



(20 September 2023)

Class: 12
Maximum Marks: 80

Subject: English (Core)
Duration: 3 Hours

General Instructions

- The paper is divided into three sections: A, B, and C. All the sections are compulsory.
- Specific instructions, wherever necessary, are given. Follow them strictly.
- Read the division of the marks as "number of question(s) × mark(s) = total."

SECTION A (READING SKILLS)

22

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

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- [1] Diversity is a hallmark of life. One way in which biologists make sense of the vast array of organisms existing now and over the long history of life on earth is to organize life's diversity into groups. Each unique form of life is called a species and is given a two-part, italicized, scientific name. The name identifies the genus and the particular species within that genus. For instance, the name of our species is *Homo sapiens* ('wise man'). Biologists have so far identified and named about 1.8 million species. The estimates of the total number of species range from 10 million to more than 100 million.
- [2] There seems to be a human tendency to group things such as snakes or butterflies, although we recognize that each group includes many different species. And we often cluster groups into broader categories such as reptiles (which include snakes) and insects (which include butterflies).
- [3] Taxonomy, the branch of biology that names and classifies species, arranges species into a hierarchy of broader and broader groups (from *genus*, *family*, *order*, *class*, and *phylum*, to *kingdom*). A goal of this classification system is to reflect the evolutionary history and relationships of organisms.
- [4] Earlier, biologists divided all organisms into five kingdoms. But the new methods of assessing evolutionary relationships (such as the comparisons of DNA sequences) have led to an ongoing reevaluation of the number and boundaries of kingdoms.
- [5] Although the debate continues about such divisions, there is a consensus among biologists that life can be organized into three higher levels called *domains*. The domains Bacteria and Archaea both consist of microscopic organisms with relatively simple cells. You are probably most familiar with bacteria, a very diverse and widespread group. Many members of the domain Archaea live in the earth's extreme environments such as salty lakes and boiling hot springs.
- [6] All the organisms with more complex cells are called eukaryotes and are grouped in the domain Eukarya. The protists are a diverse collection of mostly single-celled organisms. Biologists continue to assess how to group them to reflect their evolutionary relationships.
- [7] The three remaining groups within the domain Eukarya are distinguished partly by their modes of nutrition. The kingdom Plantae consists of plants, which produce their own food by photosynthesis. The kingdom Fungi is a diverse group, whose members mostly decompose organic wastes and absorb the nutrients into their cells. The kingdom Animalia obtains food by eating other organisms.
- [8] The other way in which biologists make sense of the diversity and complexity of life is to organize it into a hierarchy of structural levels, extending from the microscopic level of cells to the global scale of the entire earth.
- a. The term for the group consisting mostly of single-celled organisms is _____. 1
- b. The biological name of the human species means _____. 1
- c. The consensus among biologists, according to the author, is on _____ 1
- i. families ii. domains iii. species iv. orders
- d. There is a human tendency to _____ 1
- i. read about reptiles. ii. read about butterflies.
- iii. group things. iv. read about snakes and butterflies.
- e. In paragraph 1, find the word which means 'a group or collection of things or people, often one that is large or impressive.' 1
- f. In paragraph 5, the opposite of *certainly* is _____. 1

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- g. How have the new methods impacted biology? 2
 h. Mention two ways in which biologists study the diversity of life. 2
 i. How is an organism named by biologists? 2

II. Read the passage below carefully and answer the questions that follow it:

10

- [1] Travel, whether for the purpose of business or that of leisure, accounts for 25%–30% of the annual budget of a family, according to a survey conducted in 2021.
- [2] People spend money on experiences rather than on consumables. Travel is no longer looked at as just visiting a new place. It underlines an ethos and a world of surprises. The people who love travelling enjoy relaxation, new cultures, and incredible landscapes. Some enjoy the motion of travelling.
- [3] The study further reveals the new trends in travel tourism. While some are serious travellers (the category of medical tourism, for instance), others (forming a large percentage) travel for pleasure. Their responses can be categorized under a few common headings. Those who travel with the spirit of adventure are in the age group of 20–30 years. They love risks and challenges. Those who travel for educational purposes are in the age group of 30–40 years. They believe that an ever-changing environment is not only stimulating and refreshing but also brings endless learning opportunities. Those who travel to take a break from their soul-destroying lifestyles are in the age group of 40–50 years. They want to expand their minds and develop new perspectives. Those who are in the age group of 50–60 years feel that they may drop dead when they retire or will be too old to travel. They, therefore, want to travel as much as possible.

Age group (in years)	Adventure (%)	Education (%)	Relaxation (%)
20–30	40	48	12
30–40	35	28	37
40–50	20	25	55
50–60	5	12	83

Table: Agewise distribution of travellers

- [4] The survey concludes that travel has become an integral part of our lives and provides us with our greatest stories, our most-cherished moments and innumerable newly learned things that broaden our horizons and teach us about ourselves and others.
- a. Read the following statement and choose the right option: 1
 Some people use travel as a means of education.
 i. True ii. False iii. Not Given
- b. Select the option that displays the most likely reason for people to make travel budgets. 1
 i. getting relief from work pressure ii. learning new languages
 iii. buying the latest products iv. for relaxation, adventure, or knowledge.
- c. Travelling for relaxation is highest in the age group of _____ years. 1
- d. Most of the people in the age group of 30–40 years travel for _____. 1
- e. Complete the given sentence by selecting the most appropriate option: 1
 The survey aims at identifying
 i. the most popular tourist travel destination.
 ii. the age group that travels most.
 iii. the different reasons for travel.
 iv. the challenges of the travel tourism industry.
- f. The conclusion shows the _____ of travel. 1
 i. competency
 ii. universality
 iii. expenditure
 iv. problems
- g. Why do the people in the age group of 40–50 years travel? 2
- h. "The people nearing retirement are averse to travel." Challenge the statement. 2

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SECTION B (CREATIVE WRITING SKILLS)

18

III. Answer *only one* of the following:

4

a. A cyclone is likely to have a landfall at Paradeep in Odisha. As Rohit Acharya / Rohini Acharya, chairperson, Meteorology Research Centre, Odisha, write a notice, in not more than fifty words, to warn fishermen, tourists, and the public at large to take all safety precautions and not to venture into the sea. Mention the relevant details.

b. You are Sukesh Sharma / Sushila Sharma, secretary of Risali Housing Society. You want to convene a general meeting to discuss the security and maintenance of public spaces. Draft a notice, therefore, in not more than fifty words, mentioning the date, time and venue.

IV. Answer *only one* of the following:

4

a. You belong to Mithila Public School, Darbhanga (Bihar). Your principal, Mr. Kameshwar Singh, wants to invite the students' parents or guardians to the annual science exhibition. He wants you to draft the invitation, in not more than fifty words, mentioning the date, hours, venue, etc. Use the *card format*.

b. You are Dr. Vinit Patel/Vinita Patel, senior superintendent of police, Raipur. You have been invited to inaugurate the art and craft exhibition at Sardar Patel Public School. Write a formal letter of regret, in not more than fifty words, expressing your inability to grace the occasion on account of some prior engagement.

V. Answer *only one* of the following:

5

a. You are Anil Sinha / Anila Sinha. You have seen the following advertisement in *The Hindu*. You want to apply for the post. Write, therefore, a letter about it (enclosing your latest CV), in about 120–150 words.

Required: a trained graduate teacher (TGT) of English**Eligibility Criteria :**☐ a graduate (English)☐ a BEd☐ fluent in English speaking with good pronunciation☐ a teaching experience of 3–5 years☐ well-versed in computer applications and the Internet**Principal**

New Era Public School, Station Road, Raipur– 492 003 (Chhattisgarh)

b. You are Manish Yadav / Manisha Yadav, of 76 Rose Avenue, Raipur. You are very disturbed to see children begging at traffic signals. Write a letter in 120–150 words to the editor of *The Times of India*, Chhotapara, Raipur– 492 00, expressing your concern and suggesting some ways to solve the problem.

VI. Answer *only one* of the following:

5

a. You are Manoj Roy or Mandavi Roy, a student of class 12 at Moon Public School, Bhilai. Your school showed the live telecast of the touchdown of the Vikram lander of the Chandrayaan-3 mission. For your school magazine, write a report, in 120–150 words, on the school programme.

b. You are Pratham Sahu / Prarthana Sahu. You are very concerned about the unbridled price rise in India. Write an article on this problem in 120–150 words, suggesting some concrete measures to solve it.

SECTION C

40

(LITERATURE AND SUPPLEMENTARY READING TEXTBOOKS)

VII. Attempt *only one* of the following extracts:

6×1

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A. Read the following extract and answer the questions:

What I want should not be confused
with total inactivity.
Life is what it is about;
I want no truck with death.
If we were not so single-minded
about keeping our lives moving,
and for once could do nothing,
perhaps a huge silence
might interrupt this sadness

- a. State whether the following statement is true or false: "The speaker advocates total inactivity."
- b. Why does the speaker say, "What I want should not be confused. . . .?"
- c. The speaker says that life is what it is about because _____.
- d. By "I want no truck with death," the speaker means that
 - i. he does not want a truck to kill him.
 - ii. he should not be carried on a truck.
 - iii. he has nothing to do with death.
 - iv. he does not want to see a truck with a dead body.
- e. Which line shows that people are not happy?
- f. We are single-minded because _____.

B. Read the following extract and answer the questions:

A thing of beauty is a joy forever
Its loveliness increases, it will never
Pass into nothingness; but will keep
A bower quiet for us, and a sleep
Full of sweet dreams, and health, and quiet breathing.
Therefore, on every morrow, are we wreathing
A flowery band to bind us to the earth,
Spite of despondence, of the inhuman dearth
Of noble natures, of the gloomy days,
.....
Some shape of beauty moves away the pall
From our dark spirits.

- a. The poet defines beauty as
 - i. transient.
 - ii. eternal.
 - iii. illusionary.
 - iv. short-lived.
- b. "... but will keep / A bower quiet for us" means all of the following **except**
 - i. create a peaceful, shady place.
 - ii. provide a shelter.
 - iii. will decrease noise pollution.
 - iv. nature's canopy.
- c. Choose the correct option with reference to the two statements given below:
 1. Beautiful things uplift the soul.
 2. Beauty is ever-changing.
 - i. 1 can be inferred from the extract, but 2 cannot.
 - ii. 2 can be inferred from the extract, but 1 cannot.
 - iii. Both 1 and 2 can be inferred from the extract.
 - iv. both 1 and 2 cannot be inferred from the extract.
- d. Unhappiness, according to the extract, is caused by
 - i. hopelessness.
 - ii. a flowery band.
 - iii. noble natures.
 - iv. a thing of beauty.
- e. A thing of beauty does not give
 - i. sweet dreams.
 - ii. health.
 - iii. sadness.
 - iv. quiet breathing.
- f. The figure of speech used in "noble natures" is _____.

VIII. Attempt *only one* of the following extracts:

4×1=4

A. Read the following extract and answer the questions that follow:

To make sure, I walked over to a newsboy and glanced at the stack of papers at his feet. It was *The World*; and *The World* hasn't been published for years. The lead story said something about President Cleveland. I've found that front page since, in the Public Library files, and it was printed June 11, 1894.

- a. What is the significance of the date for the narrator?
- b. The narrator walked over to the newsboy because _____.

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- c. A lead story is
- a story about VIPs.
 - a story about a president.
 - the news report of the greatest importance.
 - the news read by a prominent actor.
- d. What was, according to the narrator, the status of *The World* in the twentieth century?

B. Read the following extract and answer the questions that follow:

"What is it?" he asked the messenger and then he rose, seeing the man's uniform.

"You are to come to the palace," the man said. "The old General is in pain again."

"Oh," Hana breathed, "is that all?"

"All?" the messenger exclaimed.

"Is it not enough?"

"Indeed it is," she replied. "I am very sorry."

When Sadao came to say goodbye, she was in the kitchen, but doing nothing. The children were asleep and she sat merely resting for a moment, more exhausted from her fright than from work.

- Hana thought that the messenger had come for _____.
- Dr. Sadao was summoned because
 - the servants had reported.
 - there was a medical emergency.
 - the General wanted to admire him.
 - the prisoner of war had escaped.
- What was the reason for Hana's resting for a moment?
- Complete the analogy with a word from the extract:
asleep : awake :: rejuvenated : _____

IX. Attempt *only one* of the following extracts:

6×1=6

A. Read the following extract and answer the questions that follow:

The ironmaster assumed that he felt embarrassed because of his miserable clothing.

"Please don't think that I have such a fine home that you cannot show yourself there," he said, "Elizabeth is dead, as you may already have heard. My boys are abroad, and there is no one at home except my oldest daughter and myself. We were just saying that it was too bad we didn't have any company for Christmas. Now come along with me and help us make the Christmas food disappear a little faster."

But the stranger said no, and no, and again no, and the ironmaster saw that he must give in.

- Select the option that completes the given sentence appropriately:
The ironmaster assumed that the peddler did not want to go to his home because
 - the peddler had something to hide.
 - the peddler had poor clothing.
 - the peddler feared his secret would be out.
 - he lived alone with his daughter.
- The peddler's refusal to accompany the ironmaster made the latter
 - angry.
 - more stubborn.
 - feel humiliated.
 - accept his defeat.
- Choose the correct option with reference to the two statements given below:
 - The ironmaster had a very big house and he lived only with his oldest daughter.
 - The ironmaster and his daughter need company at Christmas.
 - 1 can be inferred from the extract but 2 cannot.
 - 1 cannot be inferred from the extract but 2 can.
 - 1 is true but 2 is false.
 - Both 1 and 2 can be inferred from the extract.
- Select the suitable word from the extract to complete the following analogy.
dead : alive :: appear : _____
- Find out the expression that shows that the ironmaster is sympathetic towards the peddler.
- Choose the statement that is true of the ironmaster:
 - He was a good judge of a character.
 - He liked to celebrate Christmas with his family.
 - He was compassionate.
 - He was firm and decisive.

B. Read the following extract and answer the questions that follow:

"I sometimes find a rupee, even a ten-rupee note," Saheb says, his eyes lighting up. When you can find a silver coin in a heap of garbage, you don't stop scrounging, for there is hope of finding more. It seems that for children, garbage has a meaning different from what it means to their parents. For the children it is wrapped in wonder, for the elders it is a means of survival.

One winter morning I see Saheb standing by the fenced gate of the neighbourhood club, watching two young men dressed in white, playing tennis. "I like the game," he hums, content to watch it standing behind the fence. "I go inside when no one is around," he admits. "The gatekeeper lets me use the swing."

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- a. Saheb found a rupee
 i. in a street. ii. in a garbage dump. iii. in Firozabad. iv. on the tennis court.
- b. The emotion revealed by the phrase "his eyes lighting up" is that of
 i. anxiety ii. envy iii. happiness iv. jealousy
- c. How do the children view garbage?
- d. Choose the correct option with reference to 1 and 2 given below:
 1. Saheb watches the game from outside.
 2. Saheb lost the previous match.
 i. 1 is true, but 2 is not. ii. 2 is true, but 1 is not. iii. Both 1 and 2 are true. iv. Both 1 and 2 are false.
- e. More and more scrounging is done because _____.
- f. What contrast does the author want to present through the game of tennis?

X. Answer *any five* of the following questions, each in 40–50 words: 5×2=10

- a. What did Douglas learn from his drowning experience?
- b. How did the ironmaster try to persuade the tramp to accompany him to his manor house?
- c. "... put that thought away, and looked out at Young Trees sprinting, the merry children spilling ..."
 What is the significance of the young sprinting trees in "My Mother at Sixty-Six"?
- d. How did M. Hamel motivate the people present to learn French?
- e. "... perhaps a huge silence / might interrupt this sadness. ..." What is the sadness Neruda talks about in "Keeping Quiet"?
- f. What are the two distinct worlds described by Anees Jung?

XI. Answer *any two* of the following questions, each in 40–50 words: 2×2=4

- a. How is a first-day cover important?
- b. Why was the Maharaja thrilled beyond measure when he killed the first tiger?
- c. What is the significance of Students on Ice?

XII. Answer *only one* of the following questions in 120–150 words: 1×5=5

- a. You are William Douglas. Write a letter to one of your friends, describing how you conquered the fear of water. You may begin this way:

Dear James
 I am going to share with you

- b. You are Rahul Acharya / Rohini Acharya. On reading "The Rattrap," you have come to your conclusion that the essential goodness dormant in a human being can be awakened through understanding and love. You want to convey this message to all your classmates through a speech. You may begin this way:

Dear Friends
 The lesson "The Rattrap" has a big message for humankind. . . .

XIII. Answer *only one* of the following questions in 120–150 words: 1×5=5

- a. You are Rohit Patel / Rakhi Patel. On reading "The Enemy," you have come to your conclusion that world peace can be achieved only when the people of a country interact with and understand those of another. Write your experience in your diary. Do it this way:

Date
 Dear Diary
 I have finished reading "The Enemy." It has a big message. . . .
 Name

- b. You are Manoj Bajaj / Monica Bajaj. You have found that "The Tiger King" is a satire on the conceit of those in power. Write about this in your diary. Do it this way:

Date
 Dear Diary
 I have finished reading "The Enemy." It has a big message. . . .
 Name



General Instructions:

1. This question paper contains five sections A, B, C, D and E. Each section is compulsory
2. Section – A carries 20 marks weightage, section – B carries 10 marks weightage, section – C carries 18 marks weightage, Section – D carries 20 marks weightage and section – E carries 3 case-based with total weightage of 12 marks.
3. Section – A comprises 20 MCQs of 1 mark each.
4. Section – B comprises 5 VSA type questions of 2 marks each.
5. Section – C comprises 6 SA type of questions of 3 marks each
6. Section – D comprises 4 LA type of questions of 5 marks each.
7. SECTION – E It has 3 case studies. Each case study comprises 3 case-based questions, where 2 VSA type questions are of 1 mark each and 1 SA type question is of 2 marks. Internal choice is provided in 2 marks question in two case-study.
8. Internal 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. The maximum number of equivalence relation on the set $A = \{1,2,3\}$ are
(a) 2 (b) 3 (c) 4 (d) 5
2. Let R be a relation on the set of real number \mathbf{R} as aRb if $a \leq b$, then R is
(a) an equivalence relation (b) reflexive and transitive but not symmetric
(c) only reflexive (d) none of these
3. The number of functions defined from $\{1,2,3,4,5\} \rightarrow \{a,b\}$ which are one-one is
(a) 5 (b) 3 (c) 2 (d) 0
4. The value of $\tan \left[\frac{1}{2} \cos^{-1} \left(\frac{\sqrt{5}}{3} \right) \right]$ is
(a) $3 - \sqrt{5}$ (b) $\frac{3-\sqrt{5}}{2}$ (c) $3 + \sqrt{5}$ (d) $\frac{3+\sqrt{5}}{2}$
5. The principle value of $\cos^{-1} \left(\frac{7\pi}{6} \right)$ is
(a) $\frac{-\pi}{6}$ (b) $\frac{5\pi}{6}$ (c) $\frac{7\pi}{6}$ (d) $\frac{\pi}{6}$
6. $\int \sqrt{\frac{x}{1-x}} dx$ is equal to
(a) $\sin^{-1} \sqrt{x} + c$ (b) $\sin^{-1} [\sqrt{x} - \sqrt{x(1-x)}] + c$
(c) $\sin^{-1} [\sqrt{x(1-x)}] + c$ (d) $\sin^{-1} [\sqrt{x}] - \sqrt{x(1-x)} + c$
7. For matrix $A = \begin{bmatrix} 2 & 5 \\ -11 & 7 \end{bmatrix}$, $(adj A)'$ is equal to
(a) $\begin{bmatrix} -2 & -5 \\ 11 & -7 \end{bmatrix}$ (b) $\begin{bmatrix} 7 & 5 \\ 11 & 2 \end{bmatrix}$ (c) $\begin{bmatrix} 7 & 11 \\ -5 & 2 \end{bmatrix}$ (d) $\begin{bmatrix} 7 & -5 \\ 11 & 2 \end{bmatrix}$
8. If for the matrix $A = \begin{bmatrix} \alpha & -2 \\ -2 & \alpha \end{bmatrix}$, $|A|^3 = 125$, then the value of α is
(a) ± 3 (b) -3 (c) ± 1 (d) 1
9. Given that A is a nonsingular matrix of order 3 such that $A^2 = 2A$, then the value of $|2A|$ is equal to
(a) 4 (b) 8 (c) 64 (d) 16
10. Let $f(x) = \sin x + |x|$ then $f(x)$ is continuous in the interval
(a) $\left[\frac{-\pi}{2}, \frac{\pi}{2} \right]$ (b) $(-\infty, \infty)$ (c) $\left[0, \frac{\pi}{2} \right]$ (d) none of these.
11. $\int \frac{\sin^6 x}{\cos^8 x} dx$ equals to
(a) $\tan 7x + c$ (b) $\frac{\tan^7 x}{7} + c$ (c) $\sec 7x + c$ (d) $\frac{\sec^7 x}{7} + c$
12. $f(x) = \begin{cases} \frac{\sin 3x}{2x}, & x \neq 0 \\ k + 1, & x = 0 \end{cases}$ is continuous at $x = 0$, then value of k is
(a) $\frac{1}{2}$ (b) -1 (c) $\frac{-3}{2}$ (d) -2
13. In the interval $[-2, 4]$ the function $f(x) = |x + 1|$ is
(a) continuous but not differentiable (b) differentiable but not continuous
(c) continuous and differentiable (d) neither continuous nor differentiable

:: 2 ::

14. If $f(x) = |\sin x|$ then $f'\left(\frac{-\pi}{6}\right)$ is equal to
 (a) $\frac{-1}{2}$ (b) $\frac{1}{2}$ (c) $\frac{-\sqrt{3}}{2}$ (d) $\frac{\sqrt{3}}{2}$
15. Differential coefficient of $\sec(\tan^{-1}x)$ is
 (a) $\frac{x}{1+x^2}$ (b) $x\sqrt{1+x^2}$ (c) $\frac{1}{\sqrt{1+x^2}}$ (d) $\frac{x}{\sqrt{1+x^2}}$
16. The radius of a circle is increasing at the rate of 0.5 cm/sec , then the rate of change of its circumference is
 (a) $\pi \text{ cm/sec}$ (b) $2\pi \text{ cm/sec}$ (c) $\frac{1}{2}\pi \text{ cm/sec}$ (d) $\frac{1}{4}\pi \text{ cm/sec}$
17. The function $f(x) = x^2 e^{-x}$ is strictly increasing in the interval
 (a) $(-\infty, \infty)$ (b) $(0, 2)$ (c) $(2, \infty)$ (d) $(-\infty, 0)$
18. $\int \frac{\sin(\sin^{-1}x)}{\sqrt{1-x^2}}$ is equal to
 (a) $-\sin(\sin^{-1}x) + C$ (b) $-\sqrt{1-x^2} + C$ (c) $\sin x + C$ (d) $\sin(\cos^{-1}x) + C$

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:

- (a) Both A and R are true and R is the correct explanation of the assertion
 (b) Both A and R are true and R is not the correct explanation of the assertion
 (c) A is true, but R is false
 (d) A is false, but R is true
19. Assertion (A) : $\tan^{-1}(-x) = -\tan^{-1}x, x \in R$
 Reason (R) : $\sec^{-1}(-x) = \pi - \sec^{-1}x, x \in R$
20. Assertion (A) : If m and n are respectively the maximum and the minimum value of the function $f(x) = (x-1)^2 + 3$ for $x \in [-3, 1]$, then $(m, n) = (f(1), f(-3))$
 Reason (R) : $f(x)$ is strictly decreasing on $[-3, 1]$

SECTION B

21. Let $f; X \rightarrow Y$ be a function, define a relation R on X given by $R = \{(a, b) : f(a) = f(b)\}$, show that R is an equivalence.

OR

Check whether a relation R on real numbers defined by $R = \{(a, b) : a \leq b^3\}$ is reflexive, symmetric or transitive

22. Evaluate:- $\tan^{-1}\left(\frac{-1}{\sqrt{3}}\right) + \cot^{-1}\left(\frac{1}{\sqrt{3}}\right) + \tan^{-1}\left(\sin\left(\frac{-\pi}{2}\right)\right)$

23. Check the continuity of the function $f(x) = \begin{cases} \frac{x}{|x|}, & \text{if } x \neq 0 \\ 1, & \text{if } x = 0 \end{cases}$

OR

Check the continuity of the function $f(x) = \begin{cases} \frac{1-\cos x}{x^2}, & \text{if } x \neq 0 \\ \frac{1}{2}, & \text{if } x = 0 \end{cases}$

24. If $y = \tan^{-1} \sqrt{\frac{a+x}{a-x}}$ then find $\frac{dy}{dx}$

25. If $\sin y = x \sin(a+y)$, prove that $\frac{dy}{dx} = \frac{\sin^2(a+y)}{\sin a}$.

SECTION C

26. Consider $f; R - \left\{\frac{-4}{3}\right\} \rightarrow R - \left\{\frac{4}{3}\right\}$, given by $f(x) = \frac{4x+3}{3x+4}$, show that f is bijective

OR

Let N be the set of natural numbers and R be the relation on $N \times N$ defined by $(a, b)R(c, d) \Leftrightarrow ad = bc$
 $\forall (a, b)(c, d) \in N \times N$, show that R is an equivalence relation on $N \times N$

27. Prove that $\tan^{-1} \left\{ \frac{\sqrt{1+x}-\sqrt{1-x}}{\sqrt{1+x}+\sqrt{1-x}} \right\} = \frac{\pi}{4} - \frac{1}{2} \cos^{-1}x, \frac{1}{\sqrt{2}} \leq x \leq 1$

28. Show that matrix $A = \begin{bmatrix} 1 & 1 & 1 \\ 1 & 2 & -3 \\ 2 & -1 & 3 \end{bmatrix}$ satisfies the equation $x^3 - 6x^2 + 5x + 11 = 0$

29. Find the value of "a" if $f(x) = \begin{cases} \frac{\sqrt{5x+2}-\sqrt{4x+4}}{x-2}, & \text{if } x \neq 2 \\ a, & \text{if } x = 2 \end{cases}$ is continuous at $x = 2$

Contd...3

30. Find p and q if $f(x) = \begin{cases} \frac{1-\sin^3 x}{3\cos^2 x}, & \text{if } x < \frac{\pi}{2} \\ p, & \text{if } x = \frac{\pi}{2} \\ \frac{q(1-\sin x)}{(\pi-2x)^2}, & \text{if } x > \frac{\pi}{2} \end{cases}$

31. Evaluate $\int \sec^3 x \, dx$

OR

$\int e^x \frac{(x^2+1)}{(x+1)^2} \, dx$

SECTION D

32. Use the product $\begin{bmatrix} 1 & -1 & 2 \\ 0 & 2 & -3 \\ 3 & -2 & 4 \end{bmatrix} \begin{bmatrix} -2 & 0 & 1 \\ 9 & 2 & -3 \\ 6 & 1 & -2 \end{bmatrix}$ to solve the system of equation:-
 $x + 3z = 9, -x + 2y - 2z = 4, 2x - 3y + 4z = -3$

33. If $y = \{\log(x + \sqrt{x^2 + 1})\}^2$ then show that $(1 + x^2)y_2 + xy_1 = 2$

OR

If $x = a(\theta - \sin \theta)$ and $y = a(1 + \cos \theta)$ then find $\frac{d^2y}{dx^2}$ at $\theta = \frac{\pi}{2}$

34. Find the interval in which $f(x) = \cot^{-1}(\sin x + \cos x), 0 \leq x \leq \frac{\pi}{2}$ is increasing or decreasing.

OR

Two equal sides of an isosceles triangle with fixed base 'b' are decreasing at the rate of 3 cm/sec. How fast is the area decreasing when the two equal sides are equal to the base?

35. Evaluate $\int \frac{(\cos x - \sin x)}{\sqrt{8 - \sin 2x}} \, dx$

SECTION - E

Case Study based questions :

36. On her birthday, Seema decided to donate some money the children of an orphanage home. If there were 8 children less, everyone would have got Rs 10 more and if there were 16 children more, everyone would have got Rs. 10 less. Let the x be number of children and y be the amount distributed by Seema to one child.

Based on the above, answer the following questions, show steps to support your answer.

- (i) Find the equation in x and y for the situation.
- (ii) Write the matrix equation for the the information given above
- (iii) How much amount Seema spent in distributing money all the children of the orphanage.

37. Megha wants to prepare a handmade gift box for her friend's birthday at home. For making lower part of the box, she takes a square piece of cardboard of side 20 cm.

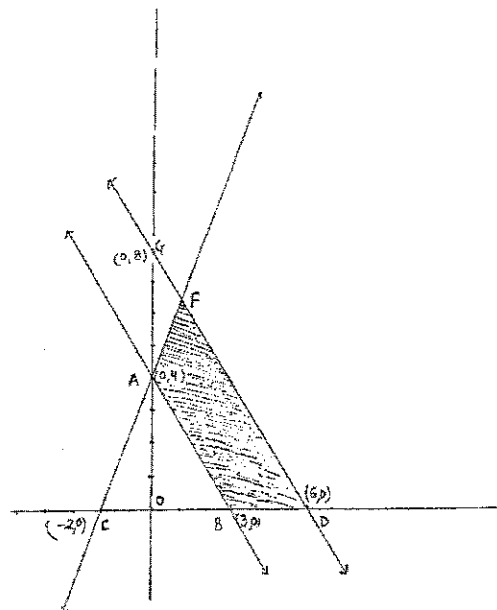
Based on the above, answer the following questions, show steps to support your answer.

- (i) If x be the length of each side of the square to be cut off from corners of the square piece of side 20 cm, find the volume of the open box formed (in terms of x) by folding up the cutting corners.
- (ii) Find the value of x for which $\frac{dV}{dx} = 0$.
- (iii) Find the maximum volume of the box.

OR,

Find the surface area of the box

38. The feasible region for an L.P.P. is as given in the picture. Let (x, y) represents the co-ordinate of any point in the two-dimensional plane
 Based on the above information, answer the following questions, show steps to support your answer



- (i) Write the constraints for the L.P.P.
- (ii) Write the co-ordinate for the corner F
- (iii) If the objective function is $Z = 2x + 3y$, what is the maximum value of Z in the feasible region?

OR

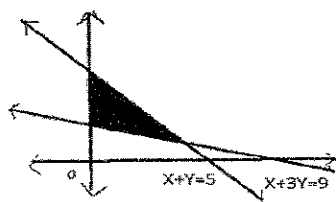
If the objective function is $Z = x + 5y$, what is the minimum value of Z in the feasible region?

**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. The value of $-70 \bmod 13$ is
(a) 5 (b) -5 (c) 8 (d) -8
2. If $\frac{x+1}{x+2} \geq 1$, then
(a) $x \in (-\infty, 2)$ (b) $x \in (-\infty, -2)$ (c) $x \in (-\infty, 2]$ (d) $x \in (-\infty, -2]$
3. A man can row 6 km/h in still water. It takes to him twice as long to row up as to row down the river. Then the rate of stream is
(a) 2 km/h (b) 4 km/h (c) 6 km/h (d) 8 km/h
4. The least non-negative remainder when 3^{50} is divided by 7 is
(a) 4 (b) 3 (c) 2 (d) 1
5. In what ratio shall one add water to the liquid detergent costing Rs 480 per litre to get resulting mixture worth Rs 300 per litre? (a) 5:3 (b) 3:8 (c) 3:5 (d) 5:8
6. If in a 500 m race, A beats B by 90 m or 18 seconds, then A's time to cover the same race is
(a) 82 seconds (b) 18 seconds (c) 81 seconds (d) none of these
7. If $A = \begin{bmatrix} 0 & a & b \\ -1 & 0 & 2 \\ 3 & c & 0 \end{bmatrix}$, is a skew - symmetric matrix then the value of $a - b - c$ is
(a) 0 (b) -6 (c) 6 (d) none of these
8. Find $|A|$ for $A = \begin{bmatrix} 1 & -1 & 2 \\ 0 & 3 & 4 \\ 2 & -3 & 1 \end{bmatrix}$ and calculate $|\text{adj } A|$.
(a) -25 (b) 25 (c) 5 (d) -5
9. The value of $\int e^x \left(\frac{1}{x} - \frac{1}{x^2} \right) dx = e^x f(x) + c$ then the value of $f(x)$ is
(a) $\frac{1}{x}$ (b) $-\frac{1}{x}$ (c) $\frac{1}{x^2}$ (d) $-\frac{1}{x^2}$
10. If A and B are two invertible matrices, then which of the following is not correct
(a) $\text{adj } A = |A|A^{-1}$ (b) $\det(A)^{-1} = [\det A]^{-1}$ (c) $(AB)^{-1} = B^{-1}A^{-1}$ (d) $(A+B)^{-1} = A^{-1} + B^{-1}$
11. In a trend line $y = a + bx$, the constant b represents
(a) mean of x (b) slope of trend line (c) mean of y (d) none of these
12. In the adjoining figure, the feasible region for LPP is shown, then the minimum value of



$Z = 11x + 7y$ is

- (a) 21 (b) 47 (c) 20 (d) 35
13. If $A^2 - A + I = 0$, then the inverse of matrix A is
(a) A^2 (b) $A + I$ (c) $I - A$ (d) $A - I$

- 14 The function $f(x) = 3x^4 - 24x^3 + 66x^2 - 12ax + 15$ attains maximum value at $x=1$. Then the value of a is
(a) 6 (b) -6 (c) 3 (d) none of these
- 15 The value of a , if $\int \frac{dx}{a^2x^2-9} = \frac{1}{12} \log \left| \frac{2x-3}{2x+3} \right| + C$ is
(a) 2 (b) 4 (c) -4 (d) none of these
- 16 The value of $\int \frac{2^{7\log_2 x} - 2^{3\log_2 x}}{2^{5\log_2 x} - 2^{\log_2 x}} dx$ is
(a) $\frac{x^3}{3} + C$ (b) $\frac{x^{-3}}{3} + C$ (c) $-\frac{x^3}{3} + C$ (d) none of these
- 17 Time series analysis helps to
(a) understand the behavior of a variable in the past
(b) predict the future behavior of a variable
(c) plan future operations (d) all of the above.
- 18 Moving average method is used for measurement of trend when
(a) trend is non-linear (b) trend is linear
(c) trend is curvilinear (d) trend is parabolic

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
(v) both A and R are false

- 19 **Assertion (A)** : The total cost function is given by $C(x) = 2x^2 + 17x + 1000$. The marginal cost when 20 units are produced is 97.

Reason(R): Average cost $= \frac{C(x)}{x}$

- (a) (i) (b) (ii) (c) (iii) (d) (iv) (e) (v)

- 20 **Assertion (A)** : If $|A| = 8$ for a 3×3 matrix, then $|adj(adj A)| = 4096$

Reason(R) : Every square matrix cannot be expressed as the sum of a symmetric and a skew-symmetric matrix.

- (a) (i) (b) (ii) (c) (iii) (d) (iv) (e) (v)

SECTION B

(All questions are compulsory, in case of internal choice, attempt any one question only)

- 21 Tea worth Rs 126 per kg and Rs 135 per kg is mixed with a third variety in the ratio 1:1:2. If the mixture is worth Rs 153 per kg, then find the price of the third variety for 10 kilograms.

OR

Tap P alone fills a cistern in 2 hours, while tap Q alone fills the same cistern in 3 hours. A new tap R is attached to the bottom of the cistern which can empty the completely filled cistern in 6 hours. If's started all three taps together at 10 am, when will the tank be full?

- 22 If x is a positive real number, then find the least value of $\frac{x^2+4096}{x}$.

- 23 Find the value(s) of k , for which the value of the determinant $D = \begin{vmatrix} 1 & -2 & 5 \\ 2 & k & -1 \\ 0 & 4 & 2k \end{vmatrix}$ is 86.

OR

Find the value of $3a - 2b + c$, if $A = \begin{bmatrix} 0 & 7 & -2 \\ 2a+1 & 0 & -4 \\ b-5 & 2c & 0 \end{bmatrix}$ is a skew symmetric matrix.

- 24 A furniture trader deals in only two items- chairs and tables. He has Rs 50000 to invest and a space to store at-most 35 items. A chair costs him Rs 1000 and a table costs him Rs 2000. The trader earns a profit of Rs 150 and Rs 250 on a chair and a table, respectively. Formulate the above problem as an LPP.

- 25 If $e^y(x+1) = 1$, show that $\frac{d^2y}{dx^2} = \left(\frac{dy}{dx}\right)^2$

SECTION C

(All questions are compulsory, in case of internal choice, attempt any one question only)

- 26 Find the interval(s) in which the function $f(x) = 3x^4 - 4x^3 - 12x^2 + 5$, is strictly increasing and strictly decreasing.

- 27 Two teams A and B are staying in the same hotel. Team A has 3 male and 4 female players accompanied by 1 coach. Team B comprises 2 males, 2 female players and 2 coaches. The daily diet requirement (calories and proteins) for each person is as given below:

	Calories	Proteins
Male player	2000	80 g
Female player	2500	60 g
coach	1900	50 g

Use matrix algebra to calculate the total diet requirement of calories and proteins for each team.

- 28 Evaluate $\int \frac{dx}{x(x^5+3)}$

OR

Evaluate $\int \frac{e^x(1+x)}{(1+xe^x)^2} dx$

- 29 From a cask full of alcohol 8 litres are drawn and then filled with water. This process is repeated three more times. The ratio of the quantity of alcohol left in the cask and that of water is 16:65. How many litres of alcohol did the cask hold originally?
- 30 Two pipes P and Q can fill a tank in 60 minutes and 30 minutes respectively. Third pipe R drains 5 litres of water per minute. If all the three pipes are opened it took 2 hours to fill the tank. Find the capacity of the tank.

OR

In a 500 meter race, the ratio of speeds of two participants A and B is 4 : 5 respectively. If A has a start of 180 m, then find the distance by which A wins.

- 31 Solve graphically using iso-profit/iso-cost method
Maximize $Z = 4500x + 5000y$ subject to the constraints
 $x + y \leq 250, 5x + 8y \leq 1400, x \geq 0, y \geq 0$.

SECTION D

(All questions are compulsory, in case of internal choice, attempt any one question only)

- 32 Mr. Shola runs a business and the record of his sales items for the period 2004 to 2010 is as follows

Year	2004	2005	2006	2007	2008	2009	2010
Sales(in '000)	26	26	44	42	108	120	166

- (a) By taking year 2007 as origin, use method of least squares to find the best-fit trend line equation.
Also tabulate the trend values
- (b) What is the trend value in the year 2007 by methods of least squares?

- 33 The total cost function is given by $C(x) = \frac{1}{3}x^3 - 5x^2 + 30x - 15$ and selling price per unit is Rs 6. Find for what value of x will the profit be maximum.

OR

Show that the height of a cylinder of maximum volume that can be inscribed in a sphere of radius R is $\frac{2R}{\sqrt{3}}$.
Also find the maximum volume.

- 34 Given two matrices A and B where $A = \begin{bmatrix} 1 & -2 & 3 \\ 1 & 4 & 1 \\ 1 & -3 & 2 \end{bmatrix}$ and $B = \begin{bmatrix} 11 & -5 & -14 \\ -1 & -1 & 2 \\ -7 & 1 & 6 \end{bmatrix}$, find AB. Use the result to

solve the following system of equations using matrix method

$$x - 2y + 3z = 6; x + 4y + z = 12; x - 3y + 2z = 1.$$

OR

By using the determinants(Cramer's rule) solve the following system of linear equations:

$$x + y + z = 1; x + 2y + 3z = 4 \text{ and } x + 3y + 5z = 7.$$

- 35 A dietician wishes to mix two kinds of food X and Y in such a way that the mixture contains at least 10 units of vitamin A, 12 units of vitamin B and 8 units of vitamins C. The vitamin contents of one kg food is given below:

Food	Vitamin A	Vitamin B	Vitamin C
X	1 unit	2 units	3 units
Y	2 units	2 units	1 unit

One kg of food X costs Rs 24 and one kg of food Y costs Rs 36. Using linear programming, find the least cost of the total mixture which will contain the required vitamins.

SECTION E

(All questions are compulsory, in case of internal choice, attempt any one question only)

36 Case study – 1

An overhead water tank has three pipes A, B and C attached to it. The inlet pipes A and B can fill the empty tank independently in 15 hours and 12 hours respectively. The outlet pipe C alone can empty a full tank in 20 hours.

Based on above information, answer the following questions. Show steps to support your answers.

(a) For a routine cleaning of the tank, the tank needs to be emptied. If pipes A and B are closed at the time when the tank is filled to two-fifth of its total capacity, how long will pipe C take to empty the tank completely?

(b) How long will it take for the empty tank to fill completely, if all the three pipes are opened simultaneously?

(c) On a given day pipes A, B and C are opened in order at 5 AM, 8 AM and 9 AM respectively, to fill the empty tank. In how many hours will the tank be filled completely?

OR

Given that the tank is half full, only pipe C is opened at 6 AM, to empty the tank. After closing the pipe C and an hour cleaning time, tank is filled completely by pipe A and B together. What is the total time taken in the whole process?

37 CASE STUDY – 2 Mr Radhe do jogging everyday on a linear path that touches a curve at the point P(2, 3) whose equation is given by the function $f(x) = x^3 - 3x$. Based on this observation answer the following. Show steps to support your answer:

(a) slope of tangent at P(2, 3)

(b) if A (2, 2) and B (3, 0) are lying on the curve, then find the slope of linear path parallel to the line joining A and B.

(c) Find the equation of tangent to the curve at P(2, 3) if it is parallel to the line $24x - y + 1 = 0$

OR

Find the equation of normal to the curve at P (2, 3) if it is parallel to the line $x + 24y + 1 = 0$

38 CASE STUDY-3

According to a mathematician the sum of two numbers is 1, sum of second and third number is 2, sum of third and first number is 3. Using this information solve the following questions. Show steps to support your answer

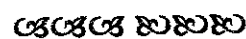
(a) Frame the system of linear equations

(b) Find the determinant value of the co-efficient matrix

(c) Find $|adj(adjA)|$

OR

Find $adj(adj A)$





DELHI PUBLIC SCHOOL, BHILAI

DATE : 25.09.2023
CLASS : XII

MIDTERM EXAMINATION – 2023
SUBJECT – PHYSICS

Time : 3 Hrs.
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.
- (6) Use of calculators is not allowed.
- (7) You may use the following values of physical constants where ever necessary
 - i. $c = 3 \times 10^8 \text{ m/s}$
 - ii. $m_e = 9.1 \times 10^{-31} \text{ kg}$
 - iii. $e = 1.6 \times 10^{-19} \text{ C}$
 - iv. $\mu_0 = 4\pi \times 10^{-7} \text{ Tm A}^{-1} \text{ v.}$
 - v. $h = 6.63 \times 10^{-34} \text{ Js}$
 - vi. $\epsilon_0 = 8.854 \times 10^{-12} \text{ C}^2 \text{ N}^{-1} \text{ m}^{-2}$

SECTION – A

01. A charge Q is divided into two parts, q and (Q – q). The repulsion between them is maximum when Q : q is- (1)
(a) 2:1 (b) 1:2 (c) 4:1 (d) 1:4
02. Which is incorrect statement from given below: (1)
(a) Kirchhoff's junction rule is based on conservation of charge.
(b) Current density is a vector quantity.
(c) Resistance doesn't depend on dimension of conductor.
(d) Resistivity depends on temperature.
03. Capacitors are used in electrical AC circuits where appliances need more- (1)
(a) current (b) voltage (c) watt (d) resistance
04. The sensitivity of moving coil galvanometer can be increased by decreasing- (1)
(a) number of turns of the coil (b) magnetic field
(c) area of the coil (d) restoring couple per unit twist of suspension
05. A solenoid 1.5m long and 0.4cm in diameter possesses 10 turns per cm length. A current of 5A flows through it. The magnetic field at the axis inside the solenoid is- (1)
(a) $2\pi \times 10^{-3} \text{ T}$ (b) $2\pi \times 10^{-5} \text{ T}$ (c) $4\pi \times 10^{-2} \text{ T}$ (d) $4\pi \times 10^{-3} \text{ T}$
06. The magnetic flux linked with the coil (in weber) is given by the equation $\phi = 5t^2 + 3t + 16$. The induced emf in the coil at time, $t = 4 \text{ s}$ will be- (1)
(a) -27V (b) -43V (c) -108V (d) 210V
07. In Faraday's experiment on electromagnetic induction, more deflection will be shown by the galvanometer when- (1)
(a) magnet is in uniform motion towards the coil (b) magnet is in uniform motion away from the coil
(c) magnet is in accelerated motion towards the coil (d) magnet is at rest near the coil
08. The peak voltage of the ac source is equal to- (1)
(a) The value of voltage supplied to the circuit (b) the rms value of the ac source
(c) $\sqrt{2}$ times the rms value of the ac source (d) $1/\sqrt{2}$ times the rms value of the ac source
09. In an ac circuit, an inductor, a capacitor and a resistor are connected in series with $X_L = R = X_C$. Impedance of this circuit is- (1)
(a) $R\sqrt{2}$ (b) $2R^2$ (c) R (d) zero
10. Which quantity is increased in a step-down transformer- (1)
(a) Current (b) Voltage (c) Power (d) Frequency
11. Which of the following waves is produced by Klystron tube- (1)
(a) X-rays (b) Infrared rays (c) γ -rays (d) Microwave
12. The em wave having frequency range 10^{18} Hz to 10^{23} Hz is- (1)
(a) γ -rays (b) Radio waves (c) X-rays (d) Ultraviolet rays

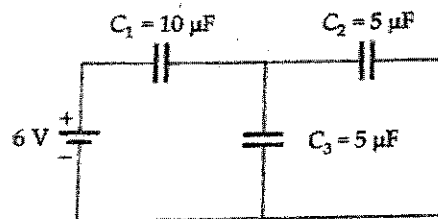
Two statements are given – one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a) (b) (c) and (d) as given below :

- (a) Both A and R are true and R is the correct explanation of 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 and R both are false.

13. Assertion (A): Electrostatic field lines start at positive charges and end at negative charges.
 Reason (R): Field lines are continuous curves without any breaks and they form closed loops. (1)
14. Assertion (A): An electric bulb starts glowing instantly as it is switched on.
 Reason (R): Drift speed of electrons in a metallic wire is very large. (1)
15. Assertion (A): A charge, whether stationary or in motion produces a magnetic field around it.
 Reason (R): Moving charges produce only electric field in the surrounding space. (1)
16. Assertion (A): When a magnet is made to fall freely through a closed coil, its acceleration is always less than acceleration due to gravity.
 Reason (R): Current induced in the coil opposes the motion of the magnet, as per Lenz's law. (1)

SECTION – B

17. Three capacitors C_1 , C_2 and C_3 are connected to a 6V battery, as shown in the figure. Find the total charge in the circuit. (2)



OR

The effective capacitances of two capacitors are $3\mu\text{F}$ and $16\mu\text{F}$, when they are connected in series and parallel respectively. What are the capacitances of two capacitors?

18. (a) What do you understand by equipotential surfaces? Sketch an equipotential surface for an electric dipole.
 (b) A regular hexagon of side 10 cm has a charge of $5\mu\text{C}$ at each of its vertices. Calculate the potential at the centre of the hexagon. (2)
19. (a) Why alloys like constantan and manganin are used for making standard resistors?
 (b) A potential difference V is applied across a conductor of length l . How is the drift velocity affected when V is doubled and l is halved? (2)
20. What do you understand by electromagnetic waves? When a plane EM wave travels in vacuum along y-direction, write the ratio of the magnitudes of its electric and magnetic field vectors. (2)
21. (a) Why do we prefer soft iron core between the poles of a moving coil galvanometer?
 (b) An ammeter of resistance 0.80Ω can measure currents upto 1.0A. What must be the shunt resistance to enable the ammeter to measure current upto 5.0A? (2)

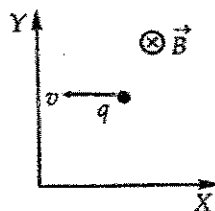
SECTION-C

22. State Gauss's law in electrostatics. Use it to find the electric field due to a uniformly charged infinite plane sheet. Draw necessary diagram. (3)
23. (a) What happens to the electric field inside a dielectric when it is placed in an external electric field? Explain.
 (b) A parallel plate capacitor is charged by a battery which is then disconnected. A dielectric slab is then inserted to fill the space between the plates. Explain the changes, if any that occur in the values of (i) electric field (ii) potential difference (iii) capacitance (iv) energy stored. (1+2)
24. State Biot-Savart law. Use it to find the magnetic field on the axis of a circular current loop. (3)

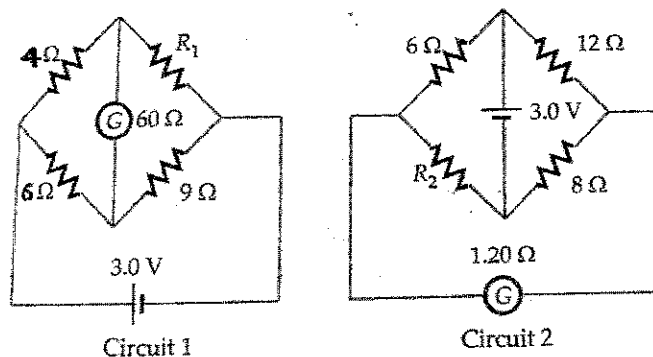
OR

Derive an expression for the force per unit length between two infinitely long straight parallel current carrying wires. Hence define SI unit of current. (2+1)

25. (a) A point charge q moving with speed v enters a uniform magnetic field B that is acting into the plane of the paper as shown in the figure. What is the path followed by the charge q and in which plane does it move?
 (b) How does the path followed by the charge get affected if its velocity has a component parallel to \vec{B} ?
 (c) If an electric field \vec{E} is also applied such that the particle continues moving along the original straight line path, what would be the magnitude and direction of the electric field \vec{E} (3)



26. (a) Define electric field intensity. Write its SI unit.
 (b) Show that the electric field at any point is equal to the negative of the potential gradient at that point. (1+2)
27. (a) When is Wheatstone bridge said to be (i) balanced (ii) most sensitive?
 (b) The galvanometer, in each of the two given circuits, does not show any deflection. Find the ratio of the resistors R_1 and R_2 used in these two circuits. (3)



28. With the help of labelled diagram, explain principle of an AC generator. Derive the expression for the induced emf. (3)

SECTION-D

Read the following paragraph and answer the following questions:

29. Case Study -MAGNETIC MATERIALS-

Curie and Faraday discovered that all the materials in the universe are magnetic to some extent. These magnetic substances are categorized into two groups. Weak magnetic materials are called diamagnetic and paramagnetic materials. Strong magnetic materials are called ferromagnetic materials. According to modern theory of magnetism, the magnetic response of any material is due to circulating electrons in the atoms. Each such electron has a magnetic moment in a direction perpendicular to the plane of circulation.

(1×4=4)

- (i) When a bar is placed near a strong magnetic field and it is repelled, then material of the bar is-
 (a) Diamagnetic (b) ferromagnetic (c) paramagnetic (d) anti-ferromagnetic
- (ii) The susceptibility of magnetic material is 0.9853. Identify the magnetic type of material-
 (a) Diamagnetic (b) ferromagnetic (c) paramagnetic (d) none of these
- (iii) The slope of variation of Intensity of magnetization (H) versus the applied magnetic field intensity (H) gives-
 (a) Permeability (b) Susceptibility (c) permittivity (d) none of these
- (iv) If ferromagnetic material is inserted in a current carrying solenoid, the magnetic field of solenoid-
 (a) Largely increases (b) slightly increases (c) largely decreases (d) slightly decreases

OR

Among the following properties describing diamagnetism, identify the property which is wrongly stated-

- (a) Diamagnetic materials have a small positive susceptibility
 (b) Diamagnetism is explained in terms of electromagnetic induction
 (c) Diamagnetic materials do not have permanent magnetic moment
 (d) The magnetic moments of individual electrons neutralize each other.

Contd...4

30. Case Study – ELECTRIC DIPOLE

The electric field due to a charge configuration with total charge is not zero, but for distances large compared to the size of the configuration, its field falls off faster than $1/r^2$, typical of the field due to a single charge. An electric dipole is the simplest example of this fact. An electric dipole is a pair of equal and opposite charges kept at small distance apart. Its dipole moment is in the direction of the dipole axis from $-q$ to $+q$. (1×4=4)

- (i) The value of electric field at the centre of the electric dipole-
 - (a) zero
 - (b) equal to electric field due to one charge at centre
 - (c) twice the electric field due to one charge at centre
 - (d) half the value of electric field due to one charge at centre.
- (ii) The maximum torque experienced by the dipole of moment \vec{p} placed in uniform electric field-
 - (a) pE (b) p/E (c) E/p (d) $\vec{p} \cdot \vec{E}$
- (iii) $3C$ and $-3C$ are two charges separated by a distance of 4cm , then dipole moment of the dipole is-
 - (a) 12 Cm (b) 0.12Cm (c) 0.24Cm (d) 0.18 Cm
- (iv) The nature of electric flux from the cube surface, if an electric dipole is placed inside a cube will be-
 - (a) the electric field will be releasing out of the surface
 - (b) the electric flux will be coming into the surface
 - (c) there will be no flux at all
 - (d) none of these

OR

The angle between the resultant of electric field due to dipole at axial point and equatorial point is-
 (a) 0° (b) 90° (c) 180° (d) 45°

SECTION-E

- 31.** (a) What do you understand by internal resistance of a cell?
 (b) Two cells of different emfs and internal resistances are connected in parallel with one another. Derive the expression for the equivalent emf and internal resistance of the combination.
 (c) For a cell, the terminal potential difference is 2.2V , when circuit is open and reduces to 1.8V , when cell is connected to a resistance $R=5\Omega$. Calculate the internal resistance of cell. (1+2+2)

OR

- (a) What do you understand by electric power? Write its SI unit.
- (b) Prove that the reciprocal of the total power consumed by a series combination of appliances is equal to the sum of reciprocals of the individual powers of the appliance.
- (c) Three identical resistors, each of resistance R , when connected in series with a d.c. source, dissipate power X . If the resistors are connected in parallel to the same d.c. source, how much power (in terms of X) will be dissipated? (1+2+2)

- 32.** (a) Describe briefly with the help of a labelled diagram, principle and working of a transformer.
 (b) Write any two major sources of energy loss in this device. How can they be reduced? (3+2)

OR

An a.c. source of emf $\varepsilon = \varepsilon_0 \sin \omega t$ is connected to a series combination of L , C and R . Use the phasor diagram to obtain expressions for impedance of the circuit and phase angle between voltage and current. Explain its resonant condition. (3+2)

- 33.** (a) What do you understand by self-inductance?
 (b) Derive an expression for the self-inductance of a long solenoid.
 (c) Current in a circuit falls from 5.0 A to 0.0 A in 0.1 s . If an average emf of 200 V is induced, give an estimate of the self-inductance of the circuit. (1+2+2)

OR

- (a) What do you understand by mutual-inductance?
- (b) Derive an expression for the mutual-inductance of two long coaxial solenoids.
- (c) An emf of 0.5V is developed in the secondary coil, when current in primary coil changes from 5.0A to 2.0A in 300 millisecond . Calculate the mutual-inductance of the two coils. (1+2+2)



DELHI PUBLIC SCHOOL, BHILAI
MIDTERM EXAMINATION-2023
CHEMISTRY (43)
(CLASS: XII)

Date of Exam: 27.09.2023

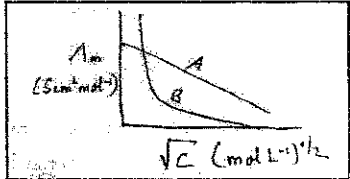
Time: 3 Hours

Maximum Marks: 70

Read the following instructions carefully:

- i) There are 33 questions in this question paper. All questions are compulsory.
- ii) This question paper is divided into five sections: Section A, Section B, Section C, Section D and Section E.
- iii) In Section A – Questions no. 1 to 16 are multiple choice (MCQ) type questions, carrying 1 mark each.
- iv) In Section B – Questions no. 17 to 21 short answer type questions, carrying 2 marks each.
- v) In Section C – Questions no. 22 to 28 are short answer type questions, carrying 3 marks each.
- vi) In Section D – Questions no. 29 to 30 are case based questions, carrying 4 marks each.
- vii) In Section E – Questions no. 31 to 33 are long answer type questions carrying 5 marks each.
- viii) There is no overall choice. However, an internal choice has been provided in Section B, Section C, Section D and in Section E.
- ix) Use of log tables and calculators is not allowed.

SECTION-A

- Q.1 Value of Henry's constant K_H : 1
a) Increases with increase in temperature.
b) Decreases with increase in temperature.
c) Remains constant.
d) First increases then decreases.
- Q.2 C-Cl bond has partial double bond character in: 1
a) Vinyl Chloride b) Chlorobenzene c) Both of these d) None of these
- Q.3 Choose the incorrect statement regarding glucose. 1
a) It is also called dextrose. b) It is monomeric unit of starch and cellulose
c) Its molecular formula is $C_6H_{12}O_6$ d) It is a ketohexose
- Q.4 For a dissociated solute in a solution, the value of van't Hoff factor is: 1
a) zero b) one c) greater than one d) less than one
- Q.5 The isomer of bromobutane with lowest boiling point is: 1
a) n- Butyl bromide b) Isobutyl bromide c) tert- Butyl bromide d) sec- Butyl bromide
- Q.6 Mark the correct choice of electrolytes represented in the graph. 1
a) $A \rightarrow NH_4OH$ $B \rightarrow NaCl$
b) $A \rightarrow NH_4OH$ $B \rightarrow NH_4Cl$
c) $A \rightarrow CH_3COOH$ $B \rightarrow CH_3COONa$
d) $A \rightarrow KCl$ $B \rightarrow NH_4OH$
- 
- Q.7 Phenol is less acidic than: 1
a) ethanol b) o-nitrophenol c) o- methyl phenol d) o-methoxy phenol
- Q.8 Nucleic acids are the polymers of: 1
a) Nucleosides b) Bases c) Nucleotides d) Sugars
- Q.9 Which of the following reagent is used as a refrigerant? 1
a) CF_2Cl_2 b) CH_2Cl_2 c) CCl_4 d) CF_4
- Q.10 Which of the following bases is not present in DNA? 1
a) Adenine b) Uracil c) Thymine d) Cytosine
- Q.11 Long time nitration of phenol with mixture of conc. HNO_3 and conc. H_2SO_4 gives: 1
a) o-nitrophenol b) p-nitrophenol c) picric acid d) nitrobenzene
- Q.12 Among the following which are fat-soluble vitamin? 1
a) Vitamin A b) Vitamin D c) Vitamin K d) All of these

For Questions number 13 to 16, two statements are given one labelled as Assertion (A) and the other labelled as Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of the Assertion(A).
 (b) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of the Assertion (A).
 (c) Assertion(A) is true, but Reason (R) is false.
 (d) Assertion(A) is false, but Reason (R) is true.

- Q.13 Assertion (A): Molality is preferred to molarity for expressing the concentration of the solution. Reason (R): Molality can be determined more easily than molarity. 1
 Q.14 Assertion (A): Aryl halides undergo nucleophilic substitution reactions with ease. Reason (R): The carbon-halogen bond in aryl halides has partial double bond character. 1
 Q.15 Assertion (A): Glucose reacts with hydroxylamine to form an oxime and also adds a molecule of hydrogen cyanide to give cyanodrin. Reason (R): The carbonyl group present in open chain structure of glucose is an aldehyde group. 1
 Q.16 Assertion (A): -OH group in phenol is ortho para directing. Reason (R): The -OH group attached to benzene ring activates it towards electrophilic substitution. 1

SECTION-B

- Q.17(a) Following reactions occur at cathode during the electrolysis of aqueous sodium chloride solution. (2X1=2)
 $\text{Na}^+(\text{aq}) + \text{e}^- \rightarrow \text{Na}(\text{s}) \quad E^\circ = -2.71\text{V}$
 $\text{H}^+(\text{aq}) + \text{e}^- \rightarrow \frac{1}{2} \text{H}_2(\text{s}) \quad E^\circ = 0.00\text{V}$
 On the basis of their standard reduction potential (E°) values, which reaction is feasible at the cathode and why?
 (b) Why does the cell potential of mercury cell remain constant throughout its life?

- Q.18 The following compounds are given: (2x1=2)
 2-Bromopentane, 2-Bromo-2-methyl butane, 1-Bromo pentane
 (a) Arrange the compounds in order of increasing $\text{S}_{\text{N}}2$ reactivity.
 (b) Which compound is optically active? Draw its structure.
 Q.19 X and Y are two electrolytes. On dilution, molar conductivity of X increases 2.5 times while that of Y increases 25 times. Which of the two is a weak electrolyte and why? (2)

- Q.20 (a) Mention the type of linkages responsible for the formation of the following:- (2X1=2)
 i) Primary structure of protein
 ii) Nucleic acid
 (b) Name the common types of secondary structure of proteins.

- Q.21 Calculate the degree of dissociation (α) of acetic acid if its molar conductivity (Λ_m) is $39.05 \text{ S cm}^2 \text{ mol}^{-1}$. Given $\lambda^\circ(\text{H}^+) = 349.6 \text{ S cm}^2 \text{ mol}^{-1}$ and $\lambda^\circ(\text{CH}_3\text{COO}^-) = 40.9 \text{ S cm}^2 \text{ mol}^{-1}$

Or

- If a current of 0.5 ampere flows through a metallic wire for 2 hours, then how many electrons flow through the wire? (2)

SECTION-C

- Q.22 Give reasons for the following: (3X1=3)
 (a) Measurement of osmotic pressure method is preferred for the determination of molar masses of macromolecules such as proteins and polymers.
 (b) Aquatic animals are more comfortable in cold water than in warm water.
 (c) Elevation of boiling point of 1M KCl solution is nearly double than that of 1M sugar solution.
 Q.23 Write the cell reaction and calculate the emf of the following cell at 298K. (3)
 $\text{Mg}(\text{s}) \mid \text{Mg}^{2+}(0.001) \parallel \text{Cu}^{2+}(0.0001 \text{ M}) \mid \text{Cu}(\text{s})$
 (Given $E^\circ_{\text{Mg}^{2+}/\text{Mg}} = -2.37\text{V}$, $E^\circ_{\text{Cu}^{2+}/\text{Cu}} = +0.34\text{V}$, $\log 10 = 1.000$)
 Q.24 Convert (a) Propene to 1-nitropropane (3X1=3)
 (b) Benzene to biphenyl
 (c) Ethanol to propane nitrile
 Q.25 When 19.5g of $\text{F}-\text{CH}_2-\text{COOH}$ (Molar mass = 78 g mol^{-1}) is dissolved in 500g of water, the depression in freezing point is observed to be 1°C . Calculate the degree of dissociation of $\text{F}-\text{CH}_2-\text{COOH}$. (3)
 [Given K_f for water = $1.86 \text{ K Kg mol}^{-1}$]

Contd/.....

Q.26 Give equations of the following reactions:

(3X1=3)

- (a) Oxidation of propan-1-ol with alkaline KMnO_4 solution.
- (b) Bromine in CS_2 with phenol.
- (c) Nitration of anisole.

Or

Explain the following with equations:

(3X1=3)

- (a) Reimer – Tiemann reaction
- (b) Williamson Synthesis
- (c) Hydroboration – oxidation

Q.27 What happens when D-Glucose is treated with the following reagents? Write equation:

(3X1=3)

- (a) HI
- (b) Bromine Water
- (c) HNO_3

Q.28 Explain the mechanism of acid dehydration of ethanol to yield ethene.

(3)

SECTION-D

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

Q.29 Polysaccharides may be very large molecules. Starch, glycogen and cellulose are examples of polysaccharides. Starch is the stored form of sugars in plants and is made up of amylose and amylopectin (both polymers of glucose). Amylose is soluble in water and can be hydrolyzed into glucose units breaking glycosidic bonds, by the enzymes α -amylase and β -amylase. It is straight chain polymer. Amylopectin is a branched chain polymer of several D-glucose molecules. 80% of amylopectin is present in starch. Plants are able to synthesize glucose, and the excess glucose is stored as starch in different plant parts, including roots and seeds. The starch that is consumed by animals is broken down into smaller molecules, such as glucose. The cells can then absorb the glucose.

Glycogen is the storage form of glucose in humans and other vertebrates, and is made up of monomers of glucose. It is structurally quite similar to amylopectin. Glycogen is the animal equivalent of starch. It is stored in liver and skeletal muscles.

Cellulose is one of the most abundant natural biopolymers. The cell walls of plants are mostly made of cellulose, which provides structural support to the cell. Wood and paper are mostly cellulose in nature. Based on the above passage, answer the following questions:-

- i) Whenever glucose levels drop in our body, a biopolymer breaks down to release glucose. Name this biopolymer and it is structurally similar to which polymer?
- ii) Where is glycogen stored in animals?

OR

- iii) Name two storage polysaccharides.
- State two difference between amylose and amylopectin.

(1+1+2=4)

Q.30 Any cell or battery that we use as a source of electrical energy is basically a galvanic cell. But every galvanic cell is not suitable for commercial use. For a battery to be of practical use, it should be reasonably light, compact and its voltage should not vary much during its use. Batteries are broadly classified as 'Primary batteries' and 'Secondary batteries'. Primary batteries are those in which the redox reaction occurs only once and it becomes dead over a period of time and cannot be reused. Two common examples of this type are dry cell and mercury cell. Secondary batteries are those which can be recharged by passing an electric current through them and hence can be used over and again. Two well-known examples of this type are lead storage battery and nickel-cadmium storage cell. Another source of electrical energy is from fuel cells. Their advantage over the thermal plants is that they do not cause pollution and are comparatively simple to operate. The reactants are fed continuously and products are removed continuously.

They are the devices which convert the energy produced during the combustion of fuel, like hydrogen, methane etc. directly into electrical energy. One such cell which has been very successful and was used in Apollo moon flights is $\text{H}_2\text{-O}_2$ fuel cell. Based on the above passage, answer the following questions:

- i) Which cell is used in automobiles and inverters?

OR

- Which cell does not have long life.
- ii) What is the difference between primary cell and secondary cell?
- iii) Write two advantages of fuel cell.

(1+1+2=4)

Contd/.....

SECTION-E

Q.31 Attempt **any five** of the following :

(1X5=5)

(a) Based on solute-solvent interaction, arrange the following in the increasing order of solubility in octane:

cyclohexane, KCl, CH₃OH, CH₃CN

(b) State the condition for reverse osmosis.

(c) What happens when we place the blood cell in water (hypotonic solution)?

(d) Why does sodium chloride solution freeze at a lower temperature than water?

(e) What type of azeotrope is formed by positive deviation from Raoult's law?

(f) How molarity of a solution changes with increase in temperature?

(g) Name the law which gives a quantitative relation between pressure and solubility of a gas in a solvent.

(3+2=5)

Q.32 (a) Give reasons:

(i) n-Butyl bromide has higher boiling point than tert-butyl bromide.

(ii) Racemic mixture is optically active.

(iii) The presence of nitro group at o/p positions increases the reactivity of haloarenes towards nucleophilic substitution reaction.

(b) (i) Draw the structure of the following: 4-tert-butyl-3-iodoheptane.

(ii) Predict the major product of acid catalyzed dehydration of 1-methylcyclohexanol.

(Write chemical equation)

OR

(a) S_N1 reactions are accompanied by racemization in optically active alkyl halides.

(1+1+3=5)

(b) Arrange the following in decreasing order of boiling points: 1-Chloropropane, isopropyl chloride, 1-chlorobutane.

(c) Primary alkyl halide C₄H₉Br(A) reacted with alcoholic KOH to give compound (B). Compound (B) is reacted with HBr to give (C) which is an isomer of (A). When (A) is reacted with Na metal, it gives a compound (D), C₈H₁₈ which is different from the compound formed when n-Butyl bromide is reacted with sodium. Give the structural formula and IUPAC name of (A), (B) and (C).

(1+2+2=5)

Q.33 (a) Give chemical test to distinguish between ethanol and phenol.

(b) Name the reagents used in the following reactions:

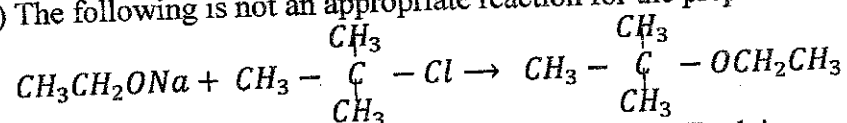
(i) Bromination of phenol to 2,4,6-tribromophenol

(ii) Benzyl alcohol to benzoic acid

(iii) Dehydration of propan-2-ol to propene

(iv) Butan-2-one to Butan-2-ol

(c) The following is not an appropriate reaction for the preparation of tert-butyl ethyl ether.



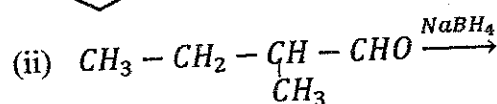
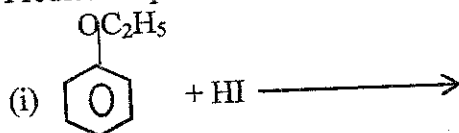
What would be the major product for this reaction? Explain

OR

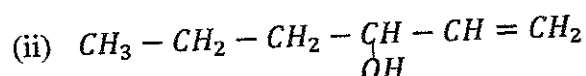
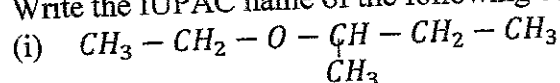
(a) Give chemical test to distinguish between propanol and 2-methyl propan-2-ol

(1+2+2=5)

(b) Predict the product(s) of the following reactions:



(c) Write the IUPAC name of the following compound.



DELHI PUBLIC SCHOOL, BHILAI

DATE : 22-09-2023

MIDTERM EXAMINATION, 2023

Time : 3 Hours

CLASS : XII

BIOLOGY

M.M : 70

General Instructions :

- 1) All questions are compulsory.
- 2) The question paper has 5 sections and 33 questions. All questions are compulsory.
- 3) Section A has 16 questions of 1 mark each; Section B has 5 questions of 2 marks each; Section C has 7 questions of 3 marks each; Section D has 2 case-based questions of 4 marks each; and Section E has 3 questions of 5 marks each.
- 4) There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the alternatives in such questions.
- 5) Wherever necessary, neat and properly labelled diagram should be drawn.

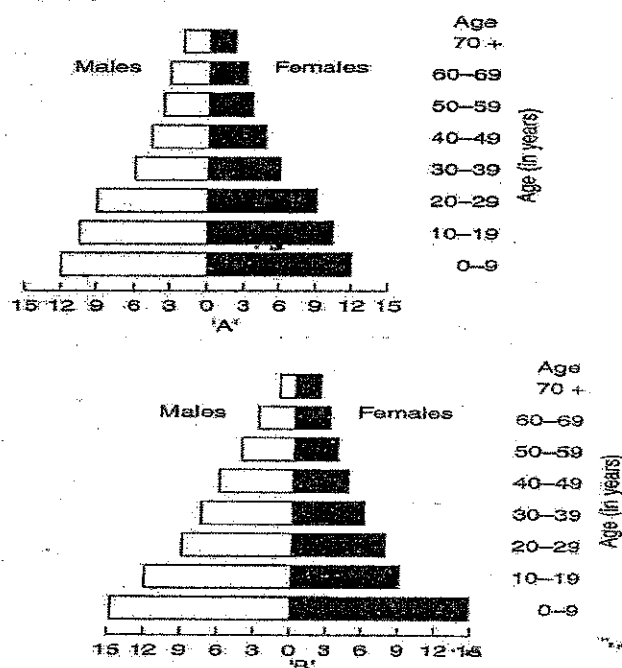
SECTION A

- 1) Match the items in Column A and Column B and choose the correct answer. (1)

S.No.	Column A	Column B
(i)	Lady bird	(a) Methano bacterium
(ii)	Mycorrhiza	(b) Nucleopolyhedrovirus
(iii)	Biological control	(c) Aphids
(iv)	Biogas	(d) Glomus

The correct answer is :

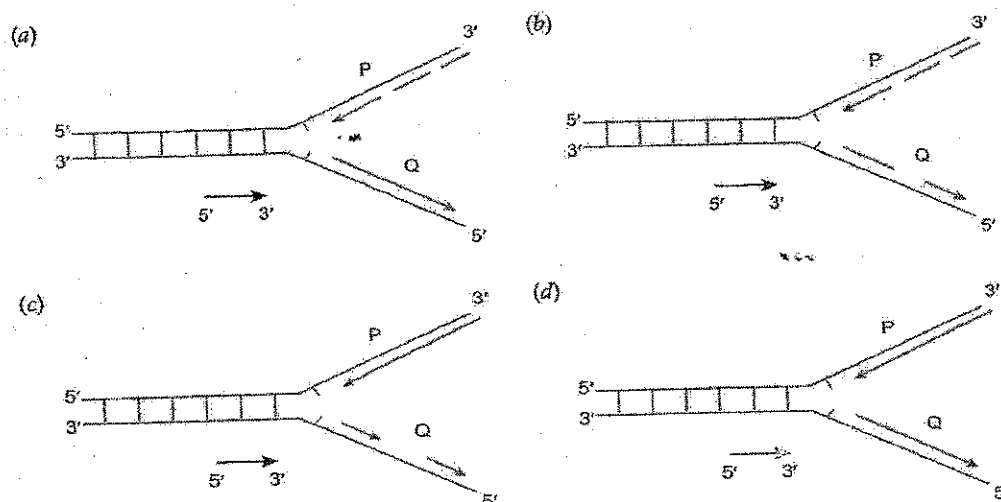
- (a) i-b, ii-d, iii-c, iv-a (b) i-c, ii-d, iii-b, iv-a (c) i-d, ii-a, iii-b, iv-c (d) i-c, ii-b, iii-a, iv-d
- 2) Diaphragms are contraceptive devices used by the females. Choose the correct option from the statements given below: (1)
 - (i) They are introduced into the uterus.
 - (ii) They are placed to cover the cervical region.
 - (iii) They act as physical barriers for sperm entry
 - (iv) They act as spermicidal agents.
- 3) In Bread wheat the chromosome complement is $6n=42$. What shall be the chromosome number in its monosomic, haploid and monoploid state: (1)
 - (a) 13,7,7 (b) 15,7,7 (c) 41,21,7 (d) 43,7,7
- 4) A country with a high rate of population growth took measures to reduce it. The figure below shows age-sex pyramids of populations A and B twenty years apart. Select the correct interpretation about them : (1)



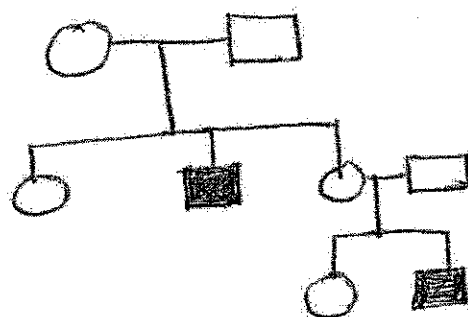
Interpretations :

- (a) "A": is more recent and shows slight reduction in the growth rate.
- (b) "B" is earlier pyramid and shows stabilized growth rate.
- (c) "B" is more recent showing that population is very young.
- (d) "A": is the earlier pyramid and no change has occurred in the growth rate.

- 5) Seminal plasma, the fluid part of semen is contributed by : (1)
- Seminal Vesicle
 - Prostate
 - Urethra
 - Bulbourethral gland
- (a) (i) and (ii)
(b) (i), (ii) and (iv)
(c) (ii), (iii) and (iv)
(d) (i) and (iv)
- 6) Which was the last chromosomes to be completely sequenced? (1)
- (a) Chromosome 1 (b) Chromosome 11 (c) Chromosome 21 (d) Chromosome X
- 7) Which one of the images of the replicating fork given below represent the process correctly? (1)



- 8) The sporozoite that cause infection when a female Anopheles mosquito bites a person, are formed in (1)
- (a) Liver of the person (b) RBCs of mosquito
(c) Salivary glands of mosquito (d) gut of mosquito
- 9) (1)



The trait shown in the pedigree chart is

- (a) autosomal recessive (b) autosomal dominant
(c) sex chromosomal dominant (d) sex chromosomal recessive
- 10) Breast-feeding the baby acts as a natural contraceptive for the mother because it prevents : (1)
- (i) Ovulation (ii) Menstruation (iii) Insemination (iv) Fertilisation
- Choose the correct option :
- (a) (ii) and (iv) (b) (i) and (iii) (c) (i) and (iv) (d) (i) and (ii)
- 11) The free living fungus Trichoderma can be used for : (1)
- (a) Insects (b) Controlling butterfly caterpillars
(c) Biological control of plant diseases (d) Producing antibiotics
- 12) Avery, Macleod and McCarty used enzymes to purify biochemicals such as proteins, DNA and RNA from the heat – killed S cells to see which ones could transform live R cells into S cells in Griffith's experiment. They observed that (1)
- (a) Proteases and RNases affected transformation. (b) DNase inhibited transformation
(c) Proteases and lipases affected transformation (d) RNases inhibited transformation.

Question No. 13 to 16 consist of two statements- Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below :

- A) Both A and R are true and R is in 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.

13) **Assertion :** Normal cells show a property of contact inhibition. (1)

Reason : Cancer cells are devoid of contact inhibition and cell cycle.

14) **Assertion :** Predators act as conduits for energy transfer across trophic levels. (1)

Reason : Predators also keep prey population under control i.e. ecological balance.

15) **Assertion :** INVO cell is a new cost-effective technology for *invitro fertilization* (IVF) in which the sperm and the egg are mixed in a lab, put in a small capsule which is inserted into the vagina for a five days incubation period, post which the capsule is removed, and the embryos are implanted inside the uterus as usual. (1)

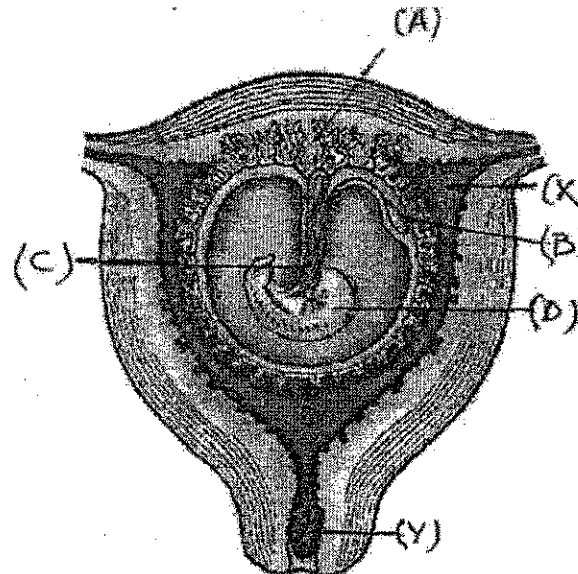
Reason : Instead of growing the embryo in an incubator, allowing it to develop in the natural environment in woman's vagina reduces the cost in case of INVO cell as compared to regular IVF technology.

16) **Assertion :** There is expression of only one gene of the parental character in a Mendelian Monohybrid cross in F_1 generation. (1)

Reason : In a dissimilar pair of factors one member of the pair dominates the other.

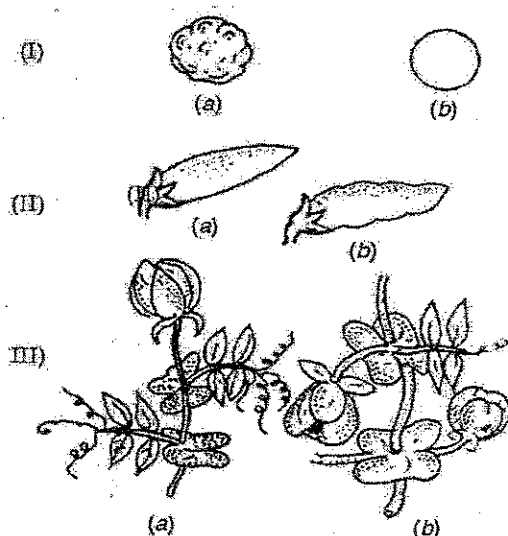
SECTION B

17) Following diagram shows the human foetus within the uterus of mother. Answer the following related questions. (2)



- (a) Mention the **correct** name of the labels A,B,C and D.
- (b) Give the **correct** explanation for the label 'A' with its function.

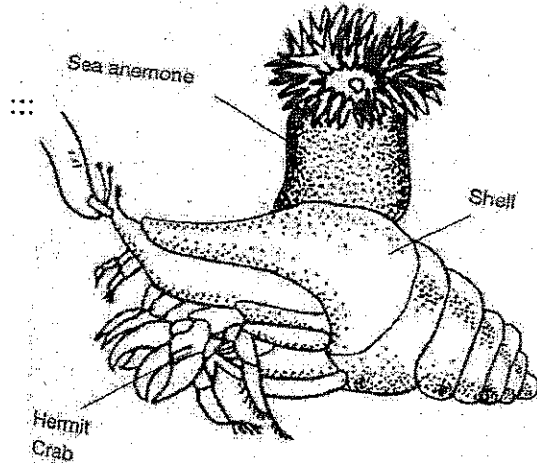
18) Given below in the figure are contrasting characters of pea used by Mendel. Answer the following: (2)



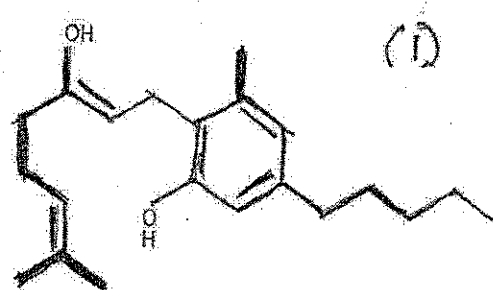
- i) Which are dominant characters in set (I), (II) and (III) Name the trait.
- ii) How many chromosomes have been reported to possess the genes for the traits studied by Mendel?

- 19) What was the rationale of using ^{32}P and ^{35}S by Hershey and Chase? Instead, if we use radio labelled C and N, will the results be any different? (2)

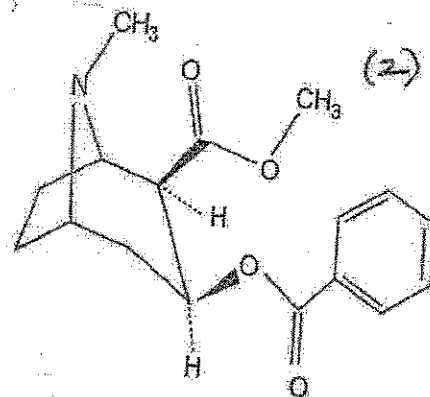
- 20) In the picture provided what is the relationship between the two with respect to population interaction. Explain. (2)



- 21) Identify the molecule (1) (or) (2) shown below and give their source and use. (2)

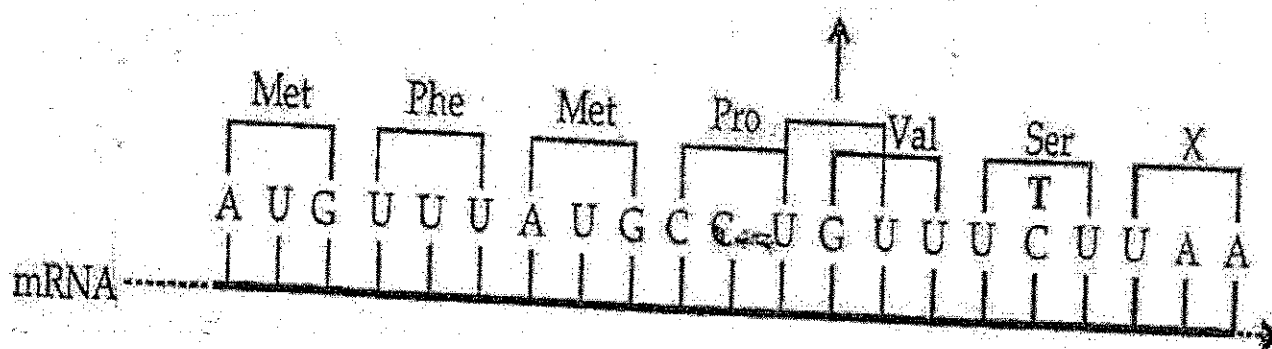


OR



SECTION C

- 22) Read the sequence of the nucleotides in the given segment of mRNA and the respective amino acid sequence in the polypeptide chain. (3)



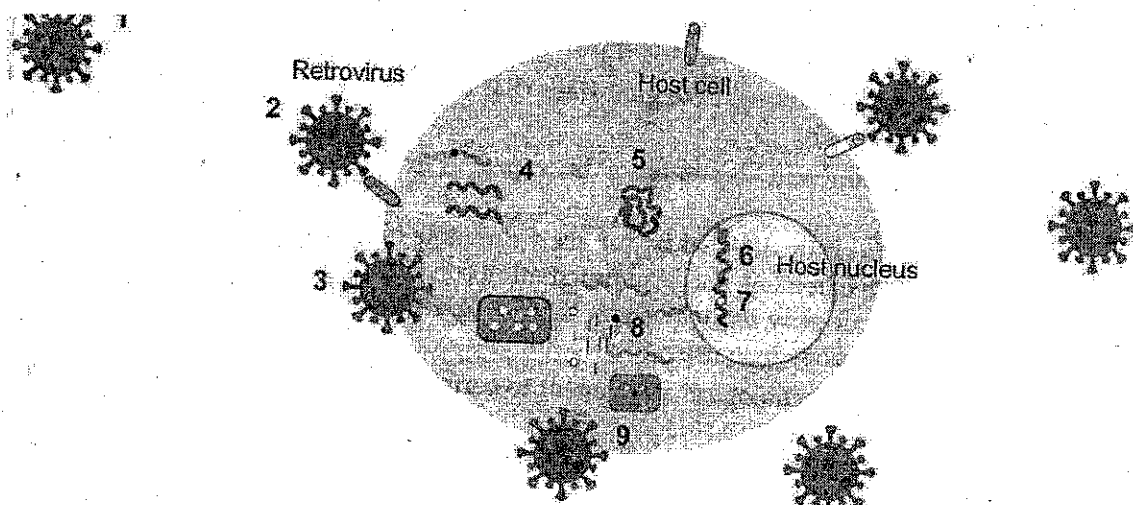
Polypeptide : met-phe-met-proline-valine-serine

- (i) Provide the triplet of bases (codon) for (a) Valine (b) Proline
- (ii) Write the nucleotide sequence of the DNA strand from which this mRNA was transcribed.
- (iii) What does the last codon of this RNA stand for?
- 23) In one family each of the four children has a different blood group. Their mother is group A and the father is group B. Explain this pattern of inheritance with the help of a cross along with the genotypes. (3)
- 24) (a) Compare the merits and demerits of using oral pills and surgical methods of birth control. (3)
- (b) Would you consider GIFT as an IVF? Give a reason in support of your answer.

25) The image below represents the replication of a retrovirus.

In the image, steps 1-5 depict different stages in the invasion of the retro virus into the host cell and steps 6-9 show the invasion of the host DNA and the processes resulting out of it.

(3)



- (a) Why does the retrovirus need to use reverse transcriptase to infect the host genome?
 - (b) What is the significance of step 7 and 8 (after the viral genome enters the host nucleus) as shown in the diagram?
- 26) (a) In a pond there were 20 Hydrilla plants. Through reproduction 10 new Hydrilla plants were added in a year. Calculate the birth rate of the population. (3)
- (b) What is r in the population equation $\frac{dN}{dt} = rN$? How does the increase and decrease in the value of ' r ' affect the population size?
- 27) (a) Draw a schematic diagram of a mature human male gamete and label the parts. (3)
- (b) Where are these gametes found embedded to survive after spermatogenesis?

(OR)

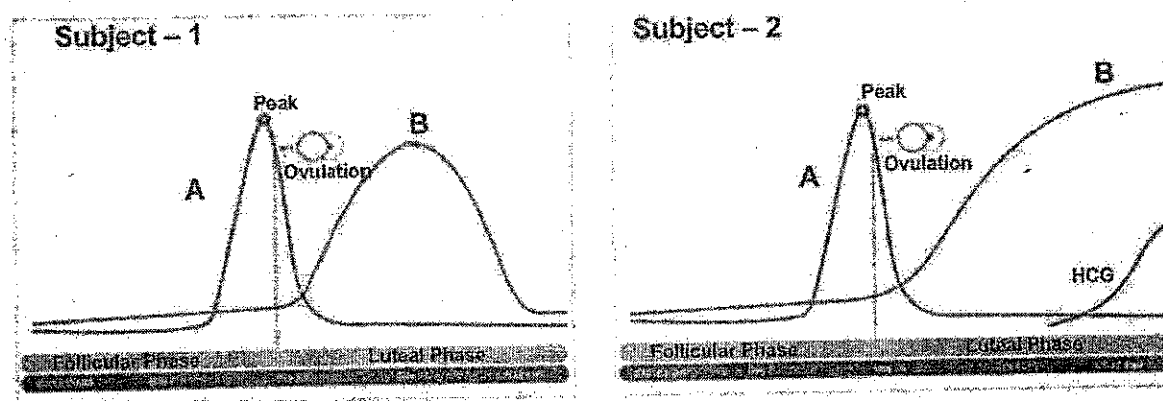
Draw a labelled diagram of a human blastocyst. How does it get implanted in the uterus?

- 28) Draw a schematic diagram of a lac operon in its 'switch off' position. Label the structural genes, repressor, promoter gene and regulator gene. Explain the role of regulatory gene in lac operon. Why is the regulation of the operon called negative regulation'? (3)

SECTION D

Q.No. 29 and 30 are case based questions. Each question has 3 subparts with internal choice in one subpart.

- 29) Case : To answer the questions, study the graphs below for Subject 1 and 2 showing different levels of certain hormones.? (4)



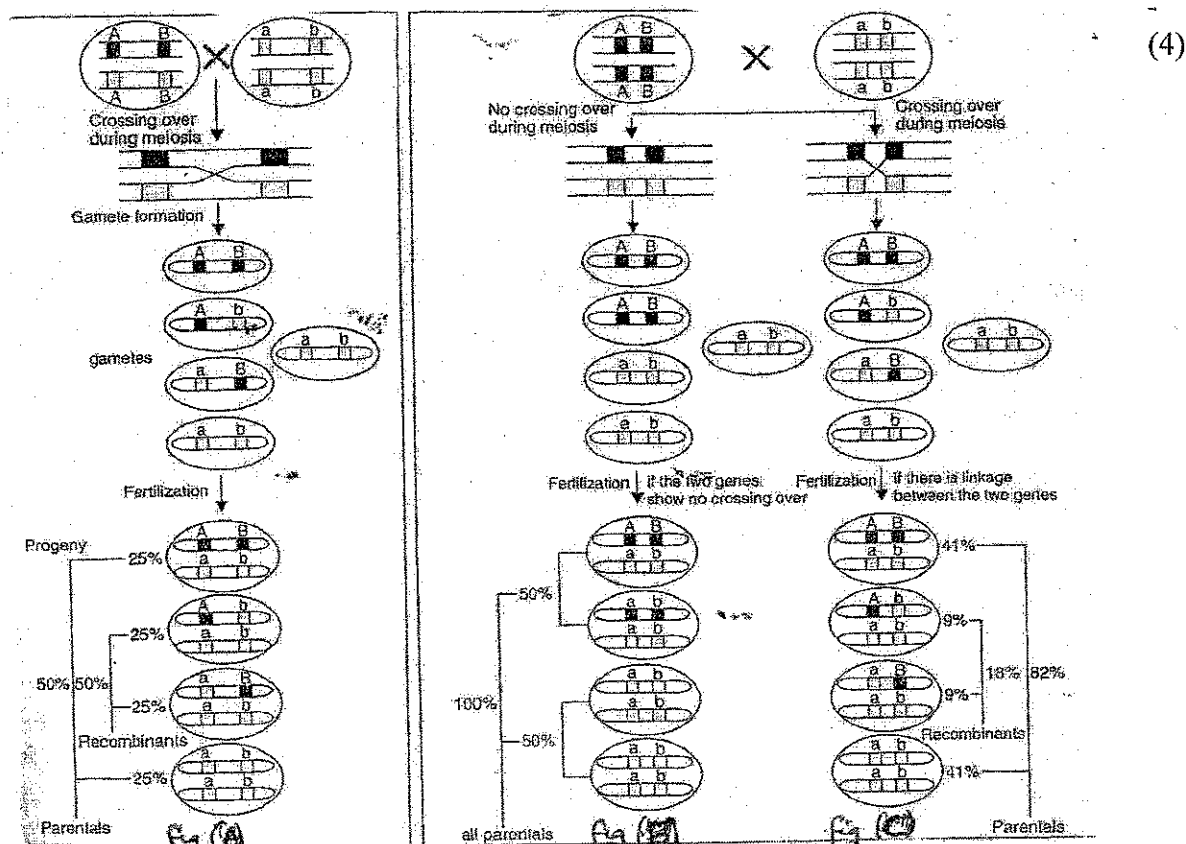
- (i) Which hormone is responsible for the peak observed in subject 1 and 2?
- (ii) Name the hormone B of subject 2.
- (iii) What will you observe for hormone B, if the peak of hormone A does not appear in the study for subject 1.

(OR)

Which structure in the ovary will remain functional in subject 2?

- (iv) For subject 2, it is observed that the peak for hormone B has reached the plateau stage. After approximately how much time will the curve for hormone B descend?
- (v) What will you observe for subject 2, it is pregnant or not?

30)



Observe the alleles 'A' and 'B' are dominant and 'a' and 'b' are recessive. The progeny always contains different combinations of traits compared to the parents. Answer the following :

- Independent assortment is an exception to Mendel's laws of inheritance. In which case is it not applicable, figure A, B or C?
- List two conditions when independent assortment takes place.
- Crossing over takes place between the non-sister chromatids during synapsis. Give reason - Figure C shows crossing over but not Figure B

(OR)

- Give the significance of recombination frequency.

SECTION E

- (a) Name the hormones secreted and write their functions:

- by corpus luteum and placenta (any two)
- during follicular phase and parturition.

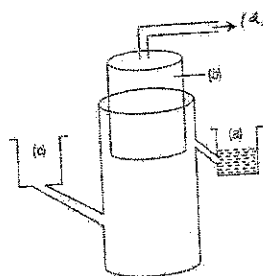
- Name the stages in a human female where :

- Corpus luteum and placenta co-exist.
- Corpus luteum temporarily ceases to exist.

(OR)

- Where does oogenesis take place in human female? Give the schematic representation of it.
- What is LH surge?
- How is the entry of only one sperm and not many ensured into an ovum during fertilization in humans?

- The diagram below is that of typical biogas plant. Explain the sequence of events occurring in a biogas plant. Identify a, b, c and d.



(OR)

- Name and explain any four lymphoid organs present in humans.
- Categorise them as primary or secondary lymphoid organs, giving reasons.

- (a) Describe the process of transcription in prokaryotes.
- (b) Mention how is the process different in eukaryotes.

(OR)

Explain the process of amino acylation of tRNA and elongation during protein synthesis.



GENERAL INSTRUCTIONS

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

SECTION A (OBJECTIVE TYPE QUESTIONS)

1. Name the agency which set up guidelines for adoption to safeguard the welfare and rights of children.
a) NARA b) CARA c) CAPA d) RACA (1)
2. Agmark is a certification scheme for processed foods. Which type of foods contain AGMARK?
a) Packaged Foods b) Agricultural Products c) Ready to eat foods d) None of the above (1)
3. Your brother has not gained height since past 5 years and hence is the shortest boy in his class. His condition is known as:
a) Stunting b) Wasting c) Underweight d) Obesity (1)
4. Sun drying is the oldest method of food preservation. Which principle of food preservation is involved in it?
a) Lowering of temperature b) Reduction of pH
c) Removal of water d) Controlling the availability of oxygen (1)
5. Which organisation enables the non-student youth of rural areas towards the development in the rural areas.
a) Gandhi Yuva Kendras b) Yuva Kendras c) Nehru Yuva Kendras d) Civil Yuva Kendras (1)
6. Which among the following is a chemical hazard?
a) Feather b) Pesticide Residue c) Mice Droppings d) Worms (1)
7. The presence of harmful or objectionable foreign substances in food are called as:
a) Adulteration b) Toxicity c) Contamination d) Hazard (1)
8. Ergonomics deals with matters related to:
a) Work place b) Reduction in errors c) Increase in errors d) Both a and b (1)
9. The elderly are vulnerable group due to various reasons.
Few reasons are:
I) Decreased defence mechanism II) Increased financial resources
III) Improved physiological reserves IV) Nuclear family system
Choose the correct option:
a) I and II b) II and III c) I and IV d) II and IV (1)
10. Ergonomics is the judgement of adjustment of human and machine which involves application of human biological sciences combined with engineering science to achieve optimum mutual adjustment of human work, with the benefit being measured in terms of human efficiency and well-being. It is important for:
I) Improving job effectiveness. II) Improve social interaction of workers
III) Reducing productivity. IV) Improving Economic infrastructure of the country
Choose the correct option from the following:
a) I and II b) II and III c) I and IV d) III and IV (1)

OR

Match the following:

List I

- A. Manufactured food
- B. Medical food
- C. Formulated food
- D. Functional food

List II

1. Lactose free milk
2. Bread
3. Pro-biotics
4. Papad

Choose the correct option from the following:

- a) A-4,B-1,C-2,D-3 b) A-2,B-1,C-4,D-3 c) A-4,B-1,C-3,D-2 d) A-3,B-2,C-4,D-1
11. Sheena wants to work in famous play school of the town. What qualities she must possess?
I) An interest in child II) Health status of child III) Skills for creative activities IV) Cooking skills (1)
Choose the correct options:
a) I and II b) II and III c) II and IV d) I and III
 12. Given below are two statements labelled as Assertion (A) and reason (R).
ASSERTION (A): Elderly are considered vulnerable due to many reasons.
REASON(R) : There is increase in the number of elderly populations every year. (1)
Select the most appropriate answer from the options given below:
a) Both A and R are true and R is the correct explanation of A.
b) Both A and R are true but R is not the correct explanation of A.
c) A is true but R is false.
d) A is false but R is true.

13. **ASSERTION(A)** : Deficiency of iodine results in insufficient amount of thyroid hormone which is synthesised by the thyroid gland.

REASON(R) : IDD is an ecological phenomenon, largely due to deficiency of iodine in the soil. (1)

Select the most appropriate answer from the options given below:

- a) Both A and R are true and R is the correct explanation of A.
- b) Both A and R are true but R is not the correct explanation of A.
- c) A is true but R is false.
- d) A is false but R is true.

CASE BASED QUESTIONS

Read the passage carefully and answer question no. 14 to 18

Malnutrition is the underlying cause of at least 50 per cent of deaths of children under five years of age. The statistics for nutrition-related problems in our country reveal an alarming situation

- Almost one-third of the infants born in India are low birth weight babies. Low birth weight may have adverse effects throughout their growing years and may have adverse implications even in adult life. Low birth weight may even lead to child mortality.
- There is widespread prevalence of growth retardation among preschoolers (from socio-economically disadvantaged families) and almost half the children suffer from mild and moderate under nutrition.
- A large proportion of children (and adults) suffer from micronutrient deficiencies in varying degrees of severity. The micronutrients of most concern are iron, zinc, Vitamin A, iodine, folic acid, B12.

14. Micro nutrient deficiencies are referred as:
a) Goitre b) Hidden Hunger c) Protein Energy Malnutrition d) Anaemia (1)
15. Which of the following is the immediate cause of under nutrition?
a) Inadequate dietary intake b) Inadequate education
c) Inadequate health services d) Poor sanitation and hygiene (1)
16. When the weight of the child is less than adequate for age, this is termed as:
a) Underweight b) Stunting c) Wasting d) Protein energy malnutrition (1)
17. Which of the following is incorrect statement?
a) Enlarged thyroid known as goitre is the most common manifestation of iodine deficiency.
b) Haemoglobin is required for carrying oxygen in the body.
c) Due to Vitamin A deficiency growth of children are adversely affected.
d) Protein deficiency is called as Marasmus. (1)
18. Since past 15 days, Seema who is 30-year-old is feeling lethargic, breathlessness and fatigue on slight exertion. Identify the deficiency disease she might be suffering from.
a) IDA b) IDD c) VAD d) Osteoporosis (1)

SECTION B (SHORT ANSWER QUESTIONS)

19. Why FSSAI 2006 was implemented? (2)
20. Mention the standard marks that you would look for while buying packets of baking powder and pure ghee. (2)
21. Viren wants to work with vulnerable group of society. He is doing his graduation from renowned state university. Advise him with two courses he can do along with his graduation. (2)

OR

Aarav wants to work in the day care centre. What four skills he must possess?

22. What are the two strategies that can be used to combat public health nutrition? (2)
23. Dietician helps an individual to maintain good nutritional status and health. With reference to the given statement discuss the role of dietician. (2)
24. What are "Nutraceuticals"? (2)
25. As per NCF 2005, what are the basic objectives of ECCE? (2)
26. Define Food Safety. What are the two concepts of food safety? (3)
27. Give reason: Optimum nutrition is very important. (3)
28. What is Codex Alimentarius Commission? (3)

OR

Discuss about the three kinds of home run by government for vulnerable children.

29. Give classification of foods based on their perishability. (3)

SECTION C (LONG ANSWER QUESTIONS)

30. List the four pillars on which the science of ergonomics is set. (4)
31. What are the four levels of Food Standards? (4)
32. Write a brief note on SOS children's village. (4)
- 33 a) What is "Food Intoxication"? (4)
- b) What are the key factors that are necessary to be kept in mind for ensuring food safety? (Any four) (4)

OR

Reema has done her masters in ECCE. Now she wants to have a career in the same field but she is confused. Help her out by suggesting career avenues in the same field. (Any four)

34. Write notes on "National Service Volunteer Scheme". (5)
35. What are the needs to implement HACCP? (5)

OR

Give the classification of processed foods on the basis of extent and type of processing. (Any 5)



DELHI PUBLIC SCHOOL, BHILAI

DATE : 25.09.2023
CLASS : XII

MIDTERM EXAMINATION – 2023
Subject – Accountancy (055)

Time : 3 Hrs.
Max. Marks : 80

GENERAL INSTRUCTIONS:

1. This question paper contains 34 questions. All questions are compulsory.
2. This question paper is divided into two parts, Part A and B.
3. Part - A is compulsory for all the candidates.
4. Part - B has two options i.e. (i) Analysis of Financial Statements and (ii) Computerised Accounting. Students must attempt only one of the given options as per the subject opted.
5. Question Nos.1 to 16 and 27 to 30 carries 1 mark each.
6. Questions Nos. 17 to 20, 31 and 32 carries 3 marks each.
7. Questions Nos. from 21, 22 and 33 carries 4 marks each
8. Questions Nos. from 23 to 26 and 34 carries 6 marks each
9. 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.

Q. NO.	PART A (Accounting for Partnership Firms and Companies)	Marks
1	Amar & Samar are partners sharing profits and losses in the ratio of 5:3. Pankaj is admitted for $\frac{1}{4}$ share and for which ₹30,000 and ₹50,000 are credited as a premium for goodwill to Amar and Samar respectively. The new profit sharing ratio of Amar: Samar: Pankaj will be: a) 17:7:8 b) 2:1:1 c) 9:7:8 d) 33:27:20	1
2	Assertion (A): At the time of admission of a new partner surplus of Investment Fluctuation Reserve over loss in value of Investment is transferred to Old Partners Capital A/c in old ratio. Reason (R): Loss in value of Investment, if any, is adjusted first from Investment Fluctuation Reserve. a) Both Assertion (A) and Reason(R) are true and Reason(R) is correct explanation of Assertion (A). b) Both Assertion (A) and Reason(R) are true and Reason(R) is not 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.	1
3	Which of the following items is not dealt through Profit and Loss Appropriation Account? a) Interest on Partner's Loan b) Partner's Salary c) Interest on Partner's Capital d) Partner's Commission OR A and B are partners in a partnership firm without any agreement. A has withdrawn Rs.50,000 out of his Capital as drawings. Interest on drawings may be charged from A by the firm : a) @ 5% Per Annum b) @ 6% Per Annum c) @ 6% Per Month d) No interest can be charged	1
4	A firm has earned average profit of ₹ 60,000. Rate of return on capital employed is 12.5% p.a. Total capital employed in the firm is ₹ 4, 00,000. Goodwill on the basis of two years purchase of super profits is: a) ₹20,000 b) ₹15,000 c) ₹10,000 d) ₹25,000	1
5	A, B, and C are partner's sharing profits in the ratio of 5:3:2 According to the partnership agreement C is to get a minimum amount of ₹10,000 as his share of profits every year. The net profit for the year ended 31st March, 2019 amounted to ₹40,000. How much amount contributed by A? a) ₹ 1.350 b) ₹1,250 c) ₹750 d) ₹1,225	1
6	Following are the factors affecting goodwill except: a) Efficiency of Management b) Location of the Customers c) Technical Knowledge d) Nature of business	1

7	<p>State the ratio in which the partners share all the accumulated profits, reserves, losses at the time of change in profit sharing ratio.</p> <p>a) Old profit sharing ratio b) New profit sharing ratio c) Scarifying ratio d) Gaining ratio</p> <p style="text-align: center;">OR</p> <p>Sun, Moon and Star are partners sharing profits in the ratio of 5:3:2. With effect from 1st July 2020, they agreed to share future profits 2:3:5. They decided to record the following with affecting the values. Profit & Loss A/c (Cr.) - ₹24,000 Advertisement Suspense A/c - ₹12,000 What is the impact of the above adjustments on Moon?</p> <p>a) No effect on Moon b) Moon debit by ₹ 3,600 c) Moon credit by ₹ 3,600 d) Moon debit by ₹ 12,000</p>	1
8	<p>G, S and T were partners sharing profits in the ratio 3:2:1. G retired and his dues towards the firm including Capital balance, Accumulated profits and losses share, Revaluation Gain amounted to ₹ 5,80,000. G was being paid ₹ 7,00,000 in full settlement. For giving that additional amount of ₹ 1,20,000, S was debited for ₹ 40,000. Determine goodwill of the firm.</p> <p>a) ₹ 1,20,000 b) ₹80,000 c) ₹2,40,000 d) ₹ 3,60,000</p> <p style="text-align: center;">OR</p> <p>P, Q and R have been sharing profits and losses in the ratio of 5:3:2. Q retires. Share of Q is taken by P and R in the ratio of 2:1. New profit-sharing ratio will be:</p> <p>a) 6:4 b) 7:3 c) 7:2 d) 6:3</p>	1
9	<p>P, Q and R are partners in a firm sharing profits in the ratio of 5:4:1. They decided to share future profits equally. The goodwill was valued at Rs. 60,000. The adjusting journal entry will be:</p> <p>a) R's Capital A/c Dr. 14,000 To P's Capital A/c 10,000 To Q's Capital A/c 4,000</p> <p>b) R's Capital A/c Dr. 20,000 To P's Capital A/c 10,000 To Q's Capital A/c 10,000</p> <p>c) P's Capital A/c Dr. 10,000 Q's Capital A/c Dr. 4,000 To R's Capital A/c 14,000</p> <p>d) Goodwill A/c Dr. 60,000 To P's Capital A/c 20,000 To Q's Capital A/c 20,000 To R's Capital A/c 20,000</p>	1
10	<p>A, B and C were partners in a firm sharing profit and losses in the ratio of 2:2:1. The capital balance are ₹50,000 for A, ₹70,000 for B, ₹35,000 for C. B decided to retire from the firm and balance in reserve on the date was ₹25,000. If goodwill of the firm was valued at ₹30,000 and profit on revaluation was ₹7,500, then, what amount will be payable to B?</p> <p>a) ₹ 70,820 b) ₹ 76,000 c) ₹ 75,000 d) ₹ 95,000</p>	1
11	<p>A, B and C are partners with profit sharing ratio 4:3:2. B retires and goodwill was valued ₹ 1,08,000. If A and C share profits in 5:3, find out the goodwill shared by A and C in favour of B.</p> <p>a) ₹ 22,500 and Rs. 13,500 b) ₹ 16,500 and Rs. 19,500 c) ₹ 67,500 and Rs. 40,500 d) ₹ 19,500 and Rs. 16,500</p>	1
12	<p>Rajat, Mishi and Tanvi were partners in a firm sharing profits and losses in the ratio of 5: 3: 2. Tanvi died on 31st October, 2022. According to the partnership agreement, her share of profits from the closure of last accounting year till the date of her death was to be calculated on the basis of aggregate profits of two completed years before death.</p> <p>Profits of the firm for the years ending 31st March, 2021 and 31st March, 2022 were ₹ 57,000 and ₹ 63,000 respectively. The firm closes its books on 31st March every year. Tanvi's share of profits till the date of her death will be</p> <p>(a) ₹ 24,000 b) ₹ 7,000 c) ₹ 14,000 d) ₹ 12,000</p>	1
13	<p>Riyansh, Garv and Kavleen were partners in a firm sharing profit and loss in the ratio of 8:7:5. On 2nd November, Garv died, Garv's share of profit till the date of his death was calculated at ₹ 9375. Which account will be debited to transfer Garv's share of profits?</p> <p>a) Profit and Loss Suspense Account b) Profit and Loss Appropriation Account c) Profit and Loss Account d) Profit and Loss Adjustment Account</p>	1

14	Realisation account is a a) Nominal account b) Real account c) Personal account d) None of the above OR Which account is prepared only once during the life of a partnership firm? a) Revaluation account d) Realisation account c) Partners' capital account d) Profit and loss appropriation account	1																									
15	In the books of XY firm, there was an unrecorded asset of ₹10,000. This asset realised for Cash ₹ 12,000. In the realisation account (a) cash account will be credited by ₹10,000 (b) cash account will be credited by ₹12,000 (c) cash account will be debited by ₹ 12,000 (d) None of the above	1																									
16	The amount of sundry assets transferred to realisation account was ₹ 80,000. 60% of them were sold at a profit of ₹ 2,000. 20% of the remaining were sold at a discount of 30% and remaining were taken over by 'Z' at book value. The amount realised from assets is (a) ₹ 54,480 (b) ₹ 25,600 (c) ₹ 80,000 (d) ₹ 80,080	1																									
17	Anshul, Babita and Chander were partners in a firm running a successful business of car accessories. They had agreed to share profits and losses in the ratio of 1/2 : 1/3 : 1/6 respectively. After running business successfully and without any disputes for 10 years, Babita decided to retire due to old age and the Anshul and Chander decided to share future profits and losses in the ratio of 3 : 2. The accountant passed the following journal entry for Babita share of goodwill and missed some information. Fill in the missing figures in the following Journal entry and calculate the gaining ratio. <table><tr><th>Date</th><th>Particulars</th><th>L.F</th><th>Dr</th><th>Cr</th></tr><tr><td></td><td>Anshul's Capital A/c Dr</td><td></td><td>-----</td><td></td></tr><tr><td></td><td>Chander's Capital A/c Dr</td><td></td><td>21,000</td><td></td></tr><tr><td></td><td>To Babita's Capital A/c</td><td></td><td></td><td>-----</td></tr><tr><td></td><td>(Chander's share of Goodwill debited to the amounts of continuing partners in their gaining ratio)</td><td></td><td></td><td></td></tr></table>	Date	Particulars	L.F	Dr	Cr		Anshul's Capital A/c Dr		-----			Chander's Capital A/c Dr		21,000			To Babita's Capital A/c			-----		(Chander's share of Goodwill debited to the amounts of continuing partners in their gaining ratio)				3
Date	Particulars	L.F	Dr	Cr																							
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	Chander's Capital A/c Dr		21,000																								
	To Babita's Capital A/c			-----																							
	(Chander's share of Goodwill debited to the amounts of continuing partners in their gaining ratio)																										
18	Rajiv and Sanjeev were partners in a firm. Partnership deed provides that the profits shall be divided First ₹ 20,000 to Rajeev and the balance in the ratio of 4: 1. The profits for the year ended 31st March, 2023 were ₹60,000 which had been distributed among the partners. On 1st April, 2022 their capitals were Rajeev ₹ 90,000 and Sanjeev ₹80,000. Interest on capital was to be provided @ 6% p.a. While preparing the profit and loss appropriation interest on capital was omitted. Pass necessary rectifying entry for the same. Show your workings clearly. OR Prem, Param and Priya were partners in a firm. Their fixed capitals were Prem ₹2,00,000; Param ₹3,00,000 and Priya ₹ 5,00,000. They were sharing profits in the ratio of their capitals. The firm was engaged in the sale of ready-to-eat food packets at three different locations in the city, each being managed by Prem, Param and Priya. The outlet managed by Prem was doing more business than the outlets managed by Param and Priya. Prem requested Param and Priya for a higher share in the profits of the firm which Param and Priya accepted. It was decided that the new profit sharing ratio will be 2:1:2 and its effect will be introduced retrospectively for the last four years. The profits of the last four years were ₹2,00,000, ₹3,50,000, ₹4,75,000 and ₹5,25,000 respectively. Showing your calculations clearly, Pass necessary adjustment entry.	3																									
19	Distinguish between 'dissolution of partnership' and 'dissolution of partnership firm' on the basis of 'court's intervention', 'Closure of books' and 'Economic relationship'.	3																									
20	Anu and Bhagwan were partners in a firm sharing profits in the ratio of 3: 1. Goodwill appeared in the books at ₹4,40,000. Raja was admitted to the partnership. The new profit sharing ratio among Anu, Bhagwan and Raja was 2: 2: 1. Raja brought ₹1,00,000 for his capital and necessary cash for his goodwill premium. The goodwill of the firm was valued at ₹ 2,50,000. Record the necessary journal entries in the books of the firm for the above transactions.	3																									
21	The capital of the firm of Anuj and Benu is ₹10,00,000 and the market rate of interest were is 15%. Annual salary to the partner is ₹60,000 each. The profit for the last three years ₹3,00,000, ₹3,60,000 and ₹4,20,000. Goodwill of the firm is to be valued on the basis of two years purchase of last three years average super profits. Calculate the goodwill of the firm. OR Calculate goodwill of a firm on the basis of three years-purchases of the weighted average profits of the last four years. The profits of the last four years were <table><tr><th>Years (ending 31st March)</th><th>2020</th><th>2021</th><th>2022</th><th>2023</th></tr><tr><td>Amt (₹)</td><td>28,000</td><td>27,000</td><td>46,900</td><td>53,810</td></tr></table> i. On 1st April, 2020 a major plant repair was undertaken for ₹10,000 which was charged to revenue. The said sum is to be capitalised for goodwill calculation subject to adjustment of depreciation of 10% on reducing balance method. ii. For the purpose of calculating goodwill the company decided that the years ending 31st March, 2020 and 31st March, 2021 be weighted as 1 each (being Covid affected) and for year ending 31st March, 2022 and 31st March, 2023 weights be taken as 2 and 3 respectively.	Years (ending 31st March)	2020	2021	2022	2023	Amt (₹)	28,000	27,000	46,900	53,810	4															
Years (ending 31st March)	2020	2021	2022	2023																							
Amt (₹)	28,000	27,000	46,900	53,810																							

22	<p>Hari, Kunal and Uma are partners in a firm sharing profits and losses in the ratio of 5: 3: 2. From 1st April, 2023 they decided to share future profits and losses in the ratio of 2: 5: 3. Their balance sheet showed a balance of ₹75,000 in the profit and loss account and a balance of ₹15,000 in investment fluctuation fund. For this purpose, it was agreed that</p> <ul style="list-style-type: none">i. Goodwill of the firm was valued at ₹3,00,000.ii. Investments (having a book value of ₹50,000) were valued at ₹35,000.iii. Stock having a book value of ₹50,000 be depreciated by 10%. <p>Pass the necessary journal entries for the above in the books of the firm.</p>	4																																																																								
23	<p>A, B and C were partners in a firm sharing profits and losses equally. Their respective capitals were ₹10,00,000, & ₹9,00,000 and ₹8,00,000. The partnership deed provided for the following</p> <p>(i) Interest on capital @ 9% per annum. (ii) Interest on drawings @ 12% per annum. (iii) Interest on partners loan to the firm @ 10% per annum.</p> <p>During the year, B had withdrawn ₹20,000 for his personal use . On 30th September, 2022, A had given a loan of ₹70,000 to the firm.</p> <p>Pass the necessary journal entries in the books of the firm for the following for the year ended 31st March, 2023.</p> <p>(i) Allowing interest on C's capital. (ii) Providing interest on A's loan. (iii) Charging interest on B's drawings.</p> <p>Also give transfer entries in the profit and loss account/profit and loss appropriation account, as the case may be.</p>	6																																																																								
24	<p>Sanjana and Alok were partners in a firm sharing profits and losses in the ratio 3:2. On 31st March, 2023, their balance sheet was as follows</p> <p style="text-align: center;">Balance Sheet of Sanjana and Alok as on 31st March, 2023</p> <table><tr><th>Liabilities</th><th>Amt (₹)</th><th>Assets</th><th>Amt(₹)</th></tr><tr><td>Creditors</td><td>60,000</td><td>Cash</td><td>1,66,000</td></tr><tr><td>Workmen's Compensation Fund</td><td>60,000</td><td>Debtors</td><td>1,46,000</td></tr><tr><td>Capitals A/c</td><td></td><td>(-) Provision of Doubtful Debts (2,000)</td><td>1,44,000</td></tr><tr><td>Sanjana. 5,00,000</td><td></td><td>Stock</td><td>1,50,000</td></tr><tr><td>Alok 4,00,000</td><td></td><td>Investments</td><td>2,60,000</td></tr><tr><td></td><td>9,00,000</td><td>Furniture</td><td>3,00,000</td></tr><tr><td></td><td><u>10,20,000</u></td><td></td><td><u>10,20,000</u></td></tr></table> <p>On 1st April, 2023, they admitted Nidhi as a new partner for 1/4th share in the profits on the following terms</p> <p>(i) Goodwill of the firm was valued at ₹4,00,000 and Nidhi brought the necessary amount in cash for her share of goodwill premium, half of which was withdrawn by the old partners.</p> <p>(i) Stock was to be increased by 20% and furniture was to be reduced to 90%.</p> <p>(ii) Investments were to be value at ₹3,00,000. Alok took over investment at this value.</p> <p>(iv) Nidhi brought ₹3,00,000 as her capital and the capitals of Sanjana and Alok were adjusted in the new profit sharing ratio.</p> <p>Prepare revaluation account, partners' capital accounts and the balance sheet of the reconstituted firm on Nidhi's admission.</p> <p style="text-align: center;">. OR</p> <p>Lalit, Madhur and Neena were Partners sharing profits at 50%,30% and 20% respectively. On 31st March, 2023 their balance sheet was as follows</p> <p style="text-align: center;">Balance Sheet as at 31st March, 2023</p> <table><tr><th>Liabilities</th><th>Amt (₹)</th><th>Assets</th><th>Amt(₹)</th></tr><tr><td>Creditors</td><td>28,000</td><td>Cash</td><td>34,000</td></tr><tr><td>Employees Provident Fund</td><td>10,000</td><td>Debtors</td><td>47,000</td></tr><tr><td>Investment Fluctuation Fund</td><td>10,000</td><td>(-) Provision for Doubtful Debts.</td><td>3,000</td></tr><tr><td>Capital A/cs</td><td></td><td></td><td>44,000</td></tr><tr><td>Lalit 50,000</td><td></td><td>Stock</td><td>15,000</td></tr><tr><td>Madhur 40,000</td><td></td><td>Investment</td><td>40,000</td></tr><tr><td>Neena 25,000</td><td>1,15,000</td><td>Goodwill</td><td>20,000</td></tr><tr><td></td><td><u>1,63,000</u></td><td>Profit and Loss A/c</td><td>10,000</td></tr><tr><td></td><td></td><td></td><td><u>1,63,000</u></td></tr></table> <p>On this date, Madhur retired and Lalit and Neena agreed to continue on the following terms</p> <p>(i) The goodwill of the firm was valued at ₹ 51,000.</p> <p>(ii) There was a claim for workmen's compensation to the extent of ₹6,000.</p> <p>(iii) Investments were brought down to ₹ 15,000.</p> <p>(iv) Provision for bad debts was reduced by ₹1,000.</p> <p>(v) Madhur was paid ₹10,300 in cash and the balance was transferred to his loan account payable in two equal instalments together with interest @ 12% per annum.</p> <p>Prepare revaluation account, partners' capital accounts.</p>	Liabilities	Amt (₹)	Assets	Amt(₹)	Creditors	60,000	Cash	1,66,000	Workmen's Compensation Fund	60,000	Debtors	1,46,000	Capitals A/c		(-) Provision of Doubtful Debts (2,000)	1,44,000	Sanjana. 5,00,000		Stock	1,50,000	Alok 4,00,000		Investments	2,60,000		9,00,000	Furniture	3,00,000		<u>10,20,000</u>		<u>10,20,000</u>	Liabilities	Amt (₹)	Assets	Amt(₹)	Creditors	28,000	Cash	34,000	Employees Provident Fund	10,000	Debtors	47,000	Investment Fluctuation Fund	10,000	(-) Provision for Doubtful Debts.	3,000	Capital A/cs			44,000	Lalit 50,000		Stock	15,000	Madhur 40,000		Investment	40,000	Neena 25,000	1,15,000	Goodwill	20,000		<u>1,63,000</u>	Profit and Loss A/c	10,000				<u>1,63,000</u>	6
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25	<p>Sandeep, Mandeep and Amandeep were partners in a firm sharing profits in the ratio of 2: 2: 1. The firm closes its books on 31st March every year. On 30th Sept, 2020 Amandeep died. The partnership deed provided that on the death of a partner his executors will be entitled to the following:</p> <p>a) Balance in his capital account which amounted to ₹5,00,000 and interest on capital till date of death which amounted to ₹25,000.</p> <p>b) His share in the profits of the firm till the date of his death amounted to ₹75,000.</p> <p>c) His share in the goodwill of the firm. The goodwill of the firm on Amandeep's death was valued at ₹ 2,50,000.</p> <p>d) Loan to Amandeep amounted ₹ 2,50,000.</p> <p>It was agreed that the amount will be paid to his executor in two equal yearly instalments with interest @10% p.a. The first instalment was to be paid on 30.09.2021.</p> <p>Calculate the amount to be transferred to Amandeep's executors Account and prepare the executor's account till it is finally settled.</p>	6																																																
26	<p>The firm of R, K and S was dissolved on 31.3.2023. Pass necessary journal entries for the following after various assets (other than cash and Bank) and the third party liabilities had been transferred to realisation account.</p> <p>I. K agreed to pay off his wife's loan of ₹6,000.</p> <p>II. Total Creditors of the firm were ₹ 40,000. Creditors worth ₹10,000 were given a piece of furniture costing ₹8,000 in full and final settlement. Remaining creditors allowed a discount of 10%.</p> <p>III. A machine that was not recorded in the books was taken over by K at ₹3,000 whereas its expected value was ₹5,000.</p> <p>IV. The firm had a debit balance of ₹15,000 in the profit and loss A/c on the date of dissolution.</p> <p>V. Realisation expenses of ₹ 5,000 were to borne by R, a partner. However, it was paid by S.</p> <p>VI. A bills receivable ₹ 20,000 discounted with the bank was dishonoured by its acceptor Mohan and he paid ₹ 12,000.</p> <p style="text-align: center;">OR</p> <p>Ashish and Kanav were partners in a firm sharing profits and losses in the ratio of 3:2. On 31st March, 2023 their balance sheet was as follows</p> <table><tr><th>Liabilities</th><th>Amt (₹)</th><th>Assets</th><th>Amt (₹)</th></tr><tr><td>Trade Creditors</td><td>42,000</td><td>Bank</td><td>35,000</td></tr><tr><td>Employees' Provident Fund</td><td>60,000</td><td>Stack</td><td>24,000</td></tr><tr><td>Mrs Ashish's Loan</td><td>9,000</td><td>Debtors</td><td>19,000</td></tr><tr><td>Kanav's Loan</td><td>35,000</td><td>Furniture</td><td>40,000</td></tr><tr><td>Workmen's Compensation Fund</td><td>20,000</td><td>Plant</td><td>2,10,000</td></tr><tr><td>Investment Fluctuation Reserve</td><td>4,000</td><td>Investments</td><td>32,000</td></tr><tr><td>Capital A/cs</td><td></td><td>Profit and Loss Alc</td><td>10,000</td></tr><tr><td>Ashish</td><td>1,20,000</td><td></td><td></td></tr><tr><td>Kanav</td><td>80,000</td><td></td><td></td></tr><tr><td></td><td><u>2,00,000</u></td><td></td><td></td></tr><tr><td></td><td>3,70,000</td><td></td><td><u>3,70,000</u></td></tr></table> <p>On the above date, they decided to dissolve the firm.</p> <p>i. Ashish agreed to take over furniture at ₹38,000 and pay-off Mrs Ashish's loan.</p> <p>ii. Debtors realised ₹18,500 and plant realised 10% more.</p> <p>iii. Kanav took over 40% of the stock at 20% less than the book value. Remaining stock was sold at a gain of 10%.</p> <p>iv. Trade creditors took over investments in full settlement.</p> <p>v. Kanav agreed to take over the responsibility of completing dissolution at an agreed remuneration of ₹12,000 and to bear realisation expenses. Actual expenses of realisation amounted to ₹8,000.</p> <p>Prepare realisation account .</p>	Liabilities	Amt (₹)	Assets	Amt (₹)	Trade Creditors	42,000	Bank	35,000	Employees' Provident Fund	60,000	Stack	24,000	Mrs Ashish's Loan	9,000	Debtors	19,000	Kanav's Loan	35,000	Furniture	40,000	Workmen's Compensation Fund	20,000	Plant	2,10,000	Investment Fluctuation Reserve	4,000	Investments	32,000	Capital A/cs		Profit and Loss Alc	10,000	Ashish	1,20,000			Kanav	80,000				<u>2,00,000</u>				3,70,000		<u>3,70,000</u>	6
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<p style="text-align: center;">PART B Option - I (Analysis of Financial Statements)</p>																																																		
27	<p>Find out which of the following is a reserve for distributing dividend?</p> <p>a) General Reserve b) Capital Reserve c) Revaluation Reserve d) None of these</p> <p style="text-align: center;">OR</p> <p>What will be the profit before tax if the revenue from operation is ₹ 10,00,000, other income is ₹ 2,30,000, cost of material consumed is ₹ 5,00,000, finance cost is ₹1,20,000 and other expenses ₹ 90,000.</p> <p>a) ₹6,40,000 b) ₹5,20,000 c) ₹2,90,000 d) ₹5,00,000</p>	1																																																
28	<p>Which of these is not the limitation of financial statements of a company?</p> <p>a) Ignore qualitative aspects b) Providing information about the profitability of the business</p> <p>c) Personal bias d) Ignores price level change</p> <p style="text-align: center;">Or</p> <p>Which of the following is not an objective of Analysis of Financial Statements:</p> <p>a) To judge the financial health of the firm.</p> <p>b) To judge the short-term and long-term liquidity position of the firm.</p> <p>c) To judge the reasons for change in the profitability of the firm.</p> <p>d) To judge the variations in the accounting practices of the business followed by different enterprises.</p>	1																																																

29	<p>Assertion (A) Financial Statements are the summarised statements which give information as to profitability and financial position of the company.</p> <p>Reason (R) Statement of Profit and Loss gives the information as to net profit or net loss for the year while Balance Sheet gives information of financial position of the company as at that date.</p> <p>a) Both Assertion (A) and Reason(R) are true and Reason(R) is not correct explanation of Assertion (A). b) Both Assertion (A) and Reason(R) are true and Reason(R) is correct explanation of Assertion (A). b) Assertion (A) is true, but Reason (R) is false. c) Assertion (A) is false, but Reason (R) is true.</p>	1																												
30	<p>Which of the following are the tools of vertical analysis?</p> <p>i. Ratio analysis ii. Comparative Statements iii. Common size statements</p> <p>Codes</p> <p>a) Only (i) b) Only (ii) c) Both (i) and (ii) d) Both (i) and (iii)</p> <p style="text-align: center;">OR</p> <p>Which analysis is considered as dynamic?</p> <p>a) Horizontal Analysis b) Vertical Analysis c) Internal Analysis d) External Analysis</p>	1																												
31	<p>From the following information's extracted from the books of Amar Ltd., answer the questions given below:(Keeping in mind the provision of Companies Act, 2013)</p> <table><tr><td>10% Debentures</td><td>₹ 5,00,000</td></tr><tr><td>12% Bank Loan From IDBI Bank</td><td>₹ 2,50,000</td></tr><tr><td>Stock-in-Trade (Inventories)</td><td>₹ 1,00,000</td></tr><tr><td>Goodwill</td><td>₹ 1,25,000</td></tr><tr><td>Computer Software under Development</td><td>₹ 1,25,000</td></tr><tr><td>Provision for Tax</td><td>₹ 1,00,000</td></tr></table> <p>(i) Provision for Tax of the company will be shown under the sub-head _____ of the _____ of the Balance Sheet</p> <p>(ii) Total value of intangible assets that will be shown under the sub-head property plant and equipment and intangible assets of the Non-Current Assets on assets part of the Balance Sheet is _____.</p> <p>(iii) 10% Debentures will be shown under _____ head and _____ sub-head of the Equity and Liabilities part of the Balance Sheet.</p>	10% Debentures	₹ 5,00,000	12% Bank Loan From IDBI Bank	₹ 2,50,000	Stock-in-Trade (Inventories)	₹ 1,00,000	Goodwill	₹ 1,25,000	Computer Software under Development	₹ 1,25,000	Provision for Tax	₹ 1,00,000	3																
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32	<p>One of the important objectives of analysis of financial statements is to assess the ability of the enterprise to meet its short-term obligations as and when they become due. Identify the objective of financial statement analysis highlighted in the above statement.</p> <p style="text-align: center;">OR</p> <p>What is meant by 'Analysis of Financial Statement'? State any two limitations of such analysis.</p>	3																												
33	<p>Classify the following items under Major heads and Sub heads (If any) in the balance sheet of a Company as per schedule III of the Companies Act 2013.</p> <p>i. Stores and Spares ii. Provision for Retirement benefits iii. Share Calls-in Advance iv. Computer Software</p>	4																												
34	<p>From the following information , prepare comparative statement of Profit & Loss</p> <table><tr><th>Particulars</th><th>Note No.</th><th>2022-23(₹)</th><th>2021-22(₹)</th></tr><tr><td>Revenue from operations</td><td></td><td>12,00,000</td><td>8,00,000</td></tr><tr><td>Purchase of Stock-in-trade</td><td></td><td>7,80,000</td><td>5,20,000</td></tr><tr><td>Change in inventories of Stock-in-trade</td><td></td><td>40,000</td><td>80,000</td></tr><tr><td>Other Expenses(% of Revenue from Operations)</td><td></td><td>10%</td><td>8%</td></tr><tr><td>Other Income</td><td></td><td>3,00,000</td><td>2,00,000</td></tr><tr><td>Tax Rate</td><td></td><td>40%</td><td>40%</td></tr></table>	Particulars	Note No.	2022-23(₹)	2021-22(₹)	Revenue from operations		12,00,000	8,00,000	Purchase of Stock-in-trade		7,80,000	5,20,000	Change in inventories of Stock-in-trade		40,000	80,000	Other Expenses(% of Revenue from Operations)		10%	8%	Other Income		3,00,000	2,00,000	Tax Rate		40%	40%	6
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Other Expenses(% of Revenue from Operations)		10%	8%																											
Other Income		3,00,000	2,00,000																											
Tax Rate		40%	40%																											



GENERAL INSTRUCTIONS:

1. All questions are compulsory
2. This paper contains 20 MCQ types question of 1 marks each.
3. 4 short answer questions type-I questions of 3 marks each to be answered 60 to 80 words.
4. 6 short answer questions type II questions of 4 marks each to be answered in 80 to 100 words.
5. 4 long answer questions type questions of 6 marks each to be answered in 100 to 150 words.
6. Attempt all parts of a question together.

**Section – A
Macro Economics**

01. When Nominal Gross Domestic Product is Rs. 850 crore and price index is 170, Real Gross Domestic Product will be-
(a) 10 (b) 15 (c) 5 (d) 7 (01)
02. Purchase of computer, equipment, tools, power and raw materials etc. is a part of –
(a) Gross investment (b) fixed investment (c) Inventory investment (d) All the above (01)
03. Assertion (A) : GDP can be greater than GNP.
Reason (R) : NFIA can never be negative. (01)
Alternatives:
(a) (A) and (R) are correct but (R) is correct explanation of (A).
(b) (A) and (R) both are correct but (R) is not correct explanation.
(c) (A) is true but (R) is false.
(d) (A) is false but (R) true.
04. If a farmer sells wheat to a miller for Rs. 500 and the miller sells flour to a baker for Rs. 700 and the baker sells bread to consumers for Rs. 1000, then total value added by 'miller' is – (01)
(a) 500 (b) 300 (c) 1700 (d) 1200
05. Smoke emitted by a chemical factory causes air pollution is an example of
(a) Positive externalities (b) Negative externalities (c) Either (a) or (b) (d) Neither (a) nor (b) (01)
06. **Assertion (A) :** Factor incomes contribute to an increase in GDP/
Reason (R) : Scholarship will be added in national income as it is a factor payment. (01)
Alternatives:
(a) (A) and (R) are correct but (R) is correct explanation of (A).
(b) (A) and (R) both are correct but (R) is not correct explanation.
(c) (A) is true but (R) is false.
(d) (A) is false but (R) true.
07. M_1 is also known as _____
(a) Fial money (b) Fiduciary money (c) Narrow money (d) Credit money (01)
08. Who regulates money supply in our country _____
(a) Government of India (b) Reserve bank of India (c) Commercial banks (d) Niti Aayog (01)
09. Suppose money created by the banking system is ₹ 1000 and the primary deposits are ₹ 250. The respective value of deposit multiplier and reserve ration would be _____ and _____
(a) 4, 25% (b) 8, 12.5% (c) 4, 12.5% (d) 5, 20% (01)
10. **Assertion (A) :** Notes and coins are the source of money supply in the economy.
Reason (R) : Demand deposited with commercial banks is also a component of money supply. (01)
Alternatives :
(a) (A) and (R) are correct but (R) is correct explanation of (A).
(b) (A) and (R) both are correct but (R) is not correct explanation.
(c) (A) is true but (R) is false.
(d) (A) is false but (R) true. (03)
11. Differentiate between GDP_{MP} & NNP_{FC} .
OR
Differentiate between factor income & transfer income. (03)
12. What is meant by margin requirement? How can it be used to control the money supply in the economy.
Give example. (03)

13. Read the following carefully and answer the given questions :

Since in a monetary economy, all payments are made in money, the real flow turns itself into money flow of income. When firms get factor services from households they make monetary payments against these services to the households. These payments are made in the form of wages to worker, rent to landowners, interest to capitalist and profit to entrepreneurs. These monetary payments are factor incomes for households. Households spend this income on the purchase of goods and services from the firms for their consumption. As the households spend all their income on consumption of goods and services, total money receipt of the firms is the same as the total income of the households. In other words, the money delivered to households by firms as factor payments comes back to them when households spend their income on consumption. (04)

- (i) National Income is a _____ concept.
 - (a) Stock
 - (b) flow
 - (c) both
 - (d) None
 - (ii) Choose the other name of real flow-
 - (a) Nominal flow
 - (b) Money flow
 - (c) Cash flow
 - (d) Physical flow
 - (iii) The non-stop continuity of inter sectoral flow-
 - (a) Circular flows
 - (b) Real flows
 - (c) Money flows
 - (d) None of them
 - (iv) Which funds sectors of the economy are being diversified in the above paragraph?
 - (a) Household Sector
 - (b) Firm Sector
 - (c) Both
 - (d) Govt. sector
14. Explain the following function of Central Bank – (2+2=04)
- (a) Banker to the govt.
 - (b) Currency authority

OR

How will reverse repo rate and CRR control excess money supply.

15. What is bank money? Discuss derivative functions of money. (04)
16. (a) State components of income from property and entrepreneurship.
- (b) Calculate the value of change of stock from following : (3+3=06)

	(Crore)
(i) Sales	400
(ii) NVA_{FC}	200
(iii) Subsidies	10
(iv) Depreciation	40
(v) Intermediates cons.	100

OR

Will the following be included in national income of India? Give reasons – (2+2+2=06)

- (i) Profits earned by an Indian bank from its branches abroad
 - (ii) Salaries paid to non-resident Indians working in India embassy in America.
 - (iii) Payment of interest on a loan taken by an employee from the employer.
17. Calculate Gross National Product at factor cost by income method and expenditure method. (3+3=06)

Item	₹
i. Govt. final consumption expenditure	550
ii. Change in stock	25
iii. Net capital formation	300
iv. Wages and salaries	800
v. Mixed income	260
vi. Rent, interest & profit	600
vii. Undistributed profit	150
viii. Gross capital formation	330
ix. Employees contribution social security scheme	100
x. Net factor income from abroad	(-) 20
xi. Export	30
xii. Import	60
xiii. Private final consumption Exp.	1000
xiv. Net Indirect Taxes	60

SECTION B

(Indian Economic Development)

18. Which of the following statement is not true about the Indian economy during the British rule? (01)
- (a) Slow growth of Agricultural and Industrial sector.
 - (b) The area of operation of public sector was very limited.
 - (c) Drain of India's wealth despite export surplus.
 - (d) During the colonial period, the service sector accounted for the largest share of work force.
19. **Assertion (A)** : Introduction of railways fostered communication of Indian agriculture.
- Reason (R)** : Communication of Indian agriculture adversely affected the self sufficiency of the village economies in India. (01)

Alternatives:

- (a) (A) and (R) are correct but (R) is correct explanation of (A).
- (b) (A) and (R) both are correct but (R) is not correct explanation.
- (c) (A) is true but (R) is false.
- (d) (A) is false but (R) true.

20. Modernization as a goal of planning in context of Indian economy aimed at
 (a) Use of new technology (b) Change of social outlook (01)
 (c) Adopting new lifestyle (d) Both a & b
21. The first seven five year plans gave importance to self reliance to achieve economics growth (T/F) (01)
22. How can globalisation increase the standard of living of the people in a country.
 (a) By offering more product to buy.
 (b) By increasing rural to urban migration
 (c) By improving working conditions for factory workers. (01)
 (d) By making cheaper products available due to competition.
23. **Statement –I** : India is often called as the outsourcing hub of the world.
Statement –II : Availability of skilled manpower is one of the prime factor responsible the status gained by India at the international platform. (01)
 (a) Both the statement are true
 (b) Both the statement are false.
 (c) Statement I is true and statement II is false.
 (d) Statement II is true and statement I is false.
24. Which one of the following organization regulates the health sector in India? (01)
 (a) ICMR (b) UGC (c) AICTE (d) RBI
25. Which of the following could aid in HCF?
 (a) Expanding the labor market by increasing supply of jobs.
 (b) Creating larger industries with more complex equipment
 (c) Creating open market with increase stability. (01)
 (d) Promoting gender equality in the family.
26. Which of the following statement is not true about organic farming?
 (a) It involves use of inexpensive local inputs.
 (b) It is labor intensive technique of cultivation.
 (c) The yields from organic farming are more than modern agriculture farming (01)
 (d) It has helped in enhancing india's export earnings.
27. **Assertion (A)** : The govt. gives assurance for procurement of the produces' at MSP to the formers maintain buffer stock of wheat and rice and makes arrangement for distribution of food grain and sugar through PDS.
Reason (R) : The Govt. aims at protecting the income of the farmers and providing food grain at a subsidised rate to the poor. (01)
- Alternatives:**
 (a) (A) and (R) are correct but (R) is correct explanation of (A).
 (b) (A) and (R) both are correct but (R) is not correct explanation.
 (c) (A) is true but (R) is false.
 (d) (A) is false but (R) true.
28. Underscore some of India's most crucial economic challenges at the time of independence.
OR
 Which part of British India become parts of Pakistan after partition? Why were these parts so important to India from economics point of view. (03)
29. Do you think outsourcing is good for India? Why are developed countries opposing it? (03)
30. Does moderation as a planning objective create contradiction in light of employment generation? (04)
 Explain.
- OR**
 Explain the objective of Niti Aayog. (04)
31. Planning in India for the period 1951-91 is a mixed blessing. Explain. (04)
32. "Rural economic development is essential for Indian Economics development." Do you agree? Support your answer with valid reason. (04)
33. (a) Discuss the impact of demonetization on Indian economic. (3+3=06)
 (b) What do you mean by disinvestment? Write its objectives.
34. (a) Trace the relationship between human capital formation and economic growth. (3+3=06)
 (b) Examine the role of education in economic development of a nation.
- OR**
 (a) "Human capital formation gives birth to innovation, investments and technological improvement." Support your answer with valid arguments. (3+3=06)
 (b) "Skill formation is a key factor of ensuring economic development, comment.



DATE : 27.09.2023
CLASS : XII

MIDTERM EXAMINATION – 2023
Subject : Business Studies

Time : 3 Hrs.
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. Amit has recently joined RAC Ltd., a company manufacturing automobile products. He found that his department was under-staffed and other departments were not cooperating with his department for smooth functioning of the organization. Therefore, he ensured that his department has the required number of employees and its cooperation with other departments is improved. Identify the level at which Amit was working.
a) Top level b) Middle level c) Lower level d) Secondary level (1)
2. Rahul a manager expects his subordinates to get the work done as per his instructions yet has a differential treatment for each person. Which principle of management is overlooked?
a) Equity b) Unity of Direction c) Unity of command d) Order (1)
3. Forecasts can be made about the demand for a particular product, policy change, interest rates, prices of capital goods, tax rates etc.
Which aspect of planning is highlighted in the aforesaid situation?
a) Evaluating alternative courses b) Developing planning premises
c) Formulation of derivative plans d) Follow up (1)
4. "Equal pay for equal work" is an example of which dimension of business environment?
a) Economic environment b) Legal environment c) Social environment d) Political environment (1)
5. Meena is the owner of 'Sukham Enterprises' carrying on the business of manufacturing various kinds of medical equipments. There is a lot of discontentment in the organization because all decision making of the enterprise are in her hands as she doesn't believe her employees. Identify the communication barrier being created by Meena.
a) Personal barriers b) Psychological barriers c) Semantic barriers d) Organisational barriers (1)
6. Name the concept which explains the manner in which decision making responsibilities are divided among hierarchial levels.
a) Organisational structure b) Span of management c) Delegation d) Decentralisation (1)
7. Andrew, the Production Manager in a company using highly sophisticated machines and equipment intends that every employee in the organization should be fully trained before working with the machines and equipment. Which of the following methods of training should be used by the organization?
a) Induction training b) Vestibule c) Apprenticeship d) Job rotation (1)
8. Tasty Treats Bakery is famous for its tasty biscuits, cakes, toasts, buns etc. Varsha the owner of the bakery was worried because the sales had declined below the set target by 15%. Identify the step of controlling process.
a) Setting standards b) Measurement of actual performance
c) Comparison of actual performance against standards d) feedback (1)
9. This concept provides the requisite amount, quality, timing and sequence of efforts which ensures that planned objectives are achieved with a minimum of conflict. Identify the concept highlighted in the above statement.
a) Cooperation b) Management c) Coordination d) Planning (1)
10. **Assertion :** The employees should be paid fair wages which should give them atleast a reasonable standard of living.
Reason : At the same time fair wages should be within the paying capacity of the company.
a) Both the Assertion and Reason are correct.
b) Assertion is true but Reason is false.
c) Assertion is false but Reason is true.
d) Both the Assertion and Reason is false. (1)

11. As a foreign tourist visited India, he noticed that Indian markets, tastes, trends and regulations were different from that of his country. Which feature of business environment is reflected here?
a) Uncertainty b) Dynamic c) Complex d) Relative (1)
12. Solar Ltd. is dealing in renewable energy. To get the business, the team leader and his team have to travel to different states to give presentation to their clients. The leader travels by air, whereas his team travels by road/train. Identify the type of plan being followed by the company. (1)
a) Rule b) Policy c) Method d) Budget
13. Maya worked in a marketing firm. Her team manager did not wish to be contradicted and gave rewards depending on the result. Identify the style of leadership being followed by Maya's team manager. (1)
a) Autocratic Leadership b) Democratic Leadership c) Laissez Faire d) Participative Leadership
14. An employee is introduced to the workplace of the job for which he has been selected under this process—
a) Recruitment b) Selection c) Training d) Orientation (1)
15. **Statement I** – Fatigue Study refers to determining the amount and frequency of rest intervals required in completing a task.
Statement II – Four subordinates receive orders from one manager. This situation highlights the 'unity of direction' principle of management.
Alternatives:
a) Statement I is correct and Statement II is incorrect.
b) Statement II is correct and Statement I is incorrect.
c) Both the statements are correct.
d) Both the statements are incorrect. (1)
16. The _____ is a system of job positions and the authority relationship among various job positions.
a) Decentralized organization b) Divisional structure
c) Organizational structure d) Functional structure (1)
17. **Statement I** – The process of communication gets completed only when the receiver understands the message.
Statement II – By becoming a good listener a manager can control the communication barriers to a great extent.
Alternatives:
a) Statement I is correct and Statement II is incorrect.
b) Statement II is correct and Statement I is incorrect.
c) Both the statements are correct.
d) Both the statements are incorrect. (1)
18. One of the steps in the organizing process involves allocation of jobs to the members of each department in accordance to their skills and competencies. Identify the relevant step. (1)
a) Identification and division of work b) Departmentalisation
c) Assignment of duties d) Establishing reporting relationships
19. Astra Builders has to deliver the flats to its buyers on time. Due to this, there is a sudden rush of work. Therefore, the company needs to arrange workers to work at the site at a short notice. The source of recruitment which may be used by the company to fill the vacancies is –
a) Direct recruitment b) Advertisement
c) Recommendation of employees d) Employment exchanges (1)

20.



Identify the type of communication in the picture given above:

- a) Formal b) Verbal c) Written d) Informal (1)

21. Anjali works as a designer at an export house. As per the terms of an order received by the export house, she has to get 2000 units of denim jackets made in 15 days @ Rs. 2000 per jacket. She is able to complete her target production in 20 days because in order to complete the order in 15 days she would have made the workers work over time. As a result the cost of production per jacket may have increased by Rs. 100. Is Anjali efficient in her work? Explain by giving a suitable reason in support of your answer. Also explain the meaning of the term 'effective' in this sense.

OR

(1+1+1)

Megha works as a soft skill trainer in a corporate house. She begins a new session everytime by acquainting the trainees with a process which is vital for achieving the goals of the organization effectively and efficiently. She also makes them understand the various primary activities involved in carrying out this process. She emphasizes upon the fact that in the absence of this process it will be difficult for the employees to attain their personal goals. Moreover, the development of the society will be hampered as the welfare of the people is also likely to be overlooked by the organization.

In the context of the above case:

- a) Identify and explain the process being referred to in the above lines.
 - b) List the primary activities contained in this process.
 - c) How does this process help to achieve the personal objectives of the employees?
22. After completing a diploma in Bakery and Patisserie, Payal sets up a small outlet at Goa Airport to provide a healthy food option to the travellers. To begin with, she has decided to sell five types of patties, three types of pizzas and low sugar muffins in four flavours. Thus by deciding in advance what to do and how to do, she is able to reduce the risk of unpredictability and avoid duplicate and wasteful activities. But sometimes her plan may not work due to some unavoidable circumstances like cancellation of flights due to bad weather conditions, government alert etc. which affects her clientele.
- a) Identify and explain the points highlighting the importance of planning mentioned in the above paragraph.
 - b) Quote and identify the limitation of planning which adversely affects Payal's business. (2+1)
23. Name and explain the technique of scientific management which emphasizes on separation of planning and execution functions. (3)
24. In 1995 Amazon was the first company to truly exploit the power of the rapidly expanding internet to provide an online book retailing service to customers. Amazon has also been the first company to enable consumers to search for and order hard-to-find books.
- a) What is business environment?
 - b) Identify and explain the concept that enables a firm to take advantage of early identification of business opportunities in a changing environment.

OR

(1+2)

Vibgyor Paint Co. which is manufacturing paints had been enjoying a prominent market position as it is manufacturing best quality paints and made timely payment of taxes to the government. It assembled various inputs like finance, machines, raw materials etc. from the environment. But since last year it has been dumping its untreated poisonous waste on the river bank which has created many health problems for the people. As a result, the court passed an order to seal the manufacturing unit of the company.

- a) Identify the importance of business environment highlighted by quoting the line from the above case.
 - b) Identify the two dimensions of business environment mentioned in the above case by quoting lines from it.
25. What do you mean by management? Explain the feature 'Management is multidimensional.' (1+3)
26. Resolutions Pvt. Ltd. is a publishing company. Its book on Business Studies for Cl. 12 is in great demand. As a result, the employees in the marketing department are always racing against time. The employees have to work overtime and on holidays to cater to the demand. Managers in the marketing department are under stress as they have to handle more than two territories. The work stress has led to dissatisfaction among the employees and managers.
- a) Name and explain the step of staffing process which has not been performed properly.
 - b) State the next two stages immediately following the step identified in part (a). (2+2)

27. Shabana is the CEO of a reputed company. She introduced appropriate skill development programmes and a sound promotion policy for the employees of her company. To motivate and retain the best talent in the company she designed the jobs of the managers to include greater variety of work content. Identify and explain the two incentives introduced by Shabana to motivate the employees of her company.

OR

(2+2)

Samaira is a successful manager at Marksons Enterprises. She has a team of twelve people working under her. She encourages them to set their own objectives and take decisions. She respects their opinions and supports them, so that they can perform their duties and accomplish organizational objectives. To manage and exercise effective control she uses forces within the group. As an intelligent manager, at times, she also makes use of positive aspects of informal communication. This way, she is able to unify diverse interests and ensure that targets are met.

- a) Identify and explain the style of leadership used by Samaira in the above case.
b) Name the other styles of leadership apart from the one mentioned in Part (a).
28. Describe briefly the steps involved in the controlling process. (4)
29. Tulip Ltd. is a famous brand in Home Décor segment. The company has now decided to diversify into two new segments i.e. furniture and interior designing. At the same time it is looking for capable competent people who will be able to head these product line departments independently.
a) Name and explain the type of organizational structure which was followed in the company before diversification.
b) Identify and explain the type of organizational structure that the company is planning to set up after diversification.

OR

(4)

Sukhi Jeevan Ltd. is a famous healthcare company in India. The registered office of the company is located in Delhi, its production department is located at Noida whereas the marketing department operates from Faridabad and the finance department is located at Gurugram.

- a) Suggest a suitable organizational structure design for the company.
b) Write any three advantages of the above mentioned structure.
30. Explain the following terms in relation to staffing:
a) Casual callers b) Management consultants c) Labour contractors d) Vestibule training (4)
31. As students of a management course, Karan and Kunal were asked to prepare a project report on applicability of Principles of Management in real business situations. In order to conduct the survey Kunal had selected an outlet of a popular chain of fast food restaurant whereas Karan visited a nearby departmental store. When Kunal presented his report to the class Karan realized that their observations were matching on various grounds. In both the business units, work is divided into small tasks and each is performed by a trained employee. A set of rules are predetermined and communicated to the employees for compliance and there is a fixed place for everything and all employees have been allotted individual space. Moreover, the managers encourage a spirit of mutual trust and belongingness among the employees so that the need for imposing penalties is reduced.
Identify and explain the various principles of management being described above. (1½ x4=6)

32. Explain briefly the various steps of planning.

OR

(6)

Name and explain briefly the various types of plans.

33. Write a short note on the following:

- | | | |
|---------------------|------------------------|--------------------------|
| a) Delegation | b) Span of management | c) Informal organization |
| d) Decentralisation | e) Departmentalisation | e) Accountability |
- (6)

34. What is motivation? Give a brief description of Maslow's Need Hierarchy Theory.

OR

(6)

Write about the Semantic barriers of communication.





General Instructions:

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

Section A

Q1. What will be the correct output of the statement : `>>>4//3.0`

- i. 1 ii. 1.0 iii. 1.3333 iv. None of the above

Q2. If `a=1, b=2` and `c=3` then which statement will give the output as : 2.0 from the following:

- i. `>>>a%b%c+1` ii. `>>> a%b%c+1.0` iii. `>>>a%b%c` iv. `a%b%c-1`

Q3. Give the output of the following code:

```
>>>import math
```

```
>>> math.ceil(1.03)+math.floor(1.03)
```

- i. 3 ii. -3.0 iii. 3.0 iv. None of the above

Q4. How many times will the following code be executed

for `i` in `range(1,15,5)`:

```
print(i,end=',')
```

- i. 3 ii. 4 iii. 1 iv. infinite

Q5. What will be the output of the following code.

```
Str="Computes"
```

```
print(Str.rstrip("rs"))
```

- i. Computer ii. Computers iii. Compute iv. compute

Q6. What will be the output of the following code.

```
Str="pyThOn"
```

```
print(Str.swapcase())
```

- i. PYtHoN ii. python iii. pythoN iv. PYTHON

Q7. Which of the following operation is supported in python with respect to tuple `t`?

- i) `t[1]=33` ii) `t.append(33)` iii) `t=t+t` iv) `t.sum()`

Q8. Which of the following is the correct statement for checking the presence of a key in the dictionary?

- i) `<key> in <dictionary_object>` ii) `<key> not in <dictionary_object>`
iii) `<key> found in <dictionary_object>` iv) `<key> exists in <dictionary_object>`

Q9. What will be the output of the following code?

```
v = 80
```

```
def display(n):
```

```
    global v
```

```
    v = 15
```

```
    if n%4==0:
```

```
        v += n
```

```
    else:
```

```
        v -= n
```

```
    print(v, end="#")
```

```
display(20)
```

```
print(v)
```

- i) 80#80 ii) 80#100 iii) 80#35 iv) 80#20

Q10. Which of the following is not a feature supported by python functions

- i) Modularity ii) Reusability iii) Simplicity iv) Data Hiding

Q11. The _____ are the files that store data pertaining to a specific application , for later use.

- i) Data File ii) Program File iii) Source Code iv) Program Code

Q12. Which of the following format of files can be created programmatically through python program?

- i) Data Files ii) Video Files iii) Media Files iv) Binary Files

Q13. A relational database consists of a collection of

- i) Tables (ii) Fields (iii) Records (iv) Keys

Q14. Which is the subset of SQL commands used to manipulate database structure including tables?

- (i) DDL (ii) DML (iii) Both (i) and (ii) (iv) None

Q15. Consider the following query

SELECT name FROM stu WHERE subject LIKE '_____ Computer Science';

Which one of the following has to be added into the blank space to select the subject which has Computer Science as its ending string?

- (i) \$ (ii) _ (iii) || (iv) %

Q16. In SQL, which command is used to SELECT only one copy of each set of duplicable rows

- (i) SELECT DISTINCT (ii) SELECT UNIQUE (iii) SELECT DIFFERENT (iv) All of the above

Q17. Read the statements:

Assertion (A) : A function can perform certain functionality

Reason (B) : A function must return a result value

- i) Statement A is correct
ii) Statement B is correct
iii) Statement A is correct but Statement B is not correct
iv) Both are incorrect

Q18. **Assertion (A)** The CSV files are like TEXT files and are comma separated value file.

Reason (R) The data stored in CSV files are separated by comma by default. Although the delimiter can be Changed.

- (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.

Section B

Q19. Find the error(s), underline the each correction(If any)

L1=[7,2,3,4]

L2=L1+2

L3=L1*2

L=L1.pop(7)

Q20. Find the output of the following program:

```
def calcresult():
```

```
    i=9
```

```
    while i>1:
```

```
        if (i%2==0):
```

```
            x=i%2
```

```
            i=i-1
```

```
        else:
```

```
            i=i-2
```

```
            x=i
```

```
    print(x**2)
```

OR

Differentiate between actual parameter(s) and a formal parameter(s) with a suitable example for each

Q21. What will be the output of the following Python code?

```
S="WELCOME"
```

```
def Change(T):
```

```
    T="HELLO"
```

```
    print(T, end='@')
```

```
Change(S)
```

```
print(S)
```

Q22. Trace the flow of execution for the following program:

```
1. def power(b,p):
```

```
2.     r=b**p
```

```
3.     return r
```

```
4
```

```
5 def calcSquare(a):
```

```
6     a= power(a,2)
```

```
7     return a
```

```
8
```

```
9 n=5
```

```
10 result=calcSquare(n)
```

```
11 print(result)
```

Q23. Differentiate between the terms Attribute and Domain in the context of Relational Data Model.

Q24. Write the difference between equi join and cross join.

OR

What are records ? What is the other name of records? What is the total number of records called?

Q25. Differentiate between COUNT() and COUNT(*) functions in SQL with appropriate example.

OR

Categorize the following commands a DDL and DML:

INSERT, UPDATE, ALTER, DROP

Section C

Q26. Julie has created a dictionary containing names and marks as key value pairs of 6 students. Write a program, with separate user defined functions to perform the following operations

- Insert the keys (name of the student) of the dictionary into a list, where the corresponding value (marks) is greater than 75.
- Delete the elements from the list one by one and display the content of the list.

Or

Alam has a list containing 10 integers. You need to help him to write a program with separate user defined functions to perform the following operations

- Insert only the even elements into the list
- Delete the elements from the list one by one and display the content of the list.

e.g If the sample content of the list is as follows

N=[12,13,34,56,21,79,98,22,35,38]

Sample Output of the code should be :

38 22 98 56 34 12

Q27. Write a function countEU() in python, which should read each character of a test file "IMP.TXT" should count and display the occurrence of alphabets E and U (including small case too)

Or

Write a Python program to find the longest word in the file "status.txt".

Q28. Explain the terms with example (a) Primary Key (b) Alternate Key (c) Foreign Key

Q29.

Consider the following table HOSPITAL. Write SQL commands for the following statements.

NAME	AGE	DEPARTMENT	DATEOFJOIN	CHARGES	GENDER
ARPIT	62	SURGERY	21/01/98	300	M
ZARINA	22	ENT	12/12/97	250	F
KAREEM	22	ORTHOPEDIC	19/02/98	200	M
ARUN	12	SURGERY	11/01/98	300	M
ZUBIN	30	ENT	12/01/98	250	M
KETAKI	16	ENT	24/02/98	250	F
ANKITA	29	CARDIOLOGY	20/02/98	800	F
ZAREEN	45	GYNECOLOGY	22/02/98	300	F
KUSH	19	CARDIOLOGY	13/01/98	800	M
SHILPA	23	NUCLEAR MEDICINE	21/02/98	400	F

- SELECT COUNT (DISTINCT Charges) FROM HOSPITAL;
- SELECT MIN (Age) FROM HOSPITAL WHERE Sex = "F";
- SELECT SUM (Charges) FROM HSOPITAL WHERE Department = "F";

Q.30 A department is considering to maintain their worker data using SQL to store the data. As a Database Administrator, Karan has decided that:

Name of the database –Department

Name of the table –Worker

The attributes of Worker are as follows:

WORKER_ID – CHARACTER OF SIZE 3

FIRST_NAME – CHARACTER OF SIZE 10

LAST_NAME – CHARACTER OF SIZE 10

SALARY – NUMERIC

JOINING_DATE – DATE

WORKER_ID	FIRST_NAME	LAST_NAME	SALARY	JOINING_DATE	DEPARTMENT
001	MONIKA	ARORA	100000	2014-02-20	HR
002	NIHARIKA	DIWAN	80000	2014-06-11	Admin
003	VISHAL	SINGHAL	300000	2014-02-20	HR
004	AMITABH	SINGH	500000	2014-02-20	Admin
005	VIVEK	BHATI	500000	2014-06-11	Admin
006	VIPUL	DIWAN	200000	2014-06-11	Account
007	SATISH	KUMAR	75000	2014-02-20	Account
008	MONIKA	CHAUHAN	80000	2014-04-11	Admin

Attempt any 3 of the following-

Karan wants to remove all the data from table WORKER from the database department.

- Which command will he use from the following:
 - DELETE FROM WORKER;
 - DROP TABLE WORKER;
 - DROP DATABASE Department;
 - DELETE * FROM WORKER;
- Identify the attribute best suitable to be declared as a primary key.
- Karan wants to increase the size of the FIRST_NAME column from 10 to 20 characters. Write an appropriate query to change the size.
- Write a query to display the structure of the table Worker, i.e. name of the attribute and their respective data types.

Section D

- Q31. a) What is the difference between 'wb' and 'ab' in context of binary file?
 b) Write a function update () to update the record in the binary file "employee", which consist of employee number, employee name and salary. The upation should be one on the basis of employee number entered by the user.
 c) Write a function delrecord() to delete the record from the binary f ile "employee". The record should be deleted on the basis of employee number.

OR

- a) What is the difference between text file and binary file.
 b) Write a function Addrec() to add records in a A binary file "salary.DAT" has structure [employee id, employee name, salary].
 c) Write a function countrec() in Python that would read contents of the file "salary.DAT" and display the details of those employee whose salary is above 20000.

Q32. Sonal, a student of class 12th, is learning CSV File Module in Python. During examination, she has been assigned an incomplete python code (shown below) to create a CSV file 'Customer.csv' (content shown below). Help her in completing the code which creates the desired CSV file.

Cus_No	Name	Address	Ph_No
11	Rohit	Mumbai	8567843243
12	Sonal	Delhi	9645342345

Incomplete Code

```

_____ csv #Statement 1
def Create_CSV():
    fw=open("Customer.csv","w")
    _____=csv.writer(fw) #Statement 2
    Cuswriter.writerow(["Cus_No","Name","Address","Ph_No"])
    n=int(input("Enter total number of Customer"))
    for i in range(n):
        Cusno=int(input("Enter Customer no. "))
        Name=input("Enter Name")
        Add=input("Enter Address")
        Ph_No=int(input("Enter Phone No. "))
        Rec=[Cusno,Name,Add,Ph_No]
        Cuswriter.writerow(_____) #Statement 3
    fw.close()
def Display_CSV():
    fr=open("_____", "r") #Statement 4
    Cusreader=csv.reader(fr)
    i=0
    for _____ in Cusreader: #Statement 5
        if i%2==0:
            print(rec[0],'\t',rec[1],'\t',rec[2],'\t',rec[3])
        else:
            pass
        i+=1
    fr.close()
Create_CSV()
Display_CSV()

```

- (i) Identify suitable code for the blank space in line marked as Statement-1.
 a) include b) add c) Import d) import
 (ii) Identify the missing code for the blank space in line marked as Statement-2.
 a) Customer b) reader c) Cuswriter d) writer
 (iii) Identify the argument name for the blank space in line marked as Statement-3?
 a) Row b) Rec c) row d) rec
 (iv) Identify the missing file name for the blank space in line marked as Statement-4?
 a) Customer b) Customer.csv c) Customer.txt d) Customer.dat
 (v) Identify the object name for the blank space in line marked as Statement-5?
 a) i b) Rec c) row d) rec

OR

- a) When do we use CSV file?
 b) Write a program using functions getInventory() to accept as many inventory records and store them to the csv file Inventory.csv storing records as per following structure
 PCode Invname Price Reorder
 c) Display() to display the detail that store in Inventory.csv

Q33. Write SQL command for (a) to (e) on the basis of tables INTERIORS and NEWONES.

Table: INTERIORS

NO	ITEMNAME	TYPE	DATEOFSTOCK	PRICE	DISCOUNT
1	Red rose	Double bed	23/02/02	32000	15
2	Soft touch	Baby cot	20/01/02	9000	10
3	Jerry's home	Baby cot	19/02/02	8500	10
4	Rough wood	Office Table	01/01/02	20000	20
5	Comfort zone	Double bed	12/01/02	15000	20
6	Jerry look	Baby cot	24/02/02	7000	19
7	Lion king	Office Table	20/02/02	16000	20
8	Royal tiger	Sofa	22/02/02	30000	25
9	Park sitting	Sofa	13/12/01	9000	15
10	Dine Paradise	Dining Table	19/02/02	11000	15

Table: NEWONES

NO	ITEMNAME	TYPE	DATEOFSTOCKS	PRICE	DISCOUNT
11	White wood	Double bed	23/03/03	20000	20
12	James 007	Sofa	20/02/03	15000	15
13	Tom look	Baby cot	21/02/13	7000	10

- (a) To show all information about the sofas from the **INTERIORS** table.
- (b) To list the **ITEMNAME** which are priced at more than 10,000 from the **INTERIORS** table.
- (c) To list **ITEMNAME** and **TYPE** of those items, in which **DATEOFSTOCK** is before 22/01/02 from the **INTERIORS** table in the descending order of **ITEMNAME**.
- (d) To display **ITEMNAME** and **DATEOFSTOCK** of those items, in which the discountPercentage is more than 15 from **INTERIORS** table.
- (e) To count the number of items, whose type is "Double Bed" from **INTERIOR** table.

Section E

Q34. Consider the table MOVIEDETAILS given below:

1+1+2

Table: MOVIEDETAILS

MOVIEID	TITLE	LANGUAGE	RATING	PLATFORM
M001	Minari	Korean	5	Netflix
M004	MGR Magan	Tamil	4	Hotstar
M010	Kaagaz	Hindi	3	Zee5
M011	Harry Potter and the Chamber of Secrets	English	4	Prime Video
M015	URI	Hindi	5	Zee5
M020	Avengers: Endgame	English	4	Hotstar

- (i) Identify the degree and cardinality of the table.
- (ii) Which field should be made the primary key ? Justify your answer
- (iii) Write statements to :
- (a) Delete the records whose language is "English"
- (b) Add a new record : "M050", "Palki", "Hindi", 5, "Amazon Prime".

OR (option for part (iii) only)

- (a) Add a new column "Day" of type integer
- (b) Remove the column "RATING"

Q35. The code below opens a binary file and writes records of the customer's roomed, Name and days of stay. Some of the codes are missing . Write codes to fill up blanks.:

1+1+2

```
import _____ Blank 1
hotellst=[]
cname=""
days=0.0
roomid=0
ans='y'
f=open("hotel.dat","wb")
print("Welcome to my Hotel")
while ans=='y':
    roomid=input("enter RoomId :")
    cname= input("Enter customer name:")
    days=float(input("Enter ays o stay:"))
    hotellst=[_____,_____,_____] # Blank 2
    _____ Blank 3
    ans=input("Continue(y/n)")
f.close()
```

- (i) Write the missing code for Blank 1.
- (ii) Write the missing code for Blank 2.
- (iii) Write the missing code for Blank 3



General Instructions :

- Attempt all questions. Give your answer according to question.
- Internal choice is given in some questions.
- Use both side of drawing sheet if necessary.
- All dimensions are in mm.
- Missing and mismatching dimension if any may be suitably assumed.
- Follow the SP: 46-2003 revised codes with first angle method of projection.

Q 1 to Q 8 – Answer the following multiple choice questions.

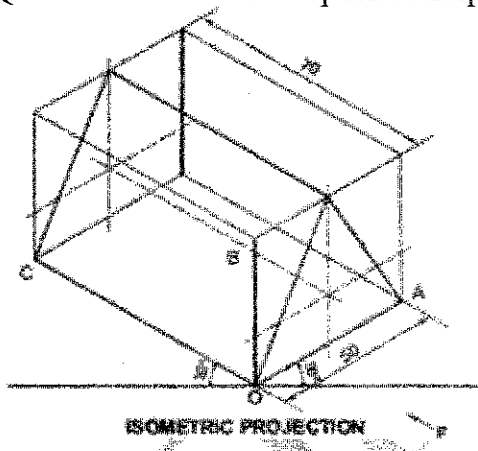
Print the correct choice on your drawing sheet:

(1×8=8)

- The truncated lower portion of a pyramid is called
(a) Prism (b) Frustum (c) Cube (d) Cone
- Name the type of line which is used for dimensioning.
(a) Small dash line (b) Chain line (c) Wavy line (d) Thin continuous line
- The angle between the flanks of a metric thread is
(a) 55° (b) 90° (c) 60° (d) 75°
- Which one among the following represents a permanent fastener?
(a) Nut (b) Rivet (c) screw (d) Bolt
- In isometric projection, the four centre method is used to construct
(a) an ellipse (b) an involute (c) a parabola (d) a hyperbola
- Which is the correct sequence in case of first angle method of projection?
(a) Observer, Plane of projection, Object
(b) Observer, Object, Plane of projection
(c) Object, Plane of projection, Observer
(d) Object, Observer, Plane of projection
- Name the projection with multiple views.
(a) Perspective projection (b) Isometric projection
(c) Orthographic projection (d) Oblique projection
- In isometric projection, the angle between any two isometric axis is
(a) 30° (b) 60° (c) 90° (d) 120°

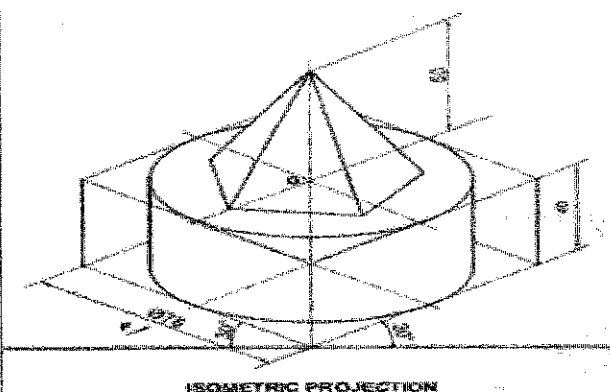
Q 9 to Q 14 – Select the correct option corresponding to the orientation of the given Isometric Projection: (1×6=6)

(9)



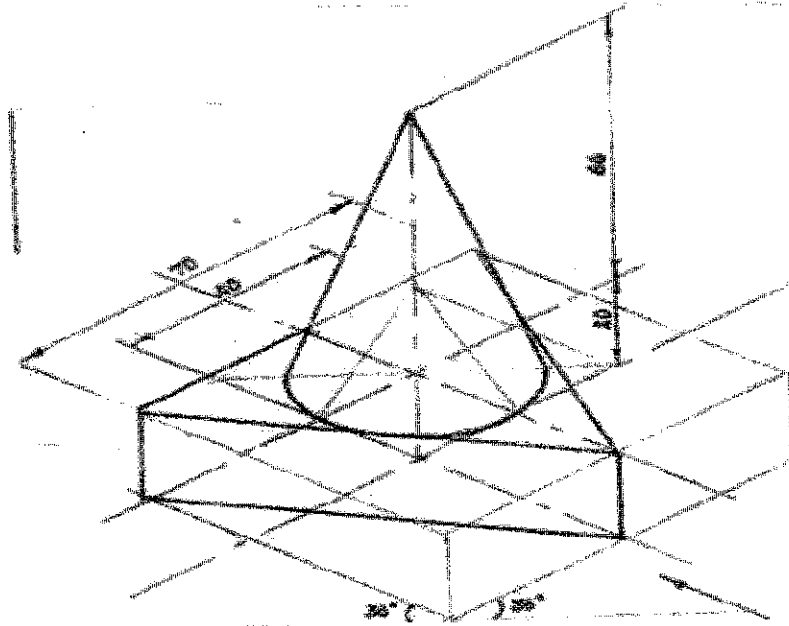
- The axis of the solid is perpendicular to the H.P.
- The axis of the solid is perpendicular to the V.P.
- The axis of the solid is parallel to the V.P.
- The axis of the solid is parallel to both the H.P. and V.P.

(10)



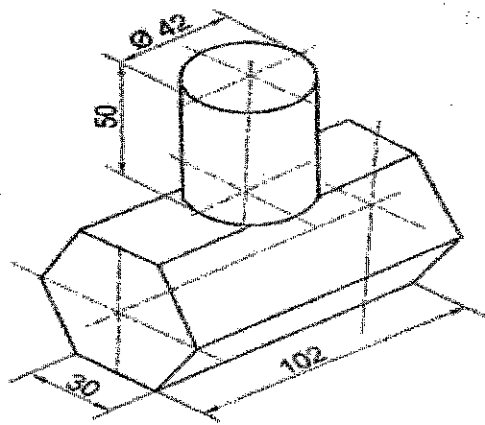
- The diameter of the cylinder is more than 76mm.
- The diameter of the cylinder is less than 76mm.
- The diameter of the cylinder is equal to 76mm.
- The diameter of the cylinder is double of 76mm

(11)



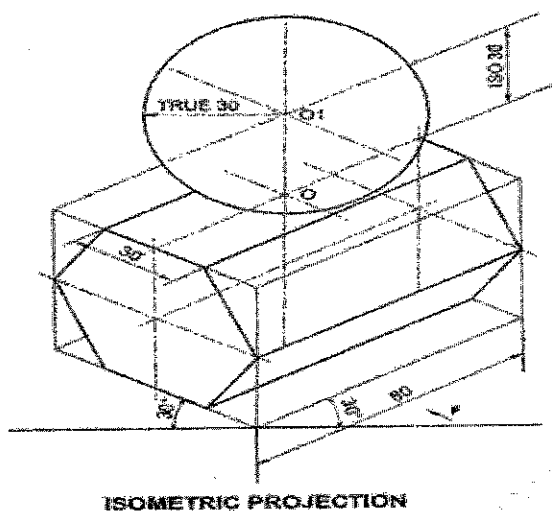
- (a) Both the solids are vertical & one of the base edges of the prism is parallel to V.P. & nearer to the observer.
- (b) Both the solids are vertical & one of the base edges of the prism is parallel to V.P. & away from the observer.
- (c) Both the solids are vertical & one of the base edges of the prism is perpendicular to the V.P.
- (d) Both the solids are vertical & two of the base edges of the prism are parallel to V.P.

(12)



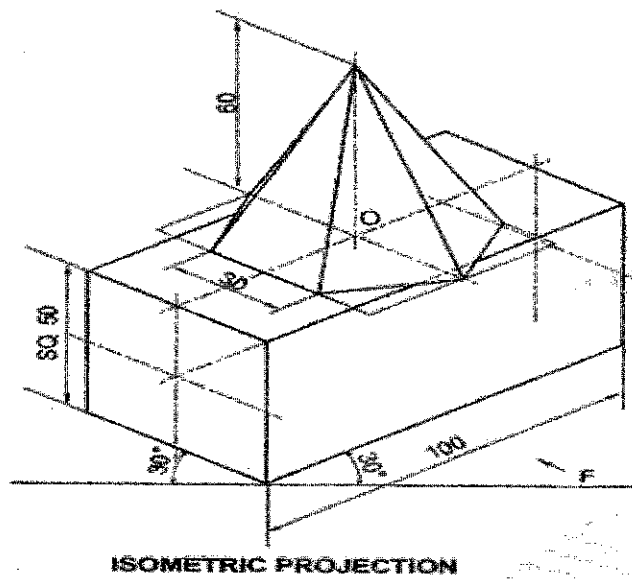
- (a) A vertical cylinder of base diameter 42 mm is placed centrally on a hexagonal prism which is resting on HP with one of its long edges on it.
- (b) A vertical cylinder of base diameter 42 mm is placed centrally on a pentagonal prism which is resting on HP with one of its long edges on it.
- (c) A vertical cylinder of base diameter 42 mm is placed centrally on a pentagonal prism which is resting on HP with one of its rectangular faces on it.
- (d) A vertical cylinder of base diameter 42 mm is placed centrally on a hexagonal prism which is resting on HP with one of its rectangular faces on it.

(13)



- (a) The isometric projection of a sphere is a circle whose diameter is equal to the isometric diameter of the sphere.
- (b) The isometric projection of a sphere is a circle whose diameter is equal to the true diameter of the sphere.
- (c) The isometric projection of a sphere is a circle whose diameter is equal to half of the true diameter of the sphere.
- (d) The isometric projection of a sphere is a circle whose diameter is equal to double of the true diameter of the sphere.

(14)



ISOMETRIC PROJECTION

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

TWO STATEMENTS ARE GIVEN – ONE LABELLED ASSERTION (A) AND THE OTHER LABELLED REASON (R). SELECT THE CORRECT ANSWER TO THE FOLLOWING QUESTIONS FROM THE CODES (a), (b), (c) AND (d) AS GIVEN BELOW:

- Both A and R are true and R is the correct explanation of A.
 - Both A and R are true and R is not the correct explanation of A.
 - A is true but R is false.
 - A is false and R is also false.
- (15) **Assertion (A) :** Knuckle thread is a modification of a square thread.
Reason (R) : Knuckle threads are used in railway carriage coupling screw (01)

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

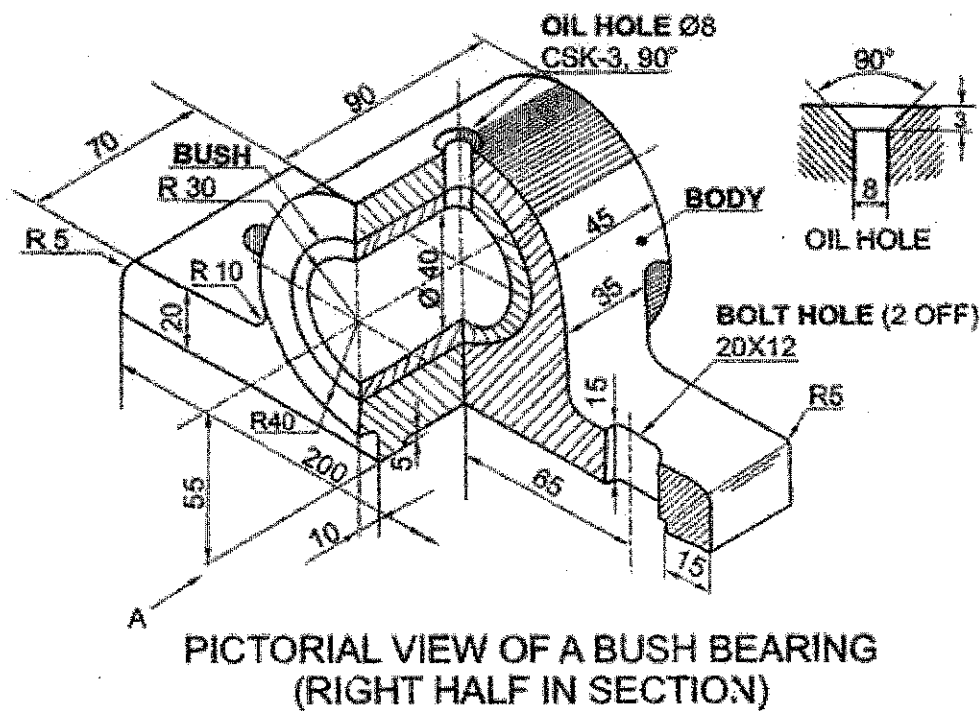
Two friends who are the students of class XII Engg. Graphics visited a workshop to repair a part of their robotic arm. Mechanic advised them to use nub-bolt combination in place of welding. While purchasing, they observed many nuts and bolts. They sent the following image to their Engg. Graphics teacher.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

- The way to represent external threads of a bolt of diameter 'd' in drawing is
 (a) Discontinuous '0.8d' circle (b) Discontinuous 'd' circle
 (c) Discontinuous '1.5d+3' circle (d) Discontinuous '1.5d' circle
- The way to represent internal threads of a nut of diameter 'd' in drawing is
 (a) Discontinuous '0.8d' circle (b) Discontinuous 'd' circle
 (c) Discontinuous '1.5d+3' circle (d) Discontinuous '1.5d' circle
- The thickness of a nut of diameter 'd' is
 (a) 0.8d (b) d (c) 1.5d+3 (d) 1.5d
- The maximum diameter of a washer which is used on a bolt of diameter 'd' is
 (a) 2d (b) d+1 (c) 1.5d+3 (d) 2d+3
- The diameter of a cylindrical rod on which thread profiles are formed is known as
 (a) Major diameter (b) Nominal diameter (c) Minor diameter (d) Chamfering diameter.
- (a) Construct an isometric scale which can convert length upto 100 mm. (05)
 (b) Draw the isometric projection of an inverted pentagonal pyramid of base side 50 mm and axis 80 mm, keeping one of its base side parallel to V.P. and nearer to the observer. (10)
- Draw to scale 1:1, the standard profile of B.S.W. thread (External) with the enlarged pitch = 50 mm. Give standard dimensions. (08)

OR

Draw to scale 1:1, the front view and side view of a Square headed bolt with diameter 25mm, keeping its axis parallel to both H.P. & V.P. Give standard dimensions. (08)

23. Figure-1 The isometric view of a Bushed Bearing is shown below. Draw the following views to scale 1:1:-
- a. Sectional front view, showing right half in section. (14)
- b. Top view, (07)
- Print title, draw symbol of projection and scale used. Give 8 important dimensions. (06)



OR

Figure-2 shows the assembly of a Bushed Bearing. Disassemble the parts correctly and then draw to scale 1 : 1 the following views of the following components. Keep the same position of both, Body and Bush, with respect to H.P. and V.P.

Print the titles of both and scale used. Draw the projection symbol. Give 6 important dimensions. (06)

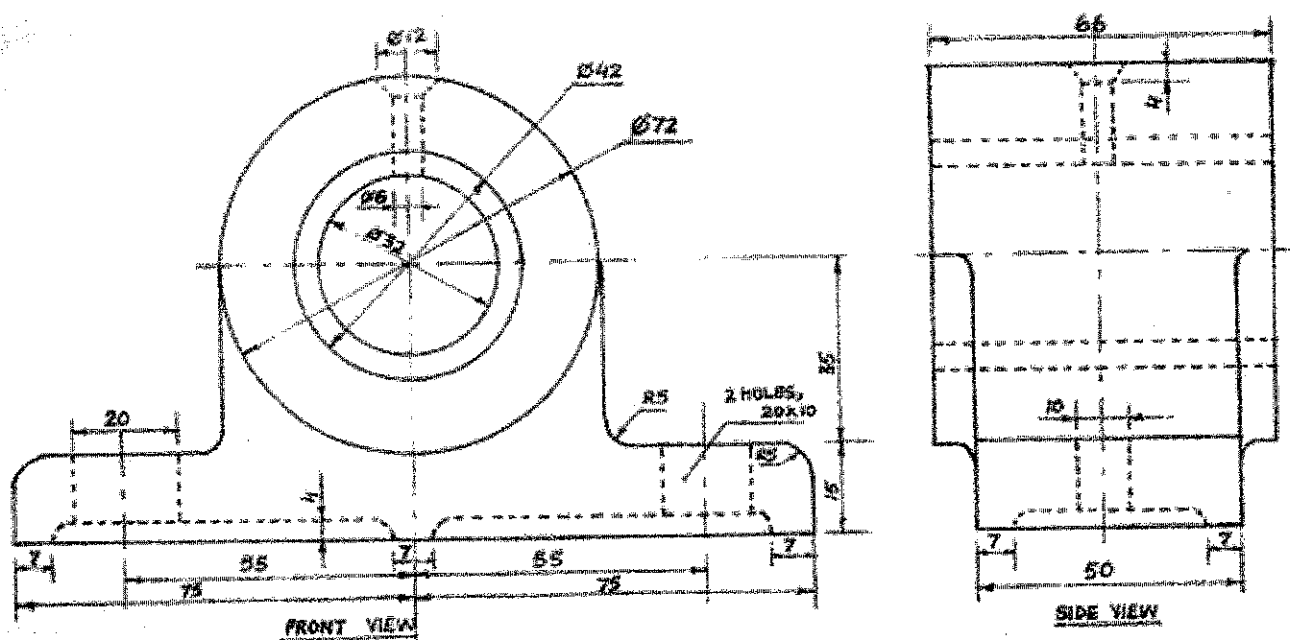


FIGURE - 2



Date : 03.10.2023

MIDTERM EXAMINATION - 2023

Time : 3 Hrs.

Class : XII

Subject : Informatics Practices

Max. Marks : 70

General Instructions:

1. This question paper contains five sections, sections A to E.
2. All questions are compulsory.
3. Section A has 18 questions carrying 01 mark each.
4. Section B has 05 very short type questions carrying 02 marks each.
5. Section C has 06 short-type questions carrying 03 marks each.
6. Section D has 02 short-type questions carrying 05 marks each.
7. Section E has 03 questions carrying 04 marks each. One internal choice is given in Q35 against part E only.
8. All programming questions are to be answered using Python Language only.

Section – A [18X1 = 18]

1. Which function is used to delete a row from Dataframe?
a. del() b. drop c. delete() d. dropcol()
2. Function to display the first n rows in the Dataframe is
a. head(n) b. tail(n) c. top(n) d. first(n)
3. To display the third element of a Series object S, you will write
a. S[:3] b. S[2] c. S[3] d. [S:2]
4. Identify the correct option to select first four rows and second to fourth columns from a dataframe 'Data':
a. print(Data.iloc[1:4, 2:4]) b. print(Data.iloc[1:5, 2:5])
c. print(Data[0:4, 1:4]) d. print(Data[1:4, 2:4])
5. To get the number of elements in a Dataframe, attribute is used.
a. size b. shape c. values d. ndim
6. Missing data in Pandas object is represented through:
a. Null b. None c. Missing d. NaN
7. Which command will be used to delete 3 and 5 rows of the dataframe? Assuming the dataframe name is DF.
a. DF.drop([2,4], asix = 0) b. DF.drop([2,4], axis = 1)
c. DF.drop([3,5], axis = 1) d. DF.drop([3,5], axis = 0)
8. What type of error is returned by the following statement?
a. Value error b. Syntax Error c. Name Error d. Logical Error
9. To create an empty Series object, you can use:
a. pd.Series(empty) b. pd.Series(np.NAN)
c. pd.Series() d. all of these
10. Is the function to save the graph.
a. savefig() b. savefigure() c. savegraph() d. savechart()
11. Which function lets you set the title of the plot?
a. label() b. plottitle() c. graphtitle() d. title()
12. To skip first 5 rows of CSV file, which argument will you give in read_csv() ?
a. skiprows = 5 b. skip_rows = 5 c. skip = 5 d. noread = 5
13. In pandas.read_sql(A,B), where A is
a. connection name b. table c. SQL query string d. database name
14. Which of the following is DDL command?
a. SELECT b. ALTER c. INSERT d. UPDATE
15. The cardinality property of a relation refers to the
a. number of database b. number of columns c. number of rows d. number of tables
16. What will be returned by the given query?
SELECT INSTR('INDIA', 'DI');
a. 2 b. 3 c. -2 d. -3
In the following questions, A statement of **Assertion (A)** is followed by a statement of **Reason (R)**, make the correct choice as
a. Both A and R are true and R is the correct explanation for A.
b. Both A and R are true and R is not the correct explanation for A.
c. A is true but R is false.
d. A is false and R is true.
17. **Assertion (A)** : Multiple row functions work with data of multiple rows at a time and returns a single output value.
Reasoning (R) : SUM(), AVG() MIN() etc. are examples of aggregate functions.

:: 2 ::

18. **Assertion (A) :** To use pandas library in a Python program, one must import it.
Reasoning (R) : To only alias name that can be used with the pandas library is pd.

Section – B

19. Predict the output of the given Python code: [2]
- ```
import pandas as pds
list1 = [-10,-20,-30]
ser = pds.Series(list1*2)
print(ser)
```

OR

Consider the given series TEST:

|        | MARKS |
|--------|-------|
| TERM-1 | 89    |
| TERM-2 | 76    |
| TERM-3 | 54    |
| TERM-4 | 34    |

Write the Python code to create the series from the given data.

20. Write Python code to display Histogram for the given data in a suitable format: [2]  
Ages = [12,34,43,23,56,54,43,32,78,76,78,65,54,43,35,36,37,97,88,33,44,55]
21. Explain the uses of legend() and grid() using in the line chart with a suitable example. [2]
22. Consider the given SQL string [2]

**“12#HK All the best for your exams”**

Write suitable SQL queries for the following:

- (i) Return the position of the first occurrence of the substring “the” in the given string.  
(ii) To extract last 5 characters from the string.
23. How char() type is different of varchar() in MySQL ? Explain. [2]

OR

Differentiate between DML and TCL command. Give suitable examples.

24. What is the difference between WHERE clause and HAVING class of MYSQL statement? How are they different? [2]

**Section – C**

25. Based on the **SQL table GAMES**, write suitable queries for the following: [3]

| Game_name    | Type    | Number | Prize_money |
|--------------|---------|--------|-------------|
| CHESS        | INDOOR  | 2      | 9000        |
| LAWN TENNIS  | OUTDOOR | 4      | 25000       |
| BADMINTON    | OUTDOOR | 2      | 12000       |
| TABLE TENNIS | INDOOR  | 4      | 8000        |

- (i) To display names of all games starting with ‘L’.  
(ii) To display names of all games in descending order of Prize\_money.  
(iii) To display sum of Prize\_money for each type of game.
26. Write a Python program to read data from ‘dps.csv’ where the separator is a “,” character. Display the data as Dataframe. [3]  
**Name, House, Adhar\_card , City**
27. Explain any three constraints use with create command in MYSQL with examples. [3]
28. Explain the use of order by clause of MYSQL with complete syntax and suitable example. [3]
29. Observe the following MYSQL table **INVENTORY** and answer the following questions: [3]

| ITEM | QTY | PRICE | DISC | PURCHASE_DATE |
|------|-----|-------|------|---------------|
|      |     |       |      |               |

- (i) Write a command to find the number of records of the given table.  
(ii) Write a command to find total quantities.  
(iii) Write a command to find for how many rows, purchase\_date is not entered.

OR

Observe the following MYSQL table **GARMENT** and answer the following questions: (one record is given as sample data).

| GCODE | GNAME  | SIZE | COLOR | PRICE |
|-------|--------|------|-------|-------|
| 111   | TShirt | M    | RED   | 1200  |

- (i) Write a command to find the number of TShirt in the table.  
(ii) Write a command to display details of Jeans whose price is in the range of Rs. 1000 to Rs. 3500 and the colour is ‘BLUE’.  
(iii) Write a command to find the total price of all ‘Trousers’ of ‘M’ size.

Contd...3

30. Given the following table: CLUB [3]

| COACHNAME | AGE | SPORTS   | DATOFAPP   | PAY  | SEX |
|-----------|-----|----------|------------|------|-----|
| KUKREJA   | 35  | KARATE   | 23/03/1996 | 2000 | M   |
| RAVINA    | 34  | SQUASH   | 20/01/1998 | 3000 | F   |
| KARAN     | 33  | SWIMMING | 13/01/1998 | 2500 | M   |
| TARUN     | 36  | SWIMMING | 19/02/1998 | 2500 | M   |

Give the output of the following SQL statements:

- (i) SELECT COUNT(DISTINCT SPORTS) FROM CLUB;
- (ii) SELECT AVG(PAY) FROM CLUB;
- (iii) SELECT SUM(PAY) FROM CLUB WHERE DATEOFAPP >='1996-01-01';

#### Section – D

31. Consider the table **STUDENT** as given below: (assume 20 records are entered in the table) [5]

| ADMNO   | NAME   | HOUSE  | ENG | PHY | CHEM | IP  |
|---------|--------|--------|-----|-----|------|-----|
| B-17871 | ASWITA | Yamuna | 90  | 98  | 89   | 100 |

Write SQL commands:

- (i) To create the above table.
- (ii) To insert a new record (data will be of your choice).
- (iii) To delete a record whose admno is 'B-17862'.
- (iv) To insert a new column MOBILE of integer type.
- (v) To increase marks of ENG of Kokila by 5 marks.

32. Write Python code to read data from MYSQL table **EMPLOYEE** and print name and salary of all employees in a Dataframe format. (database name is "DPS" and password is 'dpsbhlai')  
Structure of table Employee is as shown below: [5]

**NAME, SALARY, HRA, PF**

OR

Write Python code to read data from MYSQL table **LIBRARY** and store in a dataframe LIB. Add a new column amount (QtyxPrice) in LIB dataframe and print the updated content of dataframe LIB. (database name is "DPS" and password is 'dpsbhlai')

Structure of MySQL table LIBRARY is as shown below:

**BOOK\_NAME, AUTHOR, QTY, PRICE, YEAR\_OF\_PUBLICATION**

#### Section – E

33. Consider the following tables **EMPLOYEE** and **SALGRADE** and answer the following part of this question: [4]

| EMPLOYEE |       |              |        |               |
|----------|-------|--------------|--------|---------------|
| ECODE    | NAME  | DESIG        | SGRADE | DOJ           |
| 101      | Rajan | GM           | S2     | 23-March-2003 |
| 102      | Geeta | CEO          | S1     | 12-Feb- 2004  |
| 103      | Suman | EXECUTIVE    | S3     | 11-Sept-2005  |
| 105      | Pawan | HEAD-IT      | S2     | 19-Dec-2001   |
| 108      | Rahul | RECEPTIONIST | S3     | 23-June-2002  |

#### SALGRADE

| SGRADE | SALARY   | HRA    |
|--------|----------|--------|
| S1     | 1,20,000 | 18,000 |
| S2     | 96,000   | 12,000 |
| S3     | 43,000   | 6,000  |

Give the output of the following queries:

- (i) Select count(sgrade), sgrade from employee group by sgrade;
- (ii) Select max(salary), min(salary), avg(salary) from employee;
- (iii) Select name, salary from employee e, salgrade s where e.sgrade = s.sgrade;
- (iv) Select sgrade, salary+hra from salgrade where sgrade = 'S2';

34. Write a Python code to create a **horizontal Bar Chart** in a well-suitable format with different colours of bars for the given data: [4]

Medals = ['Gold', 'Silver', 'Bronze']

India = [20,25,15]

35. Predict the output of the following MYSQL commands: [4]

- (i) SELECT MOD(99,23);
- (ii) SELECT ROUND(67876.345,2);
- (iii) SEELCT POW(2,8);
- (iv) SELECT SUBSTR('Every artist was first an amateur',7,5);

OR

- (i) SELECT DAYOFYEAR('2023-12-03');
- (ii) SELECT TRUNCATE(12345.12345,-2);
- (iii) SELECT SQRT(256);
- (iv) SELECT CONCAT('RAKESH','KUMAR','PANDEY');



# DELHI PUBLIC SCHOOL, BHILAI

Date : 29.09.2023

MIDTERM EXAMINATION - 2023

Time : 3 Hrs.

Class : XII

Subject : Physical Education

Max. Marks : 70

## General Instructions :

- The question paper consists of 5 sections and 34 questions.
- All questions are compulsory.
- **Section A** consists of questions 1-18 carrying 1 mark each and is multiple choice questions.
- **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.
- **Section C** consists of questions 24-28 carrying 3 marks each and are short answer types and should not exceed 100-150 words. There is internal choice available.
- **Section D** consists of questions 29-31 carrying 4 marks each and are case studies. There is internal choice available.
- **Section E** consists of questions 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) OBJECTIVE TYPE QUESTIONS

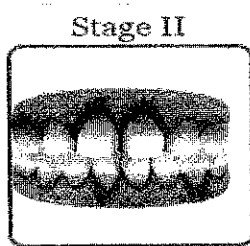
01. .... means giving instructions and guiding people in doing work.  
(a) Planning (b) Directing (c) Staffing (d) Organising
02. Publication of rules and regulations should be done:  
(a) Pre event (b) During event (c) Post event (d) Any time during the event
03. How many rounds will be there in league matches (staircase) in n=7?  
(a) 5 (b) 6 (c) 7 (d) 8
04. Intramural activities or tournament is  
(a) Inter house (b) Inter school (c) Inter state (d) Inter district
05. Rope skipping, walk on heels is suitable exercise for .....  
(a) Flat foot (b) Bow legs (c) Knock knees (d) Round shoulders
06. Generally menarche starts at:  
(a) 8 to 10 year (b) 17 to 19 year (c) 20 onwards (d) 12 to 14 year
07. Which of the following is not a condition of Female Athlete Traid?  
(a) Eating disorder (b) Amenorrhea (c) Lordosis (d) Osteoporosis
08. Ushtrasana pose refers to:  
(a) Camel pose (b) Cow pose (c) Fish pose (d) Cobra pose
09. If pancreas is not producing enough insulin it may lead to .....  
(a) Migraine (b) Obesity (c) Diabetes (d) Hypertension
10. Given below are the two statements labelled as Assertion (A) and Reason (R)  
**Assertion (A)** : In diabetes pancreas fails to produce insulin thus glucose level in blood increases.  
**Reason (R)** : Alcohol intake is one of the reason of diabetes.  
In the context of above two statements which one of the following is correct:  
(a) Both Assertion (A) and Reason (R) are true and Reason (R) is correct explanation of Assertion (A).  
(b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).  
(c) Assertion (A) is true but Reason (R) is false.  
(d) Assertion (A) is false but Reason (R) is true.
11. In Asthma patients suffer from :  
(a) Breathing problems (b) Chest tightness (c) Coughing (d) All of these
12. In which year were the first paralympic games were held:  
(a) 1960 (b) 1968 (c) 1896 (d) 776BC
13. Physical Activities develops a sense of  
(a) Self-esteem (b) Self-improvement (c) Self-confidence (d) All of these

Contd...2

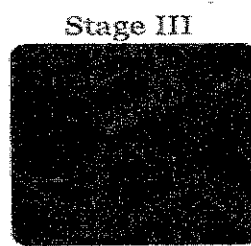
14. Which is the first step used in classification for paralympics?  
 (a) Medical Assessment (b) Functional Assessment (c) Observation (d) Competition
15. Given below are the two statements labelled as Assertion (A) and Reason (R):  
**Assertion (A)** : CWSN can learn, enjoy and benefit from participation in physical activities.  
**Reason (R)** : Physical training helps these people to develop their sports skills and provides incentives for personal growth.  
**In the context of above two statements which one of the following is correct:**  
 (a) Both Assertion (A) and Reason (R) are true and Reason (R) is 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.
16. In which of the following food groups "Sugar and jaggery" come under?  
 (a) Protective or regulatory foods (b) Energy giving foods  
 (c) Body building foods (d) Immunity booster's foods
17. Match the following:
- | A             | B            |
|---------------|--------------|
| (a) Vitamin A | (i) Gums     |
| (b) Vitamin B | (ii) Eyes    |
| (c) Vitamin C | (iii) Bones  |
| (d) Vitamin D | (iv) Muscles |
- (a) a – ii, b – iii, c – i, d – iv  
 (b) a – iii, b – iv, c – ii, d – i  
 (c) a – i, b – iii, c – iv, d – ii  
 (d) a – ii, b – iv, c – i, d – iii
18. Identify the symptoms of ..... diseases due to lackness of vitamins?



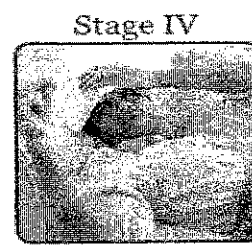
Lethargy &  
Fatigue



Bleeding  
in the gums



Anemia



High fever

- (a) Beri-Beri (b) Scurvy (c) Marasmus (d) Retarded growth

**SECTION – B (2x5=10)**  
**(Very Short Questions)**

19. Write a brief note on Sports day. (2)  
 20. Write any two Social benefits of women participation in sports. (1+1)  
 21. Enlist the Asana which are beneficial for back pain. (½ x4=2)  
 22. What do you understand by inclusion in education? (2)  
 23. What are the symptoms of food intolerance? (2)

**SECTION – C (3x5=15)**  
**(Short Questions)**

24. Explain the role of any three committees for the smooth functioning of the tournament. (1+1+1=3)  
 25. What do you mean by Knock Knees? Explain its corrective measures. (1+2=3)  
 26. Define Asthma. Write the procedure of Tadasana which helps in curing Asthma. (1+2=3)  
 27. Explain any three benefits of physical activities for children with special needs. (1+1+1=3)  
 28. Explain any three methods to control healthy body weight? (1+1+1=3)

OR

Discuss any three macro minerals and their importance.

(1+1+1=3)



**SECTION – D (4x3=12)**  
**(Caste Study Based Questions)**

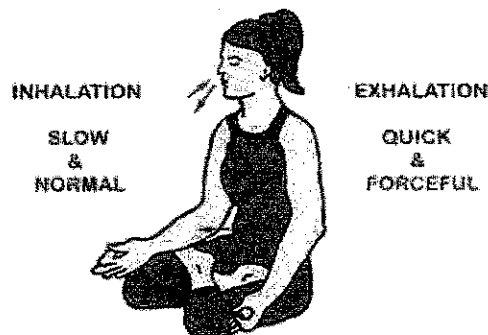
29. Mr. Singh is the sports teacher in well known Sr. Sec. School. He has to organise the sports day in his school with the help of other teachers and students. School uses a house system and competition is held between the houses. Sports teacher includes straight forward sprints, minor games, modify games etc. India celebrate National sports day every year.

**On the basis of above given fixture answer the following questions:**

(1x4=4)

- ..... day is called National sports day.
- ..... means the activities which are performed within the campus of an institution.
- ..... are also called inter-school competitions.
- ..... types of activities involved in school house competition.

30.



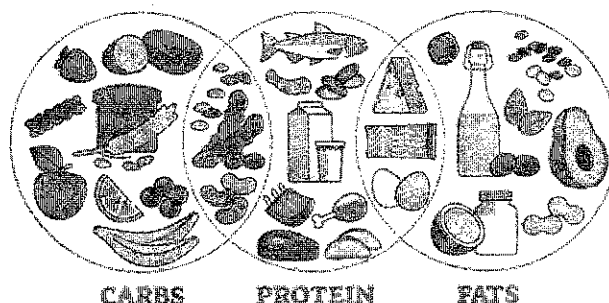
**On the basis of above given pose/picture answer the following:**

(1x4=4)

- Identify the above picture.
- Which types of asana are used to perform above shown activity?
- This type of activity is used to cure ..... Life style diseases.
- This activity should be avoided by people suffering from .....

31. On the basis of the picture given below answer the following questions:

(1x4=4)



- Carbs, proteins and Fats together make up ..... Nutrients.
- What are ratio of these in nutrients in balance diet?
- List of any two sources of simple carbohydrate.
- The basis structure of protein is a chain of .....

**OR**

Fat contain of .....

**SECTION – E (5x3=15)**  
**(Long Questions)**

- Mention all calculations and steps involved to draw a knock-out fixture of 19 teams. (5)
- What kind of exercise are suggested by WHO for childhood and adolescence? (5)
- Explain any five nutritive components of diet and their role in our diet. (5)

**OR**

What do you understand by non-nutritive components of diet? Explain them in details.

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**DELHI PUBLIC SCHOOL, BHILAI****Date : 12.09.2023****FIRST TERMINAL EXAMINATION - 2023****Time : 50 Minutes****Class : XII****Subject : General Knowledge****Max. Marks : 50**Name of the student: \_\_\_\_\_  
Invigilator's Signature \_\_\_\_\_Class/Sec. \_\_\_\_\_ Roll No. \_\_\_\_\_  
Marks obtained : \_\_\_\_\_/50**General Instructions :**

- All the questions are compulsory.
- There are 50 questions of 1 mark each.
- Write the correct option in the given box.

| Question                                                                                                                                                                                                         | Answer |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|
| (1) Which country was the host of the SAFF Championship in 2023?<br>(a) Nepal (b) India (c) Sri Lanka (d) Bangladesh                                                                                             |        |
| (2) The Chandrayan-3 was launched on<br>(a) 10 <sup>th</sup> July 2023 (b) 12 <sup>th</sup> July 2023 (c) 14 <sup>th</sup> July 2023 (d) 16 <sup>th</sup> July 2023                                              |        |
| (3) Which institution approved the '6G Vision Framework'?<br>(a) NASSCOM (b) NITI Aayog (c) ITU (d) IMF                                                                                                          |        |
| (4) Which country has officially re-entered the UNESCO?<br>(a) India (b) Russia (c) USA (d) Ukraine                                                                                                              |        |
| (5) Which country is organising the UNSC's first ever meeting on threats of Artificial Intelligence?<br>(a) India (b) Australia (c) UK (d) Germany                                                               |        |
| (6) Who is known as the 'Missile woman' of India?<br>(a) Tessy Thomas (b) Kalpana Chawla (c) Dr Indira Hinduja (d) Kamla Sohoni                                                                                  |        |
| (7) Which is the Emergency Response Support System (ERSS) pan-India number?<br>(a) 101 (b) 112 (c) 1200 (d) 1800                                                                                                 |        |
| (8) Who was the chief guest for Republic Day 2023?<br>(a) The Japanese president (b) The Israeli president<br>(c) The Korean president (d) The Egyptian president.                                               |        |
| (9) The focal length of mirror having a radius of curvature of 16cm is-<br>(a) 8m (b) 16cm (c) 8cm (d) 16m                                                                                                       |        |
| (10) The blue colour of sky is due to phenomenon of-<br>(a) dispersion (b) reflection (c) internal reflection (d) scattering                                                                                     |        |
| (11) The corrective lens to correct myopic eye is-<br>(a) convex lens (b) concave lens (c) plane lens (d) none of these                                                                                          |        |
| (12) The equivalent resistance of the resistors 10 ohm and 15 ohm connected in parallel is-<br>(a) 6 ohm (b) 1/6 ohm (c) 25 ohm (d) 5 ohm                                                                        |        |
| (13) What percentage of an iceberg is above water<br>(a) 10% (b) 50% (c) 70% (d) 90%                                                                                                                             |        |
| (14) In stomach, the hydrochloric acid creates an acidic medium which facilitates the action of the enzyme<br>(a) amylase (b) lipase (c) pepsin (d) cellulase                                                    |        |
| (15) The process of ultrafiltration during the formation of urine in kidneys take place in<br>(a) Bowman's capsule (b) proximal convoluted tubule<br>(c) Henle's loop (d) distal convoluted tubule               |        |
| (16) The only vein that carries oxygenated blood is<br>(a) hepatic vein (b) pulmonary vein (c) renal vein (d) vena cava                                                                                          |        |
| (17) Which of the following hormone requires iodine for its synthesis<br>(a) FSH (b) LH (c) Insulin (d) Thyroxine                                                                                                |        |
| (18) Which of the following is not controlled by the forebrain<br>(a) sneezing (b) coughing (c) movement of diaphragm (d) all of these                                                                           |        |
| (19) Chemical Formula of the compound used in Baking Soda is :<br>(a) CaOCl <sub>2</sub> (b) NaHCO <sub>3</sub> (c) Na <sub>2</sub> CO <sub>3</sub> .10H <sub>2</sub> O (d) CaSO <sub>4</sub> .2H <sub>2</sub> O |        |
| (20) If a solution turns red litmus paper blue. The pH of the solution is likely to be<br>(a) 1 (b) 4 (c) 5 (d) 10                                                                                               |        |
| (21) A phrase that combines two words that seem to be the opposite of each other, is called<br>(a) Alliteration (b) Hyperbole (c) Oxymoron (d) Onomatopoeia                                                      |        |
| (22) Who won the Pulitzer Prize (Biography) in 2023?<br>(a) Beverly Gage (b) Esi Edugyan (c) Tommy Orange (d) Joshua Kohen                                                                                       |        |
| (23) Who won the Nobel Prize for Literature in 2022?<br>(a) James Peebles (b) Akira Yoshino (c) Annie Ernaux (d) Sir Peter J. Ratcliffe                                                                          |        |

|                                                                                                                                                                                                                                                                                                                                              |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| (24) The Atacama desert is in<br>(a) Asia (b) South America (c) Africa (d) North America                                                                                                                                                                                                                                                     |  |
| (25) The Appalachian mountains are in<br>(a) South America (b) North America (c) Africa (d) Australia                                                                                                                                                                                                                                        |  |
| (26) The South-West trade winds cause which of the following in India.<br>(a) Winter rains in northwestern India (b) Winter Rains in Chennai<br>(c) Dust storm in the Desert (d) Monsoons                                                                                                                                                    |  |
| (27) The international date line passes through<br>(a) Indian ocean (b) Atlantic ocean (c) Pacific ocean (d) Arctic ocean                                                                                                                                                                                                                    |  |
| (28) Which of the Delhi Sultanate emperors is known as the 'Mad King'?<br>(a) Babar (b) Alauddin Khilji (c) Muhammad bin Tughlaq (d) Ibrahim Lodi                                                                                                                                                                                            |  |
| (29) Who was the founder of the 'Brahmo Samaj' ?<br>(a) Raja Ram Mohan Roy (b) Devendranath Tagore (c) Dayanand Saraswati (d) A O Hume                                                                                                                                                                                                       |  |
| (30) Who is writer of "Geet Govinda"<br>(a) Kabir (b) Kalidas (c) Ravidas (d) Jayadeva                                                                                                                                                                                                                                                       |  |
| (31) Where did Buddha give his first sermon?<br>(a) Sarnath (b) Bodhgaya (c) Sanchi (d) Kapilavastu                                                                                                                                                                                                                                          |  |
| (32) On which river is Dudhwa dam of Chhattisgarh built?<br>(a) Shivrath (b) Mahanadi (c) Indravati (d) Narmada                                                                                                                                                                                                                              |  |
| (33) Which dynasty constructed the Bhoramdeo temple?<br>(a) Pandu (b) Nagvansh (c) Nalvansh (d) Kalchuri Vansh                                                                                                                                                                                                                               |  |
| (34) The Chief Justice of Chhattisgarh is :<br>(a) Shri Ramesh Sinha (b) Shri R S Garg (c) Shri P R Ramachandra Menon (d) None of these                                                                                                                                                                                                      |  |
| (35) Which figure is there in the center of Chhattisgarh emblem<br>(a) Boramdev temple (b) Nandi (c) Chitrakoot falls (d) Lion capital of Ashoka pillar                                                                                                                                                                                      |  |
| (36) Which Pandvani singer from Chhattisgarh received the Padmashree award in 2023.<br>(a) Teejan Bai (b) Usha Barle (c) Ritu Verma (d) Brijlal Pardhi                                                                                                                                                                                       |  |
| (37) What is mined in the Bailadila range of Chattisgarh<br>(a) Dolomite (b) Iron Ore (c) Copper Ore (d) Bauxite                                                                                                                                                                                                                             |  |
| (38) Chattisgarh shares its border with how many States ?<br>(a) Three (b) Six (c) Seven (d) Five                                                                                                                                                                                                                                            |  |
| (39) Rameshbabu Pragnanandhaa is associated with which sports?<br>(a) Squash (b) Chess (c) Table-Tennis (d) Badminton                                                                                                                                                                                                                        |  |
| (40) Which entity is presently the Title sponsor for India's all domestic and international cricket matches at home?<br>(a) IDFC First Bank (b) Mastercard (c) JSW (d) Odisha State                                                                                                                                                          |  |
| (41) 'Rath Yatra' at Puri is celebrated in honour of which god?<br>(a) Lord Shiva (b) Lord Rama (c) Lord Jagannath (d) Lord Vishnu                                                                                                                                                                                                           |  |
| (42) In your school, Economics is taught in the first period while History is taught in the fifth period. English is taught between Economics and Mathematics. Science is taught before history but immediately after Mathematics. As a Science teacher, you teach during the<br>(a) 2nd period (b) 3rd period (c) 4th period (d) 5th period |  |
| (43) Pancha mahal is located in:<br>(a) Agra (b) Delhi (c) Fatehpur Sikri (d) Sikandarabad                                                                                                                                                                                                                                                   |  |
| (44) Naraka Chaturdashi comes before which Hindu festival?<br>(a) Deepavali (b) Holi (c) Janmashtami (d) Dussehra                                                                                                                                                                                                                            |  |
| (45) Kashi Vishwanath Temple is a<br>(a) Shiv Temple (b) Ram Temple (c) Krishna Temple (d) Ganesh Temple                                                                                                                                                                                                                                     |  |
| (46) In a certain code language,<br>'134' means 'good and tasty';<br>'478' means 'see good pictures' and<br>'729' means 'pictures are faint'.<br>Which of the following digits stands for 'see'?<br>(a) 9 (b) 2 (c) 1 (d) 8                                                                                                                  |  |
| (47) In a certain code language COMPUTER is written as RFUVQNPC. How will MEDICINE be written in that code language?<br>(a) MFEDJJOE (b) EOJDEJFM (c) MFEJDJOE (d) EOJDJEFM                                                                                                                                                                  |  |
| (48) If you write down all the numbers from 1 to 100, then how many times do you write 3 ?<br>(a) 11 (b) 18 (c) 20 (d) 21                                                                                                                                                                                                                    |  |
| (49) A tailor had a number of shirt pieces to cut from a roll of fabric. He cut each roll of equal length into 10 pieces. He cut at the rate of 45 cuts a minute. How many rolls would be cut in 24 minutes ?<br>(a) 32 rolls (b) 54 rolls (c) 108 rolls (d) 120 rolls                                                                       |  |
| (50) If you write down all the numbers from 1 to 100, then how many times do you write 3 ?<br>(a) 18 (b) 19 (c) 20 (d) 21                                                                                                                                                                                                                    |  |