. CU   c. RAM   d. Register

Q2. Flash Memory is a type of _____ Memory –   **1**
   a. Primary   b. Secondary   c. RAM   d. All of these

Q3. Python code can run on a variety of platforms , it means Python is a _____ language.   **1**
   a. Cross platform   b. GUI   c. OSS   d. None

Q4. Which of the following is an escape sequence for new line character –   **1**
   a. \n   b. \r   c. \t   d. \x

Q5. Which of the following is a special literal used in Python –   **1**
   a. pass   b. void   c. if   d. None

Q6. Which of the following is a membership operator –   **1**
   a. and   b. or   c. id   d. in

Q7. _____ function gives data type of an identifier –   **1**
   a. type( )   b. id ( )   c. int( )   d.str( )

Q8. Which of the following is not an immutable data type in Python –   **1**
   a. String   b. Set   c. Dictionary   d. both b and c

Q9. list('word') will evaluate –   **1**
   a. ['w','o','r','d']   b. ['word']   c.[['w'],['o'],['r'],['d']]   d. None of these

10. Which of the following module is imported for pretty printing in Dictionary -   **1**
   a. json   b. dicts   c. random   d. pretty

11. An attribute in a relation is a Foreign key if it is_____ key in another relation.   **1**
   a. Candidate   b.Primary   c. Alternate   d. Sub

12. Which of the following operators perform pattern matching–   **1**
   a. Like   b. between   c. %   d. both a and c

13. _____ clause is used to remove repeated data of an attribute/column –   **1**
   a. Null   b. Like   c. Distinct   d. order by

14. To remove records/tuples from a Relation _____ command is used in SQL –   **1**
   a. Drop   b. Delete   c. Remove   d. Clear

15. Which component of a computer connects the processor to the other hardware –   **1**
   a. System Bus   b. Cache memory   c. Registers   d. None

Q16. SSD stands for -   **1**
   a. Solid-State Drive   b. System Service Disk   c. Secured System Disk   d. None

Q17 and 18 are **ASSERTION AND REASONING** based questions. Mark the correct choice as -
   i. Both A and R are true and R is the correct explanation for A
   ii. Both A and R are true and R is not the correct explanation for A
   iii. A is True but R is False
   iv. A is false but R is True

17. **Assertion (A)** – A database is a collection of data and a database system is basically a computer-based record keeping system.
    Reasoning (R) – MySQL is a database system.

18. **Assertion (A)** – A relation is a table in a relational database .
    Reasoning (R) – In a database table is the only object which stores data in systematic manner.

Section – B

19. Describe the terms free software and open source software.   2

20. What is the need of RAM ? How does it differ from ROM?   2

21. Expand the following terms - (any 2)–   2
       a. HLL   b. FLOSS   c. VLSI   d. BRD

22. Distinguish between DDL and DML commands with suitable example of each.   2
       OR
    Distinguish between Alternate key and Candidate key.

23. Define the following terms – (any 2)   2
       a. Attribute   b. Tuples   c. Domain

24. Predict the output of the given code snippets –   1+1=2
       a. for var in range(40,10,-10):
              print(var+5, end=' ')

       b. m,n,p=10,50,20
          if m>n>p:
              print('True Case ')
          else:
              print('False Case')

25. Write a program to input cost price and selling price of a product and display profit or loss earned.   2

Section – C

26. Create a dictionary whose keys are month names and whose values are the number of days in the corresponding month.   3
    a) Ask the user to enter any month name and give code which will display number of days of that month.
    b) Display name of the months with 31 days.

27. Give Python code to calculate and display grade of a student when his/her aggregate marks is given by user. Grade, as per marks is as follows -   3

Marks	Grade
100 - 90	A1
<90 - 80	A2
<80 - 70	B1
<70 - 60	B2
<60 - 50	C
<50 - 33	D
<33	E

28. Write a program to input a list **lst** and two numbers **M** and **N** . Then create a new list from those elements of lst which are divisible by both **M** and **N**.   3
    OR
    Write a program to find the largest, smallest and sum of all elements of a list given by user.

29. Consider the table given below: 1x3=3

Table : ITEMS

Code	Item	Qty	Price	Transaction_ Date
1001	Plastic Folder 14''	100	3400	2014-12-14
1004	Pen Stand Standard	200	4500	2015-01-31
1005	Stapler Mini	250	1200	2015-02-28
1009	Punching Machine Small	200	1400	2015-03-12

    i. Observe the above given table carefully and write the name of the most appropriate column which can be considered as primary key.
    ii. Write Degree and Cardinality of the table ITEMS.
    iii. Give SQL statement to display Items Code and discount. When discount is 2% of Price.

30. Mr. Sanket , a HR Manager in a multinational company "Star-X world" has created the following table to store the records of employees. He wrote few SQL commands, predict correct output. **(any 3)**

Table : Staff   (1x3=3)

Sid	SName	Department	DOB	DOJ	Salary
Star1	Arnav	Sales	1994-08-28	2020-02-14	50000
Star2	Melinda	CS	1997-10-15	2021-11-19	40000
Star3	Rajan	Accounts	1998-10-02	Null	48000
Star4	Purva	Sales	2000-02-17	2020-05-01	35000
Star5	Sanjana	CS	2001-12-05	2018-06-13	75000
Star6	John	Accounts	1995-01-03	2019-07-15	80000
Star7	Julia	Sales	1985-11-13	2020-08-19	35000

    i. Select Sname from Staff where Department in('Sales','Accounts');
    ii. Select Sname, DOJ from staff where DOB> '2000-01-01' ;
    iii. Select Sname from staff where department like '%v%' order by Sname;
    iv. Select sname, Department from staff where salary between 40000 and 50000;

Section – D

31. Read the following questions which are based on Python's Expressions, Data Types and Variables assignments and answer the following: (2+2+1)

(a) For each of the following Python expressions, write down the value that is output when the expression is evaluated using a Python interpretor. Write '**Error**' if you think the expression will raise an error.
    (i) 15%3   (ii) 12+3*5   (iii) "CBSE"+"2024"   (iv) "130"+500

(b) Assume the following list definition in Python:
letters=['a','b','o','c','p']
What would be displayed in a Python shell for each of the following expressions if they are evaluated in the given order ? If it would give an error the write '**Error**'.
>>>letters[1]

_____ (i)
>>>letters[len(letters)-2] (ii)

_____
>>>letters+["x"]

_____ (iii)
>>>letters

_____ (iv)

(c) Let nums2 and nums3 be two non-empty lists. Write a Python command that will append elements of nums3 at the end of nums2.
_____.append(_____)

32. Study the given case and answer the following :　　　　　　　　　　　　　　　(1x5=5)

You are visiting a historical movement. The guide there asks you to wear a headset to actually see feel how it looked centuries ago.

After wearing the headset, your senses actually take you to the golden days of monument and lets you experience it.

(a) You felt everything in real. What is the name of this technology?

(b) Does the interaction with the real world continues while using the technology mentioned in part (a) ?

(c) Name a technology that gives you immersive real world.

(d) How does the technology of part (c) work?

(e) Give some applications of the above technology used in part (d).

OR

Explain the following Terminologies -　　　　　　　　　　　　　　　　　　　　(1x5=5)

(a) Block Chain Technology

(b) Cloud Computing

(c) SaaS

(d) PaaS

(e) IoT

33. Answer the following -　　　　　　　　　　　　　　　　　　　　　　　　(1x5=5)

(a) Write SQL command to display structure of a table 'VENDORS'.

(b) Name the dummy table used in MySQL to perform non table based query.

(c) Write SQL command to add a new column 'Email' of data type VARCHAR and size 30 to the table 'Conquerer'.

(d) What output will be obtained by the given below SQL command –

　　Select　15% 10　;

(e) In the given query which keyword is to be inserted to work successfully –

　　Update Club _____ Sports='Tennis' where Mid='A1';

OR

Give SQL commands to perform the following:

(a) Create a table named 'Project' as given instance chart –　　　　　　　　　(2+1+1+1=5)

Column Name	PID	Title	Team _size	SubDate
Data type	integer	Varchar	integer	Date
Length	3	25	4	
Key	Primary			

(b) Add a new column named 'Remark' of CHAR(30) data type.

(c) Change the name of the column SubDate to Submission_Date of Date data type.

(d) Remove the entire table 'Project'

Section – E

34. Give output for the following Python code snippet -　　　　　　　　　　　(1x4=4)

```
Asx=[100,200,300,400,500,600,700]
Bsx=[111,222,333]
print(Asx[1:7:2])
print(Bsx*3)
print(Asx[-5:-1])
print(Asx>Bsx)
```

OR

Distinguish the following functions/methods with suitable python code example –　(2+2=4)

(a) remove( ), pop( ) used in list

(b) sort( ), sorted( ) used in list

35. Give SQL commands for the following –　　　　　　　　　　　　　　　　(1x4=4)

(a) Create a Database named 'SECURITY'

(b) Display name of all the tables of opened database.

(c) Open the database 'TEAMWORK'

(d) Remove / Delete the database 'STOCK'

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

SECTION – A

01. Full form of SES is: (1)
    (a) Socio Economic School   (b) Socio Economic Space
    (c) Socio Economic Status   (d) Socio Economic Society

02. _____ is an example of micro nutrient: (1)
    (a) Fat   (b) Carbohydrate   (c) Fibre   (d) Zinc

03. What does BCG stands for?   (1)
    (a) Born Cytoskin Group   (b) Blind Cell Group
    (c) Bonded Cell Group   (d) Bacillus Calmette Guerin

04. Match the following: (1)

List I	List II
(A) Capital	1. Self-cultivated vegetables
(B) Direct Income	2. Material goods and services
(C) Indirect Income	3. Fixed deposits in bank
(D) Investment	4. Net worth

    Codes :
    (a) A – 3, B – 4, C – 2, D – 1   (b) A – 2, B – 1, C – 4, D – 3
    (c) A – 4, B – 1, C – 2, D – 3   (d) A – 3, B – 2, C – 1, D – 4

05. Fourth step in the management process is: (1)
    (a) Controlling   (b) Implementing   (c) Organising   (d) Evaluation

06. In present, which disease is becoming common among youngsters?   (1)
    (i) Type II Diabetes   (ii) Hepatitis B   (iii) Hypertension   (iv) Osteopenia
    Choose the correct option:
    (a) I and II   (b) II and III   (c) III and IV   (d) I and III

07. What do you understand by motherese?   (1)
    (a) Special type of speech used by adults to talk to children.
    (b) Special type of care provided by adult care givers to children.
    (c) It refers to the process of communication between a mother and a child.
    (d) It refers to the bond between mother and a child.

08. The infant begins to intentionally carry out actions between the age of: (1)
    (a) 4-8 months   (b) 8-12 months   (c) 12-14 months   (d) 14-18 months

09. Which nutrient is required for rapid calcification of bones?   (1)
    (a) Iron   (b) Vitamin   (c) Protein   (d) Calcium

10. Which of the following would help a small room feel larger?   (1)
    (a) Use cool light colours   (b) Use large furniture, patterns and texture
    (c) Use rough texture   (d) Place lighting as one chandelier

11. Identify the dimensions of time.
    I. Work time   II. Exercise time   III. Rest and leisure time   IV. Movie time
    Choose the correct option: (1)
    (a) I and II   (b) II and III   (c) I and III   (d) III and IV

Given below are the two statements labelled assertion and reason. **Choose the correct options from the following :**
(a) Both Assertion (A) and Reason (R) are correct and Reason (R) is the correct explanation of Assertion (A).
(b) Both Assertion (A) and Reason (R) are correct 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.

12. **ASSERTION (A)** : In developing countries, food-borne illnesses such as diarrhoea and dysentery are major problems.

REASON (R) : Poor personal and food handling practices result in food borne illnesses. (1)

13. **ASSERTION (A)** : A stain is a decorative mark or coloration on a fabric.

REASON (R) : Identification of stain can be done on the basis of colour, smell and feel. (1)

Case Based Questions: Read the passage carefully and answer question no **14 to 18.**

Priya had an interview day before yesterday. She was so nervous that even after getting ready for the interview, she was writing and revising the topics. While doing so, she stained her white cotton saree with ink. She had to hurry to buy a similar saree but instead of cotton, she had to manage with a silk saree which was available in a clothing store nearby.

14. If Priya had time, how would she remove the ink stain? (1)
(a) Harden with ice, apply any solvent (b) Fresh stain can be removed with soap and water
(c) Dip in methyl alcohol (d) Apply starch

15. Which of the following is property of cotton? (1)
(a) Weak fibre and when it is wet weakens further (b) Easily damaged by alkaline substances
(c) Can withstand high temperatures (d) Fungus cannot attack it

16. Stain removal must be followed by _____ so that all traces of chemicals are removed. (1)
(a) Washing or dry cleaning (b) Dry cleaning or finishing
(c) Removal of dirt (d) Drop method

17. "Resists attack by mildew and bacteria but are eaten by carpet beetles". According to the statement which fibre has this property? (1)
(a) Wool (b) Nylon (c) Silk (d) Cotton

18. What is used to counteract yellowness and to restore whiteness? (1)
(a) Gelatin (b) Blues (c) Borax (d) Starch

SECTION B
(SHORT ANSWER QUESTION)

19. Why cotton is considered as suitable fabric for pre-schooler? (2)

20. What does BMI signifies? (2)

21. Define: (i) Psychic Income (ii) Meta Thinking (2)

22. (i) Name one of the most essential property of fibre.
(ii) From customer's satisfaction point of view which properties are essential? (2)

23. (i) Which is the first stage of language development in infants?
(ii) What do you mean by cooing? (2)

24. How is silk produced? (2)

OR

Which standing posture can be considered as "good standing position"?

25. What are the two ways of privacy considerations in space planning? (2)

26. Why optimum nutritional status is important? (3)

27. What is interpersonal communication? How is interpersonal communication the most effective type of Communication? (3)

28. Define Motor Development. What are the two types of motor development? (3)

29. What do you mean by the term "savings"? What are the factors on which savings of a family depends? (3)

SECTION C
(LONG ANSWER QUESTION)

30. How does WHO define health? What are the three conditions under which we can say that a person is diseased? (4)

31. Why do different people wear different types of clothing? Give four reasons. (4)

32. (i) Define work simplification. (4)
(ii) What are the three levels of changes that can be done for work simplification?

33. What are the different types of communication based upon the levels of communication? (4)

OR

You are using a chemical to remove stain from your dress. What four important precautions would you keep in mind while using it on the fabric?

34. Ram recently got married and started a family. He spends a lot on travelling, shopping, etc and by the end of the month he is left with nothing even for basic home needs. (5)
(a) What is income management?
(b) When is budgeting successful?
(c) What are the advantages of planning family budgets?

35. Give the guidelines for using basic food groups. (5)

Date : 06.03.2024   ANNUAL EXAMINATION 2023-24   Time : 3 Hrs.

Class : XI   Subject : Physical Education   Max. Marks : 70

General Instructions :
1. The question paper consists of 5 sections and 34 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 19-23 carrying 2 marks each and are very short answer types and should not exceed 60-90 words. There is internal choice available.
4. **Section C** consists of question 24-28 carrying 3 marks each and are short answer types and should not exceed 100-150 words. There is internal choice available.
5. **Section D** consists of Question 29-31 carrying 4 marks each and are case studies/short answer types and should not excess 150 – 170 words.
6. **Section E** consists of Question 32-34 carrying 5 marks each and are long answer types and should not exceed 200-300 words. There is internal choice available.

Section – A (1x18=18)

01. Which of the following is not the objective of Physical Education ? (1)
(a) Physical development   (b) Social development
(c) Emotional development   (d) Technical development

02. The colours of Olympic flag are Blue, Black, Red, Green and _____ . (1)
(a) Yellow   (b) White   (c) Pink   (d) Maroon

03. Yoga has been mentioned in (1)
(a) Maharbharata   (b) Ramayana   (c) Upnishads   (d) All of these

04. Regular physical exercise results in _____ . (1)
(a) Improved functional status   (b) Quality of life
(c) Improved cognitive abilities   (d) All of these

05. Which one of the following is not a component of physical fitness? (1)
(a) Speed   (b) Flexibility   (c) Strength   (d) Social wellness

06. Test is generally used to measure (1)
(a) A specific skill   (b) A specific body type
(c) The level of skill   (d) The abilities of a person

07. Which one of the following is not a part of the circulatory system ? (1)
(a) Heart   (b) Lungs   (c) Blood   (d) Blood vessels

08. Biomechanics can play a crucial role in _____ . (1)
(a) Injury prevention   (b) Performance enhancement
(c) Physical movement   (d) Both (a) and (b)

09. Which of the following is a problem faced by adolescents ? (1)
(a) Drug addiction   (b) Social standing   (c) Aggression   (d) All of these

10. Which one of the following is/are the signs of over load ? (1)
(a) Fatigue   (b) Decline in performance   (c) Loss of appetite   (d) All of these

11. Career options through Physical Education are (1)
(a) Sports Departments   (b) Sports Journalism   (c) Sports Managements   (d) All of these

12. Samadhi is the ultimate goal of yoga. **(True or False)** (1)

13. Adaptive Physical Education is a direct service not a related service. **(True/False)** (1)

14. Which of the following is not an example of measurement ? (1) (1)
(a) AAHPERD Test   (b) Miller Volleyball Test   (c) Fitness Gram Test   (d) None of these

15. Which of the following factors help in improving team cohesion ? (1)
(a) Self team goals   (b) Set individuals goals
(c) Reward effort and performance   (d) All of these (1)

16. **Assertion (A) :** Physical Education is an integral part of the education system.
    Reason (R) : The aim of Physical Education is to make every child physically, mentally and
    constitutionally fit. **(1)**
    (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.

17. _____ help in understanding the ways in which a project or programme can be stimulated and
    developed. **(1)**
    (a) Evaluation   (b) Test   (c) Measurement   (d) None of these

18. What is defined as the amount of work done an individual's body ? **(1)**
    (a) Load   (b) Stress   (c) Fatigue   (d) Fracture point

Section – B (2x5=10)

19. What do you mean by the word 'yoga' ? **(2)**

20. Define Adaptive Physical Education. **(2)**

21. Explain the concept of Pronation and Supination. **(2)**

22. What is friction ? **(2)**

23. What is Sports Psychology? **(2)**
    OR
    What are blood vessels ?

Section – C (3x5=15)

24. What are the elements of yoga and explain any two of them. **(3)**

25. Write **any three** causes of disability. **(3)**

26. Write short note on Respiratory System. **(3)**

27. What are the different types of movement, explain **any one** of them ? **(3)**

28. What is team cohesion and how can be improve ? **(3)**
    OR
    What is flexibility ? Why flexibility is essential is games and sports and other physical activities ?

Section – D (4x3=12)
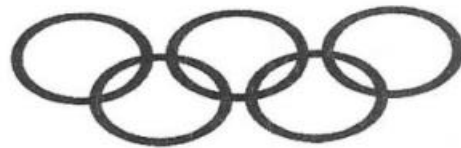
29.
    (i) What do the five rings on the Olympic symbol represent ? **(4)**
    (ii) The Olympic flag was used for the first time in the Olympic Games of _____ .
    (iii) The concept of the lightening of the Olympic flame came from _____ .
    (iv) The headquarters of Modern Olympic Games is in _____ .

30. Elaborate the concept of wellness in detail. **(4)**

31. Discuss the functions of the circulatory system. **(Any four)** **(4)**

Section – E (5x3=15)

32. Explain the major objectives of the 'Khelo India Programme'. **(5)**

33. Write the importance of Test in Sports ? Give any three advantages of Test. **(5)**

34. Explain **any five** principles of sports training. **(5)**
    OR
    How can the problems of adolescence be managed ? Explain in detail.

DELHI PUBLIC SCHOOL, BHILAI

Date : 12.02.2024 **ANNUAL EXAMINATION 2023-24** **Time : 50 Minutes**
Class : XI **Subject : General Knowledge** **Max. Marks : 50**

Name of the student: _____ Class/Sec._____ Roll No._____
Invigilator's Signature _____ Marks obtained : _____/50

General Instructions:
- All the questions are compulsory. There are 50 questions of 1 mark each.
- Answer all the questions by writing the correct option number in the space provided.

Q.1 What is the theme of the 2024 Davos WEF ?
(a) Great Reset (b) Building Trust
(c) Cooperation in a Fragmented world (d) Working together, Restoring Trust

Q.2 Which of the following was India's official entry to the 2024 Oscars?
(a) 2018:Everyone is a Hero (b) 12th Fail (c) The Kashmir files (d) RRR

Q.3 Which organization recently issued Japanese Yen Denominated Green Bonds?
(a)IMF (b) World Bank (c) REC Ltd (d) Japan Green Finance Organisation

Q.4 Which are the primary objects of study for the recently launched XPoSat
(X-ray Polarimeter Satellite) by ISRO?
(a) exoplanets (b) neutron stars and black holes
(c) distant stars and solar systems (d) asteroids

Q.5 Who is the author of "Chip War: The Fight for the World's Most Critical Technology"?
(a) Yuval Noah Harari (b) Malcolm Gladwell (c) Chris Miller (d) Walter Isaacson

Q6. Which motivational speaker and NGO founder was appointed as a brand ambassador for the
government's Viksit Bharat Abhiyan initiative?
(a) Sonu Sood (b) Amitabh Shah (c) Ujjwal Patni (d) Sandeep Maheshwari

Q7. 30.iDEX-DIO is the flagship scheme of which Ministry?
(a) Ministry of Tourism (b) Ministry of Defence
(c) Ministry of Micro, Small & Medium Enterprises (d) Ministry of Tribal Affairs

Q.8 India's first multi-sport beach games started in January 2024 at which State / Union Territory?
(a) Lakshadweep (b) Andaman & Nicobar Island(c) Goa (d) Daman & Diu

Q.9 Suchetha Satish, who was recently making news for a world record in singing in 140 languages,
belongs to which state?
(a) Kerala (b) Karnataka (c) Tamil Nadu (d) Andhra Pradesh

Q.10 Which institution launched a comprehensive programme to combat air pollution crisis in India?
(a) UNEP (b) UNFCCC (c) World Bank (d) WEF

Q.11 As per the Union Budget 2023, what is the income limit for availing tax rebate?
(a) ₹ 6 lakh (b) ₹ 7 lakh (c) ₹ 8 lakh (d) Rs 10 lakh

Q.12 What is the name of tariff levied on imported goods to offset subsidies given to producers of
the goods in exporting country?
(a) Countervailing Duty (b) Anti-Dumping Duty (c) Safeguard Duty (d) Protective Duty

Q.13 Which among the following is a direct tax?
(a) Excise Duty (b) Sales Tax (c) VAT (d) Income Tax

Q.14 FIFA opened a disciplinary case against which team for offensive player misconduct and violations
of fair play at World Cup?
(a) England (b) Morocco (c) Argentina (d) France

Q.15 Which country claimed the inaugural U-19 women's World Cup title?
(a) England (b) South Africa (c) India (d) Australia

Q.16 Synchro, which was seen in the news, is associated with which sports?
(a) Shooting (b) Swimming (c) Archery (d) Cricket

Q.17 Which was the first major sports event to offer equal prize money to men and women?
(a) BWF world championship (b)US Open (c)Australia Open (d)NBA world championship

Q.18 Which is the first cricket team to score more than 300 runs in a T20I?
(a) Nepal (b) Bangladesh (c) South Africa (d) India

Q.19 Which sport is being introduced in the 2024 Khelo India Youth Games for the first time?
(a) Squash (b) Canoeing (c) Kayaking (d) Canoe Slalom

Q.20 Who is poised to make history as the first ICC-appointed female neutral umpire in a bilateral series?
(a) Claire Taylor (b) Charlotte Edwards (c) Sue Redfern (d) Belinda Clark

Q.21 Who achieved a historic milestone by defeating World Champion Ding Liren and surpassing
Viswanathan Anand to become India's No.1 Chess Player?
(a) Rameshbabu Praggnanandhaa (b) Gukesh D (c) Arjun Erigaisi (d) P. Harikrishna

Q.22 Find out the alternative which will replace the question mark.
Flow : River :: Stagnant : ?
(a) Rain (b) Stream (c) Pool (d) Canal

Q.23 Choose the correct meaning of the idiom : **To keep one's temper**
(a) To become hungry (b) To be in good mood (c) To preserve ones energy (d)To be aloof from

Q.24 Choose the correct meaning of the idiom : **To drive home**
(a)To find one's roots (b) To return to place of rest (c) Back to original position (d) To emphasise

Q.25 **LIGHT:BLIND : :_____ : _____**
(a) speech:dumb   (b) language:deaf   (c) tongue:sound   (d) voice:vibration

Q.26 For which novel did Salman Rushdie win the 1981 Booker Prize?
(a) East, West   (b) Midnight's Children   (c) The Moor's Last Sigh   (d) The Satanic Verses

Q.27 Who is the author of the book 'Matoshree'?
(a) Sumitra Mahajan   (b) Narendra Modi   (c) Venkaiah Naidu   (d) Sushma Swaraj

Q.28 Who is the author of "Poverty and Famines"?
(a) Abhijit Banerjee   (b) J.R.Harris   (c) Amartya Sen   (d) K.N.Raj

Q.29 Skin works as a respiratory organ in which of the following animals?
(a) Cockroach   (b) Frog   (c) Whale   (d) Dog Fish

Q.30 Where does the formation of Urea take place in our body?
(a) Pancreas   (b) Kidney   (c) Liver   (d) Lungs

Q.31 Which among the following was the first vaccine ever to be developed?
(a) Cholera   b) Smallpox   c) Rabies   d) Tetanus

Q.32 What is the product of the mass of the body and its velocity called?
(a) Force   b) Linear Momentum   c) Energy   d) Power

Q.33 In which of the following situations, the state of weightlessness can be observed?
(a) When objects fall freely under gravity
(b) When bodies are at null points in outer space
(c) When a satellite revolves in its orbit around the earth
(d) All of the above

Q.34 What will be the general value of angle of contact when the liquid does not wet the solid?
(a) acute   b) obtuse   c) zero   d) 90°

Q.35 A 'knot' is a measurement unit of which of the following?
(a) Weight   b) Speed   c) Mass   d) Distance

Q.36 Which of the following chemicals is used as a molecular sieve to filter common salts from seawater to produce potable water?
(a) Graphene oxide (b) Phosgene   c) Sodium hypochlorite   d) Calcium carbonate

Q.37 Which of the following is correct about ozone?
(a) it is a red coloured gas (b) it is odourless (c) it is harmless in small concentrations (d) All of the above

Q.38 Which of the following is NOT correct about Sodium chloride?
(a) It is a covalent compound   (b) It is also known as common salt
(c) Used in de-icing of roadways during snowfall   (d) It is used as a food preservative

Q.39 Stockholm Convention is a global treaty associated with which of the following?
(a) Protect the environment from Persistent Organic Pollutants
(b) Phasing out hydro-fluorocarbons
(c) Control of Transboundary Movements of Hazardous Wastes and Their Disposal
(d) Sustainable use of Biodiversity

Q.40 "Global Platform for Sustainable Cities" is an initiative by:
(a) Intergovernmental Panel on Climate Change (IPCC) (b) Global Environment Facility (GEF)
(c) Greenpeace International (GI)   (d) United Nations Environment Programme (UNEP)

Q.41 Which of the following is a famous nesting beach for the endangered Olive Ridley turtles?
(a) Gahirmatha   (b) Sagarmatha   (c) Lakshadweep islands   (d) Andaman and Nicobar

Q.42 Which of the following is the reason behind the cool water in an open pond in hot summer?
(a) Continuous evaporation of water
(b) Water radiates heat more rapidly than the atmosphere
(c) Water absorbs heat less rapidly than the atmosphere
(d) Water absorbs heat more rapidly than the atmosphere

Q.43 Teak is the dominant species of which of the following forests?
(a) Tropical Evergreen Forests   (b) Tropical Deciduous Forests
(c) Temperate Evergreen Forests   (d) Mangrove Forests

Q.44 Which of the following is a National Park,Wildlife Sanctuary, UNESCO Natural World Heritage site, Project Tiger Reserve, Elephant Reserve as well as a Biosphere Reserve?
(a) Bandipur   (b) Gir   (c) Manas   (d) Rohla

Q.45 Which was the first Chhattisgarhi film to win a National award?
(a) Kahi Debe Sandesh (b) Mor Chaiyyan Bhuiyan   (c) Bhulan-The Maze   (d) Johar Chhattisgarh

Q.46 Which city is on the banks of the Kelo river?
(a) Raigarh   (b) Kanker   (c) Bastar   (d) Bilaspur

Q.47 Which of the following states does not share its border with Chhattisgarh?
(a) Odisha   (b) U.P.   (c) M.P.   (d) Bihar

Q.48 Which city in C.G. is famous for Kosa weaving?
(a) Korba   (b) Champa   (c) Durg   (d) Balod

Q.49 Raipur is called the spiritual birthplace of-------?
(a) Ramakrishna Paramhamsa   (b) Vivekananda   (c) Maharishi Mahesh Yogi (d) Kabir

Q.50 Which is the 33rd district of C.G.?
(a) Sakti   (b) Sarguja   (c)Sukma   (d) Surajpur