Delhi Public School, Bhilai

Annual Examination 2025
(18 February 2025)

Class: 11
Maximum Marks: 80

Subject: English (Core)
Duration: 3 Hours

Student's Details

Name:_____ Section:___ Roll No.___

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) 26

I. Read the passage below carefully and answer the questions that follow it: ***10***

[1] What do we typically do when we find our children doing something we do not approve of? We become reactive parents. We criticize, complain, compare, and catastrophize. Often, we pepper our reactions with lectures and nagging sessions. When none of these strategies works, we end up screaming and doling out a punishment. And our children react with an equal measure of negativity: through rebellion, anger, resentment, and a not-bothered attitude.

[2] Not only do these reactive strategies fail, but they can also be quite damaging to our children's growth. According to a Zen Buddhist, each child has two types of seeds: negative seeds (of anger, despair, hatred, fear, and violence) and wholesome seeds (of love, happiness, compassion, and forgiveness). According to him, what blossoms depends on the seeds we nurture.

[3] Howard Glasser's Nurtured Heart Approach® (NHA), a parenting-cum-educational approach, is very much in keeping with the Zen Buddhist's approach mentioned above. I have used it with my own children and those I work with. It has worked wonders. It has three aspects: (a) refusing to energize negativity, (b) energizing the available positives relentlessly, and (c) resetting oneself.

[4] Let me explain how this works. The parents following this approach commit to saying or doing nothing which may fuel negativity in the child. Further, any time they feel that they are being reactive, they reset themselves and move away, refusing to energize the child negatively. However, they have to make sure that they do this without any anger or resentment.

[5] While on a mission to cut the negative, parents look for every opportunity to energize the positive in the child. This is done through persistently appreciating the goodness in the child in the smallest of the ways. If you observe something good, then the appreciation is not about saying "Excellent!" (which is really an empty praise and does not do much for him or her). Qualifying a praise, on the other hand, gives him or her direction and he or she begins to understand what qualities, values, and strengths are appreciated. These are also necessary ingredients for life skills and success.

[6] This approach is not merely about noticing when the child is good, but it is also about recognizing the child's worth at every step. It is about aligning his or her energy in believing that he or she has great qualities, which are identified and validated by the parents at every step. The basic belief is that when he or she is energized through regular strength-based recognition, he or she realizes that there is no point choosing negativity, as there are no pay-offs in it.

a. What seeds are referred to in ". . . what blossoms depends on the seeds we nurture"? 1

i. seasonal seeds ii. imported seeds

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ii. parental attitude iv. values and emotions

b. The author criticizes parents' _____ strategies. 1

c. What is children's response to their parents' reactive strategies? 1

d. The approach discussed in the passage can be classified as a _____

_____ 1

e. Select the option which can be called qualifying a praise: 1

i. " You can be more helpful."
ii. "You demonstrated patience while teaching your junior."
iii. " You are an excellent sportsperson."
iv. "You have to be amazing in your work."

f. A qualified praise is important because _____. 1

g. Challenge the following statement: 2

"Anger is part of the Nurtured Heart Approach®."

h. In forty words, describe the significance of the Nurtured Heart Approach® . 2

II. Read the passage below carefully and answer the questions that follow it: *8*

[1] If you cannot recall when you saw last a teenager reading a book, a newspaper, or a magazine; then you are not alone. According to the World Psychological Association, less than 20% of the teenagers read such a thing every day for pleasure. It underlines, further, that more than 80% use social media every day.

[2] "Compared with the earlier generations, the teenagers in the 2010s spent more time online and less time on traditional media, such as books, magazines, and television," said the researcher, "The time spent on digital media has made great inroads into that once spent on a book or television."

[3] Swaner and her colleagues analyzed the data collected from an ongoing study of a nationally representative sample of approximately fifty-thousand students of the eighth, tenth, and twelfth grades. They looked at the survey results from 1976 to 2016, representing more than one million teenagers. While the study started with only the twelfth graders in the1970s, the eighth and tenth graders were added in 1991.

[4] The use of digital media increased substantially from 2006 to 2016. Among the twelfth graders, Internet use during leisure time doubled (from one hour to two hours a day) during that period. It also increased 75% for the tenth graders and 68% for the eighth graders.

[5] "In the mid-2010s, the average twelfth grader spent approximately two hours a day texting, a little over two hours a day on the Internet (which included gaming), and a little less than two hours a day on social media. Thus, he or she spent a total of about six hours a day on just three digital media activities during his or her leisure time," said Swaner. In comparison, the average tenth-grader reported a total of five hours a day and the average eighth grader reported four hours a day on those three digital activities. Consequently, the time spent online is much higher than that spent on traditional media (such as printed books and newspapers).

[6] The decline in reading printed materials was especially steep. In the early 1990s, 33% of the tenth graders read newspapers almost every day. By 2016, that number was only 2%. In the late 1970s, 60% of the twelfth graders read a book or a magazine almost every day. By 2016, only 16% did so.

[7] There is no lack of intelligence among the young. However, owing to overdependence on digital media, they find it difficult to focus for long periods of time and to read long texts. Subsequently, they find it challenging to understand complex issues and develop critical thinking skills.

a. Does the following statement agree with the information given in paragraph 1 ?

Most of the teenagers are passionate readers. 1

Select from the following:

TRUE (if the statement agrees with the information given in the passage)
FALSE (if the statement does not agree with the information given in the passage)
NOT GIVEN (if there is no information about this in the passage)

b. The research seems to have been done in order to collect information about _____ _____. 1

i. only reading choices of teenagers with the passage of time
ii. the digital incompetence of the young
iii. the speed of reading a text
iv. the decline in the time spent on traditional media

c. Complete the statement based on the following statement:

Books, newspapers, and television relate to _____ media. 1

d. While reading, the young face two _____, namely understanding complex issues and developing critical thinking skills. 1

e. Complete the given sentence by selecting the most appropriate option:

The concluding sentence of the text makes a clear case for _____, by listing it as a core competency for analysis and application. 1

i. following social media
ii. reading short texts
iii. building concentration
iv. developing constructive habits

f. The digital activities the twelfth graders indulge in are _____. 1

i. texting, gaming, television
ii. texting, gaming, social media
iii. newspaper, books, magazine
iv. television, books, gaming

g. With appropriate data, prove the substantial increase in the time spent online. 2

III. Read the passage below carefully and answer the questions that follow it: ***8***

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).

Taxonomy, the branch of biology that names and classifies species, arranges species into a hierarchy of broader groups (from *genus*, *family*, *order*, *class*, and *phylum*, to *kingdom*). A goal of this classification system is to reflect the evolutionary history of and relationships between organisms.

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.

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.

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.

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.

a. Make notes on the above passage, using an appropriate title and at least four commonly accepted abbreviations and symbols. Numbering and indentation must be clearly shown. 5

b. Write a summary of the passage in not more than fifty words. 3

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SECTION B

23

(Grammar and Creative Writing Skills)

IV. Answer* ANY SEVEN *of the following questions as directed: *7×1*

a. He will go there only when his school _____ him to.
(Use the correct form of the verb *permit*.)

b. It is high time you _____ something for your old parents.
(Use the correct form of the verb *do*.)

c. I wish I_____ like a bird.
(Use the correct form of the verb *fly*.)

d. Choose the correct clause to fill in the blank:

_____, you will not start this work.

i. Unless I tell you
ii. When I will not tell you
iii. If I did not tell you
iv. As I will tell you

e. Reorder the following sentences, then choose the correct option:
i. We should put a bell around its neck.
ii. It, therefore, easily catches one of us.
iii. We can, then, easily run for cover.
iv. The cat makes no noise when it comes.
v. We can, thus, hear the bell when it comes.

(1) ii, i, v, iii, iv (2) iv, ii, i, v, iii (3) iii, v, i, iv, ii (4) v, iii, iv, i, ii

f. Change the following active sentence into a passive one:

Why have you criticized the teacher?

g. Change the following passive sentence into an active one:

The Red Fort was not built by him.

h. Use indirect/reported speech for the following, assuming that it was said a week ago:

Sandeep [to Ravi]: When did you win this medal?

V. Answer* ONLY ONE *of the following: *1×3*

a. You are Pankaj Soni/Prakriti Soni, a student of class 11. You need a tutor for one of your subjects. Draft an advertisement to be published in the classified columns of *The Indian Express*. Do it in *not more than fifty words*.

b. You are the manager of the travel agency Poddar Travels, Harmu Road, Ranchi–834 002. Your agency is going to offer a couple the following package for a tour of Kerala: five nights and six days for ₹ 1, 25, 000. For that, draft an advertisement to be published in the classified columns of *The Times of India*. Do it in *not more than fifty words*.

VI. Answer* ONLY ONE *of the following: *1×3*

a. You are Sumit Prakash/Sunidhi Prakash, a copywriter. You have been asked by the NGO Resilient Women to design a poster on International Women's Day (8 March), highlighting women's importance in society and the need to change (in various ways) the traditional attitude towards them. Design it in *not more than fifty words*.

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b. You are Chirag Mehta/Ragini Mehta, a student of Durant Public School, Bhilai. You have been asked to design a poster on e-waste for public awareness about it, highlighting its hazardous nature and the right way of disposing of it. Design it in *not more than fifty words*.

VII. Answer* ONLY ONE *of the following: ***1×5***

a. You are Rohit Basu, the founder of the NGO Smiling Children. You have been invited by a school to deliver a speech on the orphans of Bhilai. Write it in 120–150 words. You may include the following points:

- mostly traumatized childhood
- a lack of an education
- working as child labourers for their survival, some getting misguided
- suggestions for the betterment of their condition

b. You are Raman Manjhi/Ruchi Manjhi. You are the author of the famous book *Fighting Corruption*. You have been invited to deliver a speech on corruption in India. Write it in 120–150 words. You may include the following points:

- corruption in the public sector
- corruption in the private sector
- some well-known corruption cases
- ways to fight corruption

VIII. Answer* ONLY ONE *of the following: ***1×5***

a. You are Rohit Mishra/Ramya Mishra, a student of Vision Public School, Ambikapur. You are going to represent your school in an interschool debate. The motion of the debate is "There should be no internal assessments in schools." Write your speech *for* or *against* it in 120–150 words. You may include the following points:

FOR THE MOTION

internal assessments done seeing students' convenience, lack of unnecessary pressure on students, teachers' better understanding of their students, any injustice in an external assessment can be compensated for, etc.

AGAINST THE MOTION

favouritism, undue penalizing of some very good students, teachers' competence, etc.

b. You are Sampat Sharan/Sarala Sharan, a student of Bhagat Singh Public School, Korba. You are going to represent your school in an interschool debate. The motion of the debate is "School education should be only in the children's mother tongues." Write your speech *for* or *against* it in 120–150 words. You may include the following points:

FOR THE MOTION

most of the children's difficulty in learning languages other than their mother tongues, children's understanding better in their mother tongues, children's proper psychological development, etc.

AGAINST THE MOTION

too many mother tongues, the problem of getting textbooks, the problem of employing too many teachers, etc.

SECTION C 31

(LITERATURE)

IX. Attempt* ONLY ONE *of the following extracts: *3×1*

A. Read the following extract and answer the questions:

The seed I spent or sown it where
The land is his and none of mine?
We speak like strangers, there's no sign
Of understanding in the air.
This child is built to my design
Yet what he loves I cannot share.
["Father to Son"]

a. The word *land* in the second line is used as a/an _____.

i. metaphor ii. hyperbole iii. pun iv. alliteration

b. They are compared to strangers because _____.

c. In the line "This child is built to my design," *design* means_____.

B. Read the following extract and answer the questions:

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

a. The above lines show the final stage of the geographical phenomenon called the _____.

i. carbon cycle ii. water cycle iii. nitrogen cycle iv. human cycle

b. In the speaker's absence, the earth has _____.

c. What is the "origin" the speaker refers to, in geographical terms?

X. Attempt* ONLY ONE *of the following extracts: *3×1*

A. Read the following extract and answer the questions:

The book did not go into a blow-by-blow account of the battle itself. Rather, it elaborated in detail its consequences for the power struggle in India. Gangadharpant read through the account avidly. The style of writing was unmistakably his, yet he was reading the account for the first time!
["The Adventure"]

a. What is the name of the battle?

b. A blow-by-blow account means _____.

c. Gangadharpant is there to prepare for his _____ presidential address.

i. [one] hundredth ii. tenth iii. first iv. [one] thousandth

B. Read the following extract and answer the questions:

I didn't think he was from those parts because he was wearing a windcheater and metal-rimmed spectacles of a Western style. He was Tibetan, he told me, but worked in Beijing at the Chinese Academy of

Social Sciences, in the Institute of Ethnic Literature. I assumed he was on some sort of fieldwork. ["Silk Road"]

a. What is the Tibetan's name?

b. The Tibetan is going to _____ for his "fieldwork."

c. One similarity between the two people is that they are both _____.

i. practising Buddhists ii. academics iii. engineers iv. architects

XI. Attempt* ONLY ONE *of the following extracts: ***4×1***

A. Read the following extract and answer the questions:

A desperate sense of defeat pressed on him, a raging hopelessness. He felt the midwife watching him in stark consternation, while there, pressed back against the wall where she had all the time remained—her hand pressed to her throat, uttering no sound, her eyes burning upon him—was the old woman. ["Birth"]

a. A desperate sense of defeat pressed on him because _____.

b. The midwife was watching him in stark consternation because _____.

c. The author of the lesson from which the extract is taken is _____.

i. Margo Minco ii. J. B. Priestley iii. A. J. Cronin iv. Vikram Seth

d. What is the name of the person who is referred to as "He"?

B. Read the following extract and answer the questions:

No doubt about it at all. Who's the better for being spoilt—grown man, lad or girl? Nobody. You think it does 'em good when you run after them all the time, take their orders as if you were the servant in the house, stay at home every night while they go out enjoying themselves? ["Mother's Day"]

a. By "No doubt about it at all," the speaker means _____.

b. Who is the "grown man"?

c. Name the person who takes orders.

d. The speaker of the above lines is _____.

XII. Write each answer in 40–50 words: ***2×3***

a. Answer *only one* of the following questions:

i. How did Kawaguchi and Sven Hedin react when they saw Lake Manasarovar? ["Silk Road"]

ii. How did the grandmother react to the education imparted to the boy in the city? ["The Portrait of a Lady"]

b. Answer *only one* of the following questions:

i. How can you say that the speaker in the poem "Childhood" is rational?

ii. How does the speaker in the poem " A Photograph" view human life and nature?

XIII. Answer* ONLY ONE *question in 40–50 words: ***1×3***

a. Why do the principles of *laissez faire* seem to be established well in Melon City?

b. What are Aram's views on stealing?

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XIV. Answer* ONLY ONE *of the following questions in 120–150 words: ***1×6***

a. How does Jayant Narlikar try to explore the nature of reality in "The Adventure."

b. Analyze how "We're Not Afraid to Die . . . If We Can Be All Together" teaches optimism and courage for survival.

XV. Answer* ONLY ONE *of the following questions in 120–150 words: ***1×6***

a. You are Suraj Nayak/Shruti Nayak. You have read the play "Mother's Day." You admire the character of Mrs. Fitzgerald. Record your feelings in your diary. You may begin this way:

Day
Date

Dear Diary

"Mother's Day" is the best play I have read. The character of Mrs. Fitzgerald . . . .

Name

b. "But now I didn't want to remember it any more." In the light of this statement, analyze the character of Mrs. S.'s daughter.

DELHI PUBLIC SCHOOL, BHILAI

Date : 03.03.2025 **ANNUAL EXAMINATION 2024-25** **Time : 3 Hrs.**

Class : XI **SUBJECT : MATHEMATICS (041)** **Max. Marks : 80**

Name : _____ **Roll No.** _____

General Instructions:

1. This question paper contains **five sections** A, B, C, D and E. Each section is compulsory.
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 types 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

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

1 In a town of 840 persons, 450 persons read Hindi 300 read English and 200 read both. Then the number of persons who read neither is

(A) 210 (B) 290 (C) 180 (D) 260

2 If $[x]^2 - 5[x] + 6 = 0$, *where* $[.]$ *denote the greatest integer function, then*

(A) $x \in [3,4]$ (B) $x \in (2,3]$ (C) $x \in [2,3]$ (D) $x \in [2,4)$

3 The range of the function f given by f(x) = 2 - $|x - 5|$ is

(A) $(-\infty, 1]$ (B) $(-\infty, 2]$ (C) $(-\infty, -2]$ (D) $(-\infty, 2)$

4 The value of $\sin 20^0 \sin 40^0 \sin 60^0 \sin 80^0$ is

(A) $-\frac{5}{16}$ (B) $\frac{5}{16}$ (C) $-\frac{3}{16}$ (D) $\frac{3}{16}$

5 The value of $\tan 75^0 - \cot 75^0$ is equal to

(A) $2\sqrt{3}$ (B) $2 + \sqrt{3}$ (C) $2 - \sqrt{3}$ (D) 2

6 The value of $\sin^2 24^0 - \sin^2 6^0$ is

(A) $\frac{\sqrt{5}+1}{4}$ (B) $\frac{\sqrt{5}+1}{8}$ (C) $\frac{\sqrt{5}-1}{8}$ (D) $\frac{\sqrt{5}+1}{8}$

7 $1 + i + i^2 + \ldots + i^{2n}$ is

(A) positive (B) negative (C) 0 (D) can't be determined

8 If x > 0, then $\frac{1}{x}$ is

(A) < 0 (B) ≤ (C) > 0 (D) ≥ 0

9 If out of 10 points in a plane, no three are in the same line except five points which are collinear, then the number of lines that can be formed joining the points is

(A) 36 (B) 35 (C) 45 (D) 46

10 If the coefficients of x^7 and x^8 in $\left(2 + \frac{x}{3}\right)^n$ are equal, then n is

(A) 56 (B) 55 (C) 45 (D) 15

11 The largest coefficient in the expansion of $(1 + x)^{100}$ is

(A) $^{100}C_{51}$ (B) $^{100}C_{50}$ (C) $^{100}C_{100}$ (D) $^{50}C_{50}$

12 If the sum of n terms of an A.P. is given by $S_n = 8n + 9n^2$, then the common difference of the A.P. is

(A) 9 (B) 8 (C) 16 (D) 18

13 The distance of the point P(-1, 5) from the line 3x + 4y + 8 = 0 is

(A) -5 (B) 25 (C) 5 (D) can't be determined

Contd...2

14 Slope of a line which cuts off intercepts of equal lengths on the axes is
(A) 1 (B) -1 (C) both a and b (D) none of these

15 If e and e' are eccentricities of hyperbola and conjugate hyperbola, then $\frac{1}{e^2}+\frac{1}{e'^2}$ is
(A) -1 (B) 1 (C) 0 (D) none of these

16 What is the locus of a point for which y = 0 and z = 0?
(A) Equation of x-axis (B) Equation of y-axis
(C) Equation of z-axis (D) none of these

17 Variance of the data 2, 4, 5, 6, 8, 17 is 23.33. Then variance of 4, 8, 10, 12, 16, 34 is
(A) 93.32 (B) 25.33 (C) 46.66 (D) 48.66

18 If $\frac{x^n-3^n}{x-3}=108$, then the value of n is
(A) 4 (B) 3 (C) 0 (D) -4

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

19 **Assertion (A) :** Physical significance of first derivative is instantaneous rate of change of one variable with respect to other.
Reason (R) : $\frac{d}{dx}\sqrt{x}=\frac{1}{\sqrt{x}}$

20 **Assertion (A) :** $\lim_{x\to 0}\frac{1-\cos x}{x^2}=\frac{1}{2}$
Reason (R) : $\lim_{x\to 0}\frac{\sin x}{x}=1$

SECTION – B

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

21 Let A = {1, 2, 3,… , 14}. Define a relation R from A to A by R = {(x, y): 3x – y = 0, where x, y ∈ A}. Write down its domain, codomain and range.

22 Find the point on y-axis which is at a distance $\sqrt{10}$ from the point (1, 2, 3).

OR

Find the ratio in which the line segment joining the points (2, 4, 5) and (3, 5, -4) is divided by the XZ-plane.

23 Events E and F are such that P (not E or not F) = 0.25, state whether E and F are mutually exclusive.

OR

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

24 If $y = x^{100}+x^{99}+x^{98}+\cdots+x^2+x+1$, *then find* $\frac{dy}{dx}$ *at* $x = 1$.

25 Find the limit: $\lim_{x\to 2}\frac{x^3-2x^2}{x^2-5x+6}$

SECTION C

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

26 Draw the Venn diagram to illustrate the following relationship among sets E, M and U, where E is the set of students studying English in a school, M is the set of students studying Mathematics in the same school, U is the set of all students in that school.
(i) All the students who study Mathematics study English, but some students who study English do not study Mathematics.
(ii) Some of the student's study mathematics but do not study English, some of the students English but do not study Mathematics, and some study both.

Contd…3

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

OR

Prove that $\cos 2x \cos\frac{x}{2} - \cos\frac{9x}{2}\cos 3x = \sin 5x \sin\frac{5x}{2}$

28 If $(x + iy)^3 = u + iv$, then show that $\frac{u}{x} + \frac{v}{y} = 4(x^2 - y^2)$.

29 Using Binomial theorem, prove that $7^n - 6n$ always leaves remainder 1 when divided by 36.

OR

Find the coefficient of a^4 in the product $(1 + 2a)^4(2 - a)^3$ using Binomial theorem.

30 Show that the path of a moving point such that its distance from two lines $3x - 2y = 5$ and $3x + 2y = 5$ are equal is a straight line.

31 A man running a race course notes that the sum of the distances from the two flag posts from him is always 10 m and the distance between the flag posts is 8 m. Find the equation of the posts traced by the man.

SECTION – D

(All questions are compulsory.

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

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

OR

Find the value of $\left(1 + \cos\frac{\pi}{8}\right)\left(1 + \cos\frac{3\pi}{8}\right)\left(1 + \cos\frac{5\pi}{8}\right)\left(1 + \cos\frac{7\pi}{8}\right)$.

33 A manufacturer has 600 litres of 12% solution of acid. How many litres of a 30% acid solution must be added to it so that acid content in the resulting mixture will be more than 15% but less than 18%?

OR

Solve the following system of inequalities graphically:
$x + 2y \leq 10, x + y \geq 1, x - y \leq 0, x \geq 0, y \geq 0$

34 Find the sum to n terms of the sequence 2, 22, 222, 2222, …,

35 Calculate Mean, Variance and Standard Deviation for the following continuous frequency distribution

Class Interval	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80	80 – 90	90 – 100
Frequency	3	7	12	15	8	3	2

SECTION – E

(CASE BASED)

(All questions are compulsory.

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

36 A Mathematics teacher wants to test students of his class, so he gave a word "MENTAL" to the students and asked the following:

(i) How many different words (with or without meaning) can be formed using 4 letters of the given word?

(ii) How many different words (with or without meaning) can be formed using all the letters of the given word?

(iii) If all letters of the word MENTAL are written as in a dictionary, what will be the rank of the word "MENTAL"?

OR

(iii) If all letters of the word MENTAL are written as in a dictionary, what will be the 119^{th} word?

37 Bhilai Nagar Nigam decided to form a committee of 2 persons to look after the cleanliness of the city from 2 men and 2 women.

Based on this information answer the following:

(i) What is the probability that the committee will have one man?

(ii) What is the probability that the committee will have two men?

(iii) What is the probability that the committee will have no man?

OR

(iii) What is the probability that the committee will have no woman?

38 Function is a special relation. For the function $f(x) = \sqrt{16 - x^2}$ find the following:

(i) Domain of the function. Justify your answer with proper steps.

(ii) Range of the function. Justify your answer with proper steps.

DELHI PUBLIC SCHOOL, BHILAI

Date : 03.03.2025 **ANNUAL EXAMINATION 2024-25** **Time : 3 Hrs.**

Class : XI **SUBJECT : APPLIED MATHEMATICS** **Max. Marks : 80**

Name : _____ **Roll No.** _____

GENERAL INSTRUCTIONS

1. This Question paper contains - five sections A, B, C, D and E. Each section is compulsory. However, there are internal choices in some questions.
2. Section A has 18 MCQ's and 02 Assertion-Reason based questions of 1 mark each.
3. Section B has 5 Very Short Answer (VSA)-type questions of 2 marks each.
4. Section C has 6 Short Answer (SA)-type questions of 3 marks each.
5. Section D has 4 Long Answer (LA)-type questions of 5 marks each.
6. Section E has 3 source based/case based/passage based/integrated units of assessment of 4 marks each with sub-parts.

SECTION – A

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

1. Three dice are thrown simultaneously. The probability of getting a total of atleast 5 is
(A) $\frac{5}{108}$ (B) $\frac{103}{108}$ (C) $\frac{7}{108}$ (D) $\frac{53}{54}$

2. Aditya scored the runs at an average of 64. He wanted it to be 66. This could have been achieved if he had scored 22 more runs in all his innings put together. How many innings has he played till now?
(A) 10 (B) 11 (C) 12 (D) 15

3. If $f(x) = x^3 - \frac{1}{x^3}$, then the value of $f(x) + f(\frac{1}{x})$ is
(A) 0 (B) $\frac{1}{2}$ (C) 2 (D) 1

4. In a class, 70 students wrote two tests, test I and test II. 50% of the students failed in test I and 40% of the students in test II. How many students passed in both the tests?
(A) 21 (B) 7 (C) 28 (D) 14

5. The binary number equivalent of the decimal number 781
(A) 1100001101 (B) 100000110111 (C) 11000001101 (D) 1100011010

6. If $y = \frac{1+\frac{1}{x^2}}{1-\frac{1}{x^2}}$, then $\frac{dy}{dx}$ is
(A) $-\frac{4x}{(x^2-1)^2}$ (B) $-\frac{4x}{x^2-1}$ (C) $\frac{1-x^2}{4x}$ (D) $\frac{4x}{x^2-1}$

7. The value of $\frac{log8-log2}{log32}$ is
(A) $-\frac{2}{5}$ (B) $\frac{1}{4}$ (C) $\frac{2}{5}$ (D) $\frac{1}{3}$

8. What sum will amount to ₹ 17640 in 2 years at 5% per annum compounded yearly?
(A) ₹ 15500 (B) ₹ 16500 (C) ₹ 15000 (D) ₹ 16000

9. The price assigned to different utilities determined by the government authorities is called
(A) Utility Bills (B) Fixed charge (C) Surcharge (D) Tariff rate

10. The number of 3 digit odd numbers, when repetition of digits is allowed is
(A) 450 (B) 360 (C) 400 (D) 420

11. The average of 100 numbers is 50. If one of the numbers which was 50 is replaced by 150, the new average is
(A) 50.5 (B) 51 (C) 51.5 (D) 52

12. The domain for which the functions defined by $f(x) = 6x^2 + 1$ and $g(x) = 11 - 7x$ are equal is
(A) $\{-1, \frac{2}{3}\}$ (B) $\{3, \frac{5}{6}\}$ (C) $\{-2, \frac{5}{6}\}$ (D) $\{2, \frac{2}{3}\}$

Contd...2

13. The decimal number equivalent to the binary number 100010001 is
(A) 438 (B) 751 (C) 273 (D) 249

14. $\lim_{x \to 2} \frac{\log(x-1)}{x-2}$ is equal to
(A) -1 (B) 0 (C) $\frac{1}{2}$ (D) 1

15. The product of 5 terms of G.P. whose 3rd term is 2 is
(A) 5^2 (B) 2^5 (C) 3^2 (D) 3^5

16. Total number of words formed by 3 vowels and 3 consonants taken from 5 vowels and 5 consonants is equal to
(A) 720 (B) 7200 (C) 72000 (D) 72

17. The difference of the compound interest on ₹ 1000 for 2 years at 4% per annum compounded yearly and compounded half-yearly is
(A) ₹ 0.79 (B) ₹ 0.80 (C) ₹ 0.83 (D) ₹ 0.96

18. The mean of 5 observations is 4.4 and variance is 8.24. If three of the 5 observations are 1, 2 and 6, then the remaining two observations are
(A) 9, 16 (B) 9, 4 (C) 81, 16 (D) 8, 4

ASSERTION REASON BASED QUESTIONS

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

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

19. **Assertion (A) :** $\lim_{x \to 0} \frac{e^{5x}-1}{x} = 1$.
Reason (R) : $\lim_{x \to 0} (1+x)^{\frac{1}{x}} = e$.

20. **Assertion (A) :** A coin is tossed twice, getting all heads and getting all tails are two mutually exclusive events.
Reason (R) : A die is rolled. Two events a prime number appears and an even number appears are independent.

SECTION – B

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

21. Solve for 'x': $(\sqrt[3]{4})^{2x+\frac{1}{2}} = \frac{1}{32}$.

22. A purse contains 4 silver and 5 copper coins. A second purse contains 3 silver and 7 copper coins. If a coin is taken out at random from one of the purses, what is the probability that it is a copper coin?

OR

If two dice are thrown simultaneously, find the probability of getting:
(i) a sum of 7 or 11.
(ii) a doublet or a total of 6.

23. What sum of money will amount to ₹ 3704.40 in 3 years at 5% compound interest?

24. Find the domain and range of $f(x) = \frac{1}{\sqrt{5-x}}$.

OR

Find the domain and range of the function $f(x) = 3 - |x - 2|$.

25. Compute $P(A/B)$ when $P(A) = \frac{1}{5}$, $P(B) = \frac{2}{5}$ and $P(A \cup B) = \frac{3}{5}$.

Contd...3

SECTION – C

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

26. In a frequency distribution, the coefficient of skewness based on quartiles is 0.5. If the sum of upper quartile and lower quartile is 100 and the median is 40, find the values of upper and lower quartiles.

27. Let U = {x : x ∈ N and x ≤ 8}, A = {x : $5 < x^2 < 50$} and B = {x : x is prime}. Using these,
(i) list the elements of A – B.
(ii) Verify De Morgan's laws.

OR

If A and B are two sets and U is the universal set such that $n(U) = 700$, $n(A) = 290$, $n(B) = 240$ and $n(A \cap B) = 110$, then find $n(A' \cap B')$.

28. Evaluate using log tables: $\sqrt{\frac{438.2 \times 98.56}{(51.3)^3}}$.

29. Rainwater which falls on a flat rectangular surface of length 6m and breadth 4m is transferred into a cylindrical vessel of internal radius 20cm. What will be the height of water in the cylindrical vessel if the rain fall is 1cm? (Take $\pi = 3.14$)

OR

The sides of a right–angled triangle containing the right angle are $'5x'\ cm$ and $(3x - 1)\ cm$. Calculate the length of the hypotenuse of the triangle if its area is $60cm^2$.

30. A man is known to speak the truth 3 times out of 5 times. He throws a die and reports that it is a number greater than 4. Find the probability that it is actually a number greater than 4.

OR

A bag contains one black and two white balls. A drawing from the bag consists of taking a ball from the bag and keeping it out if it is white but putting it back if it is black. Calculate the probabilities that
(i) the first drawing is a white ball.
(ii) the second drawing is a white ball.
(iii) the third drawing is a white ball.

31. Mr Saxena from Bhopal, M.P. has an electricity connection of $5kW$. He consumed 1264 units in one month. Calculate his electricity bill for that month. Tariff plan is given below:

No. of units (in kWh)	0 - 50	51 - 100	101 – 300	>300
Price per unit (in ₹)	4.05	4.95	6.30	6.50

Fixed charge = ₹ 250 per kW per month, Surcharge – Nil, Energy duty = ₹ 0.63 per unit.

SECTION – D

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

32. Find the mean, variance and standard deviation for the following frequency distribution:

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

33. (i) Find the equation of the circle when the end points of a diameter are $A(-2,3)$ and $B(3,-5)$.
(ii) Find the equation of the circle which passes through the point (2,4) and centre at the intersection of the lines $x - y = 4$ and $2x + 3y + 7 = 0$.

OR

(i) Find the equation of the parabola with vertex at the origin, passing through (5,2) and symmetric with respect to the y-axis.
(ii) If a parabolic reflector is 20cm in diameter and 5cm deep, find its focus.

34. (i) Find '*k*' so that $\lim_{x \to 2} f(x)$ may exist where $f(x) = \begin{cases} 4x - 5, x \leq 2 \\ x - k, x > 2 \end{cases}$.

(ii) A function is defined as $f(x) = \begin{cases} \frac{x^2 - x - 6}{x - 3}, & if\ x \neq 3 \\ 5, & if\ x = 3 \end{cases}$, show that f is continuous at $x = 3$.

Contd...4

35. (i) In how many ways can a student choose a programme of 5 courses if 9 courses are available and 2 courses are compulsory for every student.

(ii) If ${}^nC_4$, ${}^nC_5$ and ${}^nC_6$ are in A.P., find 'n'.

OR

(i) Find the value of 'n', if $\frac{1}{6!} + \frac{1}{7!} = \frac{n}{8!}$.

(ii) How many 4 – letter code words are possible using the first 10 letters of English alphabets if
(a) no letter can be repeated?
(b) letters can be repeated?

SECTION – E

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

36. **CASE STUDY – 1**

The concept of the derivative of a real valued function at a point is defined as the slope of the tangent to the curve at a given point on it. The derivative of a function $y = f(x)$ is written as $\frac{dy}{dx}$.

If we have two functions u and v in variable x, then the derivative of their product and quotient is as below:

If $y = uv$, then $y' = uv' + vu'$ and if $y = \frac{u}{v}$, then $y' = \frac{vu' + uv'}{v^2}$

Based on the above information evaluate the following:

(i) Find the derivative of $\frac{x^2-1}{x}$.

(ii) Find $f'(1)$, if $f(x) = (x^2 + 1)(x - 2)$.

(iii) If $y = \frac{e^x + e^{-x}}{e^x - e^{-x}}$, find $\frac{dy}{dx}$.

OR

Differentiate $y = (ax + b)(cx + d)^2$.

37. **CASE STUDY – 2**

A hiking trail follows a line $y = -\frac{3}{4}x + 7$, and a river nearby follows the line $y = \frac{4}{3}x - 2$.

(i) Prove that the two lines are perpendicular.
(ii) Find the point of intersection of the trail and the river.
(iii) Determine the equation of a line parallel to the hiking trail and passing through the point (2,3).

OR

Determine the equation of a line passing through the points $(-1,1)$ and $(2,-4)$, and check if it is perpendicular to the equation of the river.

38. **CASE STUDY – 3**

Given two positive numbers 'a' and 'b', we can insert a number G between them so that a, G, b are in GP. Such a number G is called the geometric mean of the numbers a and b. In other words, if a, G, b are in GP, $= \sqrt{ab}$. Similarly, we can insert any number of numbers between two given positive numbers such that the resulting sequence is a GP.

Based on the information answer the following questions:

(i) Insert 4 geometric means between 3 and 96.

(ii) If G is the geometric mean between a and b, show that $\frac{1}{G+a} + \frac{1}{G+b} = \frac{1}{G}$.

DELHI PUBLIC SCHOOL, BHILAI

Date : 24.02.2025 **ANNUAL EXAMINATION 2024-25** **Time : 3 Hrs.**

Class : XI **SUBJECT : PHYSICS** **Max. Marks : 70**

Name : _____ **Roll No.** _____

General Instructions :

- There are 33 questions in all. All questions are compulsory.
- This question paper has **five sections** : Section A, Section B, Section C, Section D and Section E.
- All the sections are compulsory.
- **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 question of five marks each.
- 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 question of Section E. You have attempt only one choices in such questions.

Section – A

Q.01 The force is given in terms of time $'t'$ and displacement $'x'$ by the equation $F = ACosBx + CSinDt$. The dimensional formula of $\frac{AD}{B}$ is . **(1)**

(A) M^0LT^{-1} (B) ML^2T^{-3} (C) MLT^{-2} (D) (A) $M^2L^2T^{-3}$

Q.02 A small toy starts moving from the positions rest under a constant acceleration. If it travels a distance of 10 m in t sec. the distance travelled by the toy in the next t sec will be: **(1)**

(A) 10 m (B) 20 m (C) 30 m (D) 40 m

Q.03 A body falling from rest describes distances S_1, S_2 and S_3 in the first, second and third second of its fall then the ratio $S_1 : S_2 : S_3$ is **(1)**

(A) 1 : 1 : 1 (B) 1 : 3 : 5 (C) 1 : 2 : 3 (D) 1 : 4 : 9

Q.04 No force is required for **(1)**

(A) An object moving in straight line with constant velocity.
(B) An object moving in circular motion.
(C) An object moving with constant acceleration.
(D) An object moving in elliptical path.

Q.05 In an inelastic collision, what is conserved? **(1)**

(A) kinetic energy (B) momentum (C) both (A) and (B) (D) neither (A) nor (B)

Q.06 Power can be expressed as : **(1)**

(A) $\vec{F}.\vec{v}$ (B) $\frac{1}{2}\vec{F}.\vec{v}$ (C) $\vec{F}.t$ (D) $\vec{F} \times \vec{v}$

Q.07 A particle of mass m moves with velocity v and collides with another particle at rest of equal mass. The velocity of second particle after the elastic collision is: **(1)**

(A) $2v$ (B) v (C) $-v$ (D) 0

Q.08 If a person standing on a rotating disc stretches out his hands the angular speed will **(1)**

(A) increase (B) decrease (C) remain same (D) none of these

Q.09 The distance between Sun and Earth is R. The duration of year if the distance between Sun and Earth becomes 3R will be: **(1)**

(A) $\sqrt{3}$ year (B) 3 year (C) 9 year (D) $3\sqrt{3}$ year

Q.10 Heat given to a body which raise its temperature by $1^{\circ}C$ is **(1)**

(A) water equivalent (B) temperature gradient
(C) thermal capacity (D) specific heat

Q.11 The SI unit of coefficient of viscosity is **(1)**

(A) Nm/s (B) Nm^2/s (C) $N/(m^2s^{-1})$ (D) Nms^2

Q.12 If the frequency of oscillation of pendulum in simple harmonic motion is n, then frequency of pendulum whose length becomes four times is **(1)**

(A) n (B) $n/2$ (C) $2n$ (D) $4n$

Contd...2

For Question 13 to 16, two statements are given – one labelled Assertion (A) another labelled Reason (R). Select the correct answer to these questions from the option as given below :

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

Q.13 **Assertion (A) :** The speedometer of an automobile measures the average speed of the automobile.
Reason (R) : Average velocity is equal to total distance divided by total time. **(1)**

Q.14 **Assertion (A) :** Surface tension decreases with increase in temperature.
Reason (R) : On increasing temperature, kinetic energy increases the intermolecular forces decrease. **(1)**

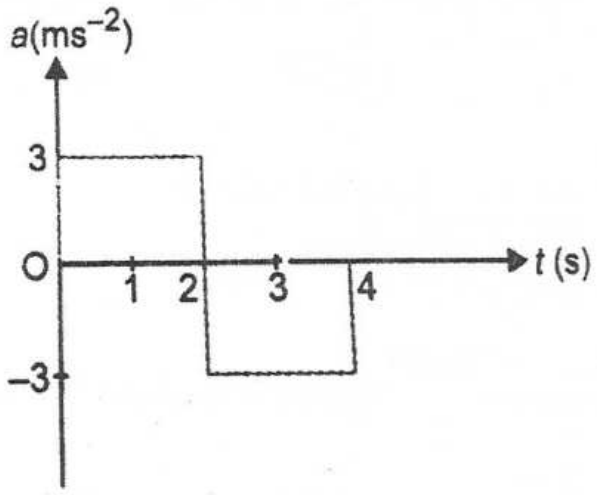
Q.15 **Assertion (A) :** Blue star is at higher temperature than red star,
Reason (R) : Wien's displacement law states that $T \propto \frac{1}{\lambda_m}$. **(1)**

Q.16 **Assertion (A) :** In adiabatic compression the internal energy and temperature of system get decreased.
Reason (R) : The adiabatic compression is slow process. **(1)**

Section – B

Q.17 If density ρ acceleration due to gravity g and frequency ν are the basic fundamental quantities, find the dimensions of force. **(2)**

Q.18 A particle starts from rest at $t = 0$ and undergoes an acceleration 'a' in m/s^2 with time 't' in second, which is shown here. Draw $V - t$ graph for the same and calculate displacement of particle. **(2)**



Q.19 It is easy to pull a lawn roller than to push it. Why? Explain your answer with suitable diagrams. **(2)**

Q.20 (a) Draw stress strain graph for a ductile metal wire.
(b) Define elastic limit and elastic fatigue. **(2)**

OR

Read each of the statement below carefully and state with reasons, if it is true or false.
(a) The modulus of elasticity of rubber is greater than that of steel.
(b) The stretching of spring is determined by its shear modulus.

Q.21 State assumptions of kinetic theory of gas **(4 points).** **(2)**

OR

(a) State law of equipartition of energy.
(b) Define degree of freedom.

Section – C

Q.22 A helicopter of mass 1000 kg rises with vertical acceleration of $15\ m/s^2$. The crew and passengers weigh 300 kg. Give the magnitude and direction of (a) force on the floor by the crew and passengers (b) action of the rotor of the helicopter on the surrounding air (c) force on helicopter due to surrounding air take $g = 10m/s^2$. **(3)**

OR

A body of mass 0.4 kg moving with a constant speed of $10\ m/s$ to the north is subject to a constant force of 8N directed towards the south for 30 sec. Take the instant the force is applied to be $t = 0$ and position of the body at that time to be $x = 0$ and predict its position at $t = 100\ sec$.

Contd...3

Q.23 (a) State work energy theorem.
(b) What are conservative forces. Write any two properties of conservative force. **(3)**

Q.24 What is centre of mass of body? Derive expression for centre of mass of two particle system. **(3)**

Q.25 (a) What is radius of gyration?
(b) Calculate the ratio of radii of gyration of a circular ring and a disc of same radius and same mass about the axis passing through their centres and perpendicular to their planes. **(3)**

Q.26 Define orbital speed of satellite and derive expression for it. If orbit is close to surface of earth, what is the relation between orbital speed and escape speed. **(3)**

Q.27 (a) Write two conditions for a process to be isothermal.
(b) What is specific heat of a system in an isothermal process? Show your answer mathematically.
(c) Write formula for work done in isothermal process. **(3)**

OR

(a) What is an adiabatic process ?
(b) Derive expression for work done in any adiabatic process.

Q.28 On the basis of kinetic theory, derive an expression for the pressure exerted by an ideal gas. **(3)**

Section – D

Read the following paragraphs and answer the questions that follow :

Q.29 **Simple harmonic motion :**

If a particle executes S.H.M. passes through its positive extream position ($x = +A$) at time $t = 0$ then

Displacement $x(t) = A\,Cos\omega t$

Velocity $V(t) = \frac{dx}{dt} = -\omega A\,Sin\,\omega t$

Acceleration $a(x) = \frac{dv}{dt} = -\omega^2 A\,Cos\omega t$

In S.H.M. the particle velocity is ahead of displacement in phase by $\pi/2$ rad, while acceleration is ahead of displacement by π rad.

(i) A body executing SHM with an angular frequency 2 rad/sec. Approximate velocity of the body at 20 m displacement when amplitude of motion is 60 m , is
(A) $90m/s$ (B) $118m/s$ (C) $113m/s$ (D) $131m/s$ **(1)**

(ii) The magnitude of acceleration of particle in SHM at the position of maximum displacement is
(A) zero (B) minimum (C) maximum (D) none **(1)**

(iii) The maximum velocity and maximum acceleration of a body moving in SHM are $2m/s$ and $4m/s^2$ respectively. Then angular velocity will be:
(A) $4\,rad/sec$ (B) $0.5\,rad/sec$ (C) $2\,rad/sec$ (D) $8\,rad/sec$ **(1)**

(iv) What is the phase difference between velocity and acceleration of a particle executing SHM ?
(A) $\frac{\pi}{4}$ (B) $\frac{\pi}{3}$ (C) $\frac{\pi}{2}$ (D) π **(1)**

OR

A particle is executing linear simple harmonic motion of amplitude A. What fraction of total energy is kinetic when the displacement is half the amplitude?
(A) $\frac{1}{4}$ (B) $\frac{1}{2\sqrt{2}}$ (C) $\frac{3}{4}$ (D) $\frac{1}{2}$

Q.30 **Friction –**

Whenever a body of moves or tends to more over the surface of another body, a force comes into play which acts parallel to the surface of contact and opposes the relative motion. This opposing force is called friction. Static friction Fs opposes the impending relative motion while the kinetic friction Fk opposes the actual relative motion. Static force of friction is self adjusting. The maximum value of static friction is called limiting friction.

Coefficient of limiting friction $\mu_s = \frac{f_s^{max}}{R}$

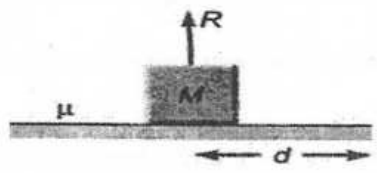
Coefficient of kinetic friction $\mu_k = \frac{f_k}{R}$

Coefficient of friction only depend on nature of surface.

(i) Dimensions of coefficient of friction
(A) MLT^{-2} (B) $M^{\circ}L^{\circ}T^{\circ}$ (C) M^2LT^{-2} (D) M^2LT **(1)**

Contd...4

(ii) If reaction is R and coefficient of friction is 'μ'. What is the work done against friction in moving a body by distance d?



(A) $\frac{\mu Rd}{4}$ (B) $2\mu Rd$ (C) μRd (D) $\frac{\mu Rd}{2}$ **(1)**

(iii) Arrange , μk and μr is ascending order, where μ_s is coefficient of static friction, μ_k is coefficient of kinetic friction and μ_r is coefficient of rolling friction.

(A) $\mu_s < \mu_k < \mu_r$ (B) $\mu_r < \mu_k < \mu_s$ (C) $\mu_k < \mu_r < \mu_s$ (D) $\mu_s < \mu_r < \mu_k$ **(1)**

(iv) A cubical block rests on an inclined plane of $\mu = \frac{1}{3}$. Determine the angle of repose.

(A) 30° (B) 45° (C) 60° (D) 90° **(1)**

OR

What will be the coefficient of friction between two given surfaces if their angle of friction is 30°

(A) $\frac{1}{\sqrt{3}}$ (B) $\frac{1}{\sqrt{2}}$ (C) $\frac{\sqrt{3}}{2}$ (D) 1

Section – E

Q.31 (a) State triangle law of vector addition. **(5)**

(b) When is the magnitude of $(\vec{A} + \vec{B})$ equal to magnitude $(\vec{A} - \vec{B})$? Explain.

(c) If both the speed and radius of circular path of body are doubled, how will the centripetal acceleration change? Explain.

(d) What is the angle between the two vectors $\vec{A} = 5\hat{\imath} + 5\hat{\jmath}$ and $\vec{B} = 5\hat{\imath} - 5\hat{\jmath}$?

(e) A body moves 6 m north, 8 m east and 10 m vertically upwards, what is its resultant displacement from initial position.

OR

A projectile is fired with a velocity u making an angle θ with the horizontal. Show that its trajectory is a parabola. Derive expression for

(a) time of flight (b) time of maximum height (c) maximum height.

Q.32 (a) Derive ascent formula a and show that height of liquid column in capillary is inversely proportional to the radius of tube. **(5)**

(b) What will be the angle of contact so that liquid neither rises nor falls in capillary?

(c) What makes water proof rain coat, water proof ?

OR

(a) State and prove Bernoulli's Principle.

(b) Write **two** limitations of Bernoulli's Principle.

(c) Two boats moving parallel, in some direction, close to each other get attracted. Why?

Q.33 (a) State Principle of superposition of wave. **(5)**

(b) What are stationary waves ?

(c) Write the formula for frequency of standing waves formed in stretched string and draw 1^{st} , 2^{nd} and 3^{rd} mode of vibration of stretched string.

(d) Give number of nodes and antinodes in 6^{th} mode of vibration of stretched string.

OR

(a) What are Beats?

(b) What is essential condition for formation of beat?

(c) What is beat frequency ?

(d) A turning fork of unknown frequency gives 4 beats with tuning fork of frequency 310Hz. Find unknown frequency.

DELHI PUBLIC SCHOOL, BHILAI

Date : 01.03.2025 **ANNUAL EXAMINATION 2024-25** **Time : 3 Hrs.**

Class : XI **Subject : Chemistry** **Max. Marks : 70**

Name : _____ **Roll No.** _____

General Instructions:

Read the following instructions carefully and follow them.

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

Section – A

(Questions no. 1 to 16 are Multiple Choice type Questions, carrying 1 mark each.)

1. Arrange the following in the order of increasing mass (Atomic mass of O=16, Cu=63 and N=14)
(I) One atom of oxygen (II) One atom of nitrogen
(III) 1×10^{-10} mole of oxygen (IV) 1×10^{-10} mole of copper (1)
(A) $II < I < III < IV$ (B) $I < II < III < IV$
(C) $III < II < IV < I$ (D) $IV < II < III < I$

2. The only series of lines appear in the visible region of the electromagnetic spectrum of hydrogen is: (1)
(A) Lyman series (B) Balmer series (C) Paschen series (D) Pfund series

3. Consider the isoelectronic species Na^+, Mg^{2+}, F^- and O^{2-}. The correct order of increasing length of their radii is: (1)
(A) $F^- < O^{2-} < Mg^{2+} < Na^+$ (B) $Mg^{2+} < Na^+ < F^- < O^{2-}$
(C) $O^{2-} < F^- < Na^+ < Mg^{2+}$ (D) $O^{2-} < F^- < Mg^{2+} < Na^+$

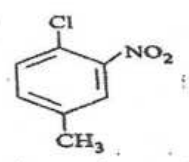
4. General outer electronic configuration of d-block elements is : (1)
(A) $(n-1)d^{1-10}ns^2$ (B) $(n+1)d^{1-10}ns^{0-2}$
(C) $(n-1)d^{1-10}ns^{0-2}$ (D) $(n-1)d^0ns^{0-2}$

5. Which of the following species has a trigonal planar geometry? (1)
(A) $BeCl_2$ (B) NO_3^- (C) NO_2^- (D) CO_2

6. What will be the conjugate bases for the following Bronsted acids? (1)
HF, H_2SO_4 and HCO_3
(A) F^-, SO_4^{2-} and CO_3^{2-} (B) F^-, SO_4^{2-} and H_2CO_3
(C) F^-, HSO_4^- and H_2CO_3 (D) F^-, HSO_4^- and CO_3^{2-}

7. Which of the following is an intensive property ? (1)
(A) Temperature (B) Viscosity (C) Surface tension (D) All the above

8. In which of the following, the oxidation number of chlorine is +5 ? (1)
(A) Cl^- (B) ClO^- (C) ClO_2^- (D) ClO_3^-

9. The IUPAC name for  is (1)

(A) 1 – Chloro – 2 – nitro – 4 – methyl benzene (B) 1 – Chloro – 4 – methyl – 2 – nitro benzene
(C) 2 – Chloro – 1 – nitro – 5 – methyl benzene (D) m – nitro – p – Chlorotoluene

10. Electrophiles are electron seeking species. Which of the following groups contain only electrophiles? (1)
(A) $AlCl_3$, SO_3, NO_2^+ (B) BF_3, NH_3, H_2O (C) NH_3, H_2O, $AlCl_3$ (D) H_2O, Cl^+, NH_3

11. But – 2 – yne on reduction with sodium in liquid NH_3 or sodamide forms: (1)
(A) cis – butene (B) butane (C) trans – butene (D) Both (A) and (B)

Contd...2

12. Iso propyl bromide on Wurtz reaction gives : (1)
(A) Hexane (B) 2, 3 – Dimethyl butane (C) Neohexane (D) Neobutane

In the question 13 to 16 two statements are given. One labelled as Assertion (A) and 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 correct and (R) is the correct explanation of Assertion (A).
(B) Both Assertion (A) and Reason (R) are correct, but Reason (R) is not the correct explanation of Assertion (A).
(C) Assertion (A) is correct, but Reason (R) is incorrect.
(D) Assertion (A) is incorrect, but Reason (R) is correct.

13. **Assertion (A) :** PCl_5 molecule has trigonal bipyramidal structure. (1)
Reason (R) : PCl_5 contains 5 electron pairs and its hybridization is sp_3d .

14. **Assertion (A) :** For a reaction $2NH_{3(g)} \rightarrow N_{2(g)}+3H_{2(g)}$ $\Delta H > \Delta U$. (1)
Reason (R) : Enthalpy change is always greater than the internal energy change.

15. **Assertion (A)** : The boiling point of trans – 2 – butene is higher than that of cis – isomer. (1)
Reason (R) : cis – 2 – butene has higher dipole moment than trans – 2 – butene.

16. **Assertion (A) :** Acidity of C – H bond decreases in the order $HC \equiv CH > CH_2 = CH_2 > CH_3CH_3$. (1)
Reason (R) : Acidity of C – H bond increases as the electronegativity of carbon to which it is attached increases.

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

17. Define Molarity. What will be the molarity of a solution which contains 5.85 g of $NaCl$ per 500 mL ?
$[Atomic\ mass\ Na = 23,\ and\ Cl = 35.5]$ (2)

18. Arrange the following set of compounds in order of their decreasing relative reactivity with an electrophile: (2)
(a) Chlorobenzene , 2 , 4 – Dinitrochlorobenzene , p – Nitrochlorobenzene.
(b) $p - H_3C - C_6H_4 - NO_2$, Toulene , $p - O_2N - C_6H_4 - NO_2$

19. (a) Write the conditions in terms of ΔH and ΔS when a reaction would be always spontaneous. (2)
(b) State Second Law of Thermodynamics.

20. (a) Arrange the following molecules in increasing order of oxidation number of Phosphorus (P) in them: (2)
$H_4P_2O_6$, $H_4P_2O_7$, $H_4P_2O_5$
(b) Identify the oxidant and reductant in the following reaction :
$$Cr_2\ O_7{}^{2-} + 3SO_2 + 2H^+ \rightarrow 2Cr^3 + 3SO_4{}^{2-} + H_2O$$

21. Consider structure I to VII and answer the following questions : (2)

(I) $CH_3 - CH_2 - CO - CH_3$

(II) $CH_3 - CH_2 - \underset{\displaystyle OH}{\underset{|}{CH}} - CH_2\,CH_3$

(III) $CH_3 - CH_2 - CH_2 - \underset{\displaystyle OH}{\underset{|}{CH}} - CH_3$

(IV) $CH_3 - CH_2 - CH_2 - CHO$

(v) $CH_3 - CH_2 - O - CH_2 - CH_3$

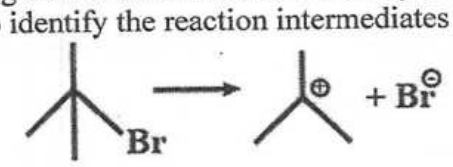
(VI) $CH_3 - O - CH_2 - CH_2 - CH_3$

(VII) $CH_3 - CH_2 - \underset{\displaystyle CH_3}{\underset{|}{\overset{\displaystyle OH}{\overset{|}{C}}}} - CH_3$

(a) Which of the above compound from pairs of metamers?
(b) Identify pairs of compounds which are functional group isomers.
(c) Identify the pairs of compounds that represent position isomerism
(d) Which of the above compounds form pair of chain isomers?

OR

Using curved arrow notation classify following bond cleavage to be homolysis or heterolysis.
Also identify the reaction intermediates formed.

(a) 

(b) $CH_3O - OCH_3 \rightarrow 2\ CH_3O^{\bullet}$

Contd...3

Section – C
**(This section contains 7 questions with internal choice is one question.
The following questions are short answer type and carry 3 marks each.)**

22. 50 Kg of $N_{2(g)}$ and 10 Kg of $H_{2(g)}$ are mixed to produce $NH_{3(g)}$, Calculate the amount of $NH_{3(g)}$ formed and identify the limiting reagent in this situation. (3)

23. (a) If $n = 5$, how many electrons can have $m = +1$? (3)
(b) Give the values of quantum numbers for the electron with highest energy in Sodium atom. (Atomic number of Na=11).
(c) Write electronic configuration of Copper with atomic number = 29.

24. Balance the following Redox reaction by ion – electron method in basic medium : (3)
$$MnO^-_{4(aq)} + Br^-_{(aq)} \rightarrow MnO_{2(s)} + BrO^-_{3(aq)}$$

25. At 473 K, equilibrium constant Kc for decomposition of PCl_5 is 8.3×10^{-3} . If decomposition reaction is $PCl_{5(g)} \rightleftarrows PCl_{3(g)} + Cl_{2(g)}$, $\Delta H^\circ = 124\ KJ/mol$ (3)
(a) Write an expression for Kc for the reaction.
(b) What is the relationship between Kc and Kp ?
(c) What is the value of Kc for the reverse reaction at same temperature?
(d) What would be the effect on Kc if (i) more PCL_5 is added (ii) temperature is increased?

OR

A mixture of 1.57 moles of N_2, 1.92 moles H_2 and 8.13 Moles of NH_3 is introduced into a 20 L reaction vessel at 500 K. At this temperature Kc for the reaction, $N_{2(g)} + 3H_{2(g)} \rightleftarrows 2NH_{3(g)}$ is 1.7×10^2 . Is this reaction at equilibrium ? If not what is the direction of the net reaction ?

26. (a) Although geometries of NH_3 and H_2O molecules are distorted tetrahederal, bond angle in water is less than that in NH_3. Discuss. (3)
(b) Why BeH_2 molecule has zero dipole moment although the $Be - H$ bonds are polar?

27. (a) Define Entropy. (3)
(b) For the reaction at $298\ K,\ 2A + B \rightarrow C,\ \Delta H = 400\ KJ\ mol^{-1}$ and $\Delta S = 0.2\ KJ\ K^{-1}\ mol^{-1}$.
At what temperature will the reaction become spontaneous considering ΔH and ΔS to be constant over the temperature range.

28. (a) Arrange the following in increasing order of acidity : (3)
$(CH_3)_2\ CHCOOH$, $CH_3\ CH_2COOH$, $(CH_3)_3\ C.COOH$
Define the electronic displacement which explains the correct order of acidity.
(b) Draw the resonance structure of C_6H_5OH along with the electron shift using curved arrow notations.

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

Read the passage carefully and answer the questions that follow :

29. It is observed that all elements give characteristic line spectra (emission spectra) which could not be explained on the basis of Rutherford's nuclear model of atom. In order to understand line spectrum, it is essential to understand the nature of light which in turn was explained first on the basis of 'Electromagnetic wave theory' and them by 'Plank's quantum theory'. Further, with the advent of Electromagnetic wave theory it was found that Rutherford's model suffered from a serious drawback. Hence a new model called Bohr's model of atom was put forward.

Based on above paragraph, answer the following questions :

(a) Write one basic difference between Electromagnetic wave theory and Plank's quantum theory. (1)
(b) What do you mean by photoelectric effect? (1)
(c) What is the frequency of light emitted when the electron in a Hydrogen atom undergoes transition from energy level $n = 4$ to an energy level $n = 2$? (2)

OR

The threshold frequency ν_0 for a metal is $1 \times 10^{14} S^{-1}$. Calculate kinetic energy of an electron emitted when a radiation of frequency, $\nu = 1 \times 10^{15} S^{-1}$ hits the metal.

Contd...4

30. To answer certain questions like, why do elements combine? How do elements combine ? Why only few combinations possible? etc., various theories have been proposed. The most important ones are Kossel-Lewis approach VSEPR theory and Molecular orbital theory. The VSEPR theory and concept of hybridization were used to explain the geometry of certain covalent molecules. The drawbacks of VSEPR theory were overcame by molecular orbital theory.

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

(a) Arrange the following covalent molecules in increasing order of their bond angle : (1)
CO_2 , SiH_4 , BCl_3 , NH_3

(b) On the basis of VSEPR; theory predict the names of geometries of ClF_3 and SF_4 . (1)

(c) Write the bond order and magnetic property of O_2^+ and O_2^{2-}. (2)

OR

Draw the molecular orbital diagram of C_2H_2 and C_2H_4 .

Section E

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

31. (a) Would you expect second electron gain enthalpy of O as positive, more negative or less negative than the first ? Justify your answer : (2+2+1=5)

(b) The increasing order of reactivity among group 1 element is $Li < Na < K < Rb < Cs$ whereas that among group 17 elements is $F > Cl > Br > I$. Explain.

(c) Assign the position of element having outer configuration $ns^2np^4 for\ n = 5$.

OR

(a) Explain, why the electron gain enthalpy of noble gases are zero while those of halogens are the highest in each period ?

(b) Among the elements B, Al, C and Si
(i) Which element has highest first ionisation enthalpy?
(ii) Which element has most metallic character?

(c) Write IUPAC name and symbol of an element with atomic number 117.

32. (a) The value of Kc for the reaction $2A \rightleftharpoons B + C$ is 2×10^{-3}. At a given time the composition of reaction mixture is $\{A\} = \{B\} = \{C\} = 3 \times 10^{-4} M$. In which direction the reaction will proceed. (2+2+1=5)

(b) Define pH. Calculate the pH of 0.001 M HCl solution assuming complete dissociation.

(c) What will be the effect of increasing pressure on the reaction $2H_{2(g)} + CO_{(g)} \rightleftharpoons CH_3OH_{(g)}$

OR

(a) What do you mean by conjugate acid-base pair? The ionization constant of HF at $298\ K$ is 6.8×10^{-4}. Calculate the ionization constant of the corresponding conjugate base

(b) Classify the following species into Lewis acids and Lewis bases : OH^- , H_2O , $AlCl_3$, NH_4^+

(c) Define Buffer solution.

33. (a) How will you get Toluene from Friedel Craft's alkylation ? Give a general 3 step mechanism of Friedel-Craft alkylation. (2+2+1=5)

(b) How will you convert benzene into
(i) p – nitro bromobenzene
(ii) Hexachlorobenzene

(c) Sodium salt of which acid will be needed for the preparation of propane? Write chemical equation for the reaction.

OR

(a) Write the IUPAC name of the product obtained by addition of $HBr\ to\ Propene$.
Give a general 3 step mechanism of this addition reaction.

(b) Write IUPAC names of the products obtained by ozonolysis of $2 - Ethyl\ but - 1 - ene$.

(c) What are two necessary conditions for any system to be aromatic ?

DELHI PUBLIC SCHOOL, BHILAI

DATE : 05 -03-2025 **ANNUAL EXAMINATION, 2025** **Time : 3 Hours**

CLASS : XI **BIOLOGY** **M.M : 70**

NAME : _____ **Roll No. _____**

General Instructions : Read the following instructions very carefully and strictly follow them :

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

Section A

1) Identify the correct sequence of taxonomical categories : 1
   (a) species → order → phylum → kingdom
   (b) Genus → species → order → kingdom
   (c) species → Genus → order → phylum
   (d) Genus → order → species → phylum
2) Difference between virus and viroid is 1
   (a) Absence of protein coat in viroid but present in virus.
   (b) Presence of lower weight RNA in virus but absent in viroid
   (c) Both A and B
   (d) None of the above
3) The family felidae includes 1
   (a) leopard (b) cat (c) tiger (d) all of these
4) Coralloid root occurs in 1
   (a) Selaginella (b) Cycas (c) Pinus (d) Moss
5) Casparian strips occur in 1
   (a) Cortex (b) Pericycle (c) Epidermis (d) Endodermis
6) In chondrichythes, claspers occur over 1
   (a) pelvic fins of male (b) pelvic fins of female
   (c) operculum in both sexes (d) around jaws
7) Infectious proteins are present in 1
   (a) Prions (b) viroids (c) satellite virus (d) gemini virus
8) The stage when chiasmata are observed is 1
   (a) Leptotene (b) Diplotene (c) Zygotene (d) Pachytene
9) Foolish seedling disease of rice led to the discovery of 1
   (a) 2-4D (b) IAA (c) GA (d) ABA
10) What is the important state of formation of glycoproteins and glycolipids in eukaryotic cells? 1
   (a) Peroxisomes (b) Golgi bodies (c) Polysomes (d) Mitochondria
11) What would be the cardiac output of a person having 72 heart beats per minute and a stroke volume of 50 ml 1
   (a) 360 ml (b) 3600 ml (c) 7200 ml (d) 8000 ml

PTO

12) Human adult vertebral formula is – 1

(a) $C_4T_8L_4S_8C_8$ (b) $C_7T_8L_5S_6C_7$ (c) $C_7T_{12}L_{12}S_1C_2$ (b) $C_7T_{12}L_5S_1C_1$

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

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

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

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

d) If A is false and R is true.

13) Assertion (A) : In opposite phyllotaxy, the leaves are borne on the opposite sides of a single node.
Reason (R) : Opposite phyllotaxy is seen in China Rose and Oleander 1

14) Assertion (A) : Light is rarely a limiting factor for photosynthesis in nature, except for plants in shade under the canopy in dense forests. 1

Reason (R) : Light saturation occurs at 10% of the total sunlight.

15) Assertion (A) : An apoenzyme requires a cofactor for its functioning. 1

Reason (R) : The cofactor may be organic compounds or inorganic ions.

16) Assertion (A) : In descending loop of Henle, urine is hypertonic while in ascending loop urine is hypotonic. 1

Reason (R) : Descending loop is impermeable to Na^+ while ascending loop is impermeable to water.

Section B

17) a) Why are gymnosperms called naked – seeded plants? 2

b) Name the gymnosperms that has Nitrogen fixing cyanobacteria in its specialized roots. Name its specialized roots.

18) a) What is parthenocarpic fruit? 2

b) How does the mesocarp of mango different from that of coconut, though they both are drupes?

19) a) Why are animals of Aschelminthes called round worms? 2

b) Why is the coelom in Ascaris described as pseudocoelom?

20) a) In a few fungi, during sexual reproduction, the two haploid cells do not immediately result in a diploid (2n) cell formation. Name this intervening condition and phase of the fungus. 2

b) Name two symbiotic associations of fungi.

21) Plant growth regulators have innumerable practical applications. Name the PGR you should use to : 2

a) Increase yield of sugarcane

b) Promote lateral shoot growth

c) Bolting in beet and cabbage

d) Induce fruit ripening

(OR)

Different substrates get oxidized during respiration. Respiratory quotient (RQ) indicates type of substrate is carbohydrate, fat or protein getting oxidized. RQ = A/B

a) What do A and B stand for?

b) What type of substrates have RQ of 1 or less than 1.

Section C

22) a) The spread of living pteridophytes is limited and restricted to narrow, geographical regions. Why? 3

b) Both liverworts and mosses are bryophytes, yet, there are differences between them. Bring out two differences between the two.

c) What are hydrocolloids? Name the hydrocolloid produced by (i) brown algae (ii) red algae respectively.

23) a) Write the function of nictating membrane and tympanum of frog. 3

b) Draw a neat labeled diagram of a male reproductive system of frog.

24) a) What is electron transport system (ETS) in plants? Where is it located in a mitochondria? 3

b) What is complex I and complex II respectively in the ETS of mitochondria?

c) What is complex IV in ETS of mitochondria? Mention its components.

25) a) Name the three layers of tissues which the adrenal cortex can be divided into from outer to inner side. 3
What common name is given to the hormone secreted by adrenal cortex?

b) Name the disease/disorder caused by :
(i) Excessive secretion of thyroid hormone in adults.
(ii) Insufficient amount of insulin secreted by pancreas.
(iii) Damage of adrenal cortex.

26) Pelvic girdle consists of two coxal bones. A coxal bone is made up of three bones.. 3

a) Name the three bones that forms the coxal bone.

b) What is pubic symphysis?

c) Name the points of articulation in pelvic and pectoral girdle.

27) Answer the following with reference to the anatomy of dicot root. 3

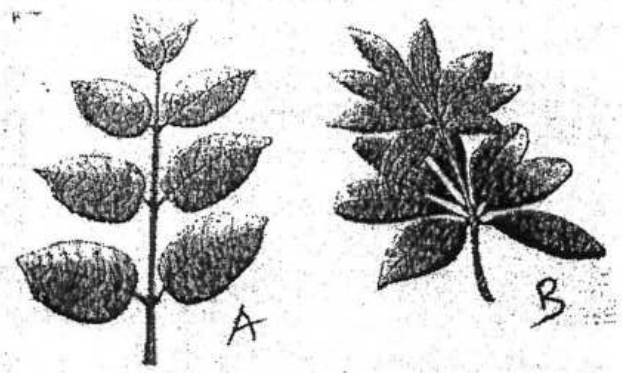
a) Where is pericycle located?

b) How are xylem vessels arranged?

c) Which type of cell constitute the cortex?

(OR)

Different types of phyllotaxy are shown in the given figure. Name the phyllotaxy shown in figure 'A' and figure 'B' and given one example of each. Define phyllotaxy.

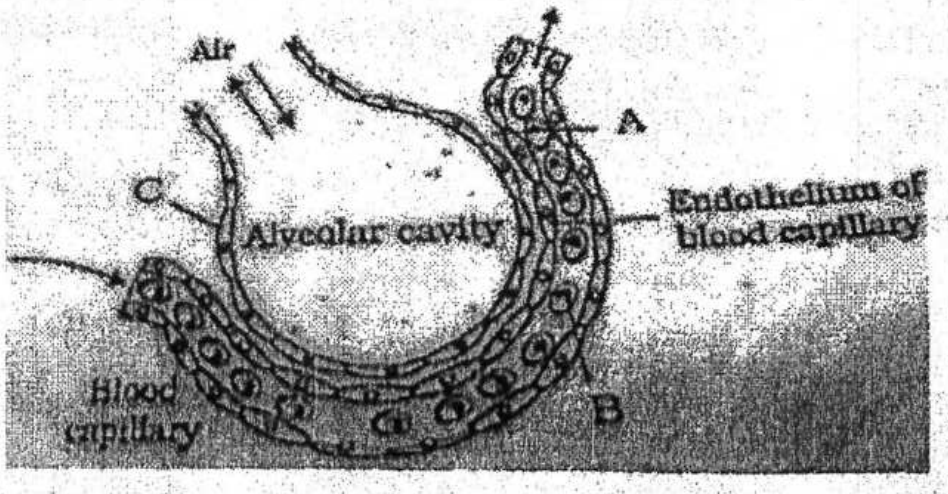


28) a) What is chiasmata? What is its significance? 3

b) Define crossing over. Name the enzyme involved in crossing over.

Section D

29) 4



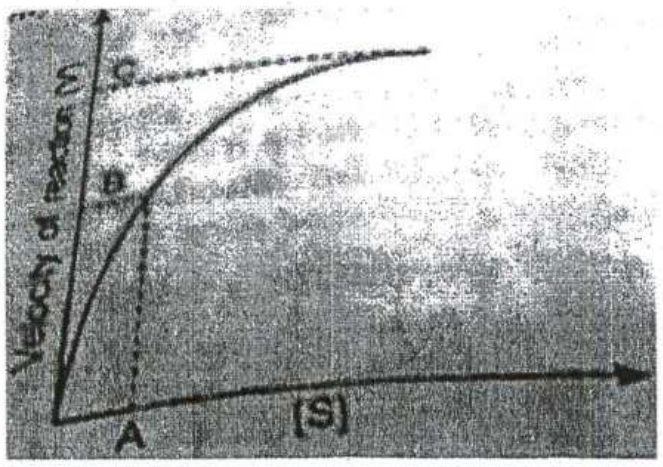
a) What does the diagram represent?
b) The diffusion membrane is made up of three layers. Name it.
c) What factors affect the rate of diffusion?

(OR)

Identify A to C

	A	B	C
a	Basement membrane	RBC	Alveolar wall
b	Oxygen	Carbondioxide	Alveolar oxygen
C	Pleura	RBC	Pulmonary vein
D	Pleura	WBC	Pericardium

30) Study the following graph showing the effect of substrate concentration on the rate of enzyme activity and answer the questions as follows : 4



a) Define what is represented by 'A' ?

b) What does 'C' represent in the graph?

c) Why is there no further increase in the velocity of enzyme action with addition of substrate?

(OR)

How can the catalytic efficiency of two enzymes compared? Identify your answer.

Section E

31) Explain the transmission of nerve impulse across a chemical synapse with the help of a labelled diagram. 5

(OR)

The functioning of the kidney is efficiently monitored and regulated by hormonal feed back mechanism involving hypothalamus, JGA and to a certain extent by heart. Explain the role of each in the regulation of kidneys.

32) a) What are C_4 plants? Give two examples. 5

b) Give the schematic representation of C_4 pathway.

c) Compare C_3 and C_4 pathways (any two points).

(OR)

What is EMP pathway? Give the schematic representation of Glycolysis.

33) a) Describe the catalytic cycle of an enzyme action. 5

b) Competitive inhibitor resemble substrate. Justify your answer with an example. Write one use of an competitive inhibition.

(OR)

A cell organelle is also considered as the powerhouse of the cell.

a) Identify the cell organelle.

b) Describe the structure of this cell organelle with the help of a labelled diagram.

c) What is the difference between photophosphorlyation and oxidative phosphorylation.

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DELHI PUBLIC SCHOOL, BHILAI

Date : 03.03.2025
Class : XI
Name : _____

ANNUAL EXAMINATION 2024-25
SUBJECT : BIOTECHNOLOGY

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

General Instructions :

1. This question paper has **five sections A, B, C, D and E** and **33** questions.
2. **Section A** has 16 questions of 1 mark each.
3. **Section B** has 5 questions of 2 marks each.
4. **Section C** has 7 questions of 3 marks each.
5. **Section D** has 2 questions of 4 marks each.
6. **Section E** has 3 questions of 5 marks each.

SECTION – A

01. The technology used to clean environment by removing toxic substance from soil or water is called –
(A) Bioaccumulation (B) Bioremediation
(C) Biomagnification (D) Biodeterioration **(1)**

02. Fructose is a/an –
(A) Aldopentose (B) Ketopentose (C) Aldohexose (D) Ketohexose **(1)**

03. The linking together of two compounds is catalyzed by the enzyme.
(A) Lipases (B) Lyases (C) Ligases (D) Desmolases **(1)**

04. Incomplete dominance is shown in
(A) Mirabilis jalapa (B) Oryza sativa (C) Pisum sativum (D) Solanum nigrum **(1)**

05. The codons used to signal the termination of protein synthesis
(A) UGA, UAA, UAG (B) UUU, UAC, UAG
(C) UUU, UAG, UAG (D) UUU, UCC, UAA **(1)**

06. 70 S ribosome in eucaryote is present in –
(A) Nucleus (B) Lysosome (C) Mitochondria (D) Golgi apparatus **(1)**

07. The blood cell given is

(A) Neutrophil (B) Eosinophil (C) Basophil (D) Monocytes **(1)**

08. The microbial cell that is used to produce Hepatitis B Vaccine
(A) E. Coli (B) Streptococcus
(C) Lactobacillus (D) Saccharomyces cerevisiae **(1)**

09. D amino acids are present in
(A) Fungal cell wall (B) Bacterial cell wall
(C) Animal cell wall (D) Virus cell wall **(1)**

10. Synaptonemal complex is formed in cell division during.
(A) Prophase I of Meiosis (B) Anaphase I of Meiosis
(C) Interphase of Mitosis (D) Metaphase of Meiosis **(1)**

11. Photodimers induced by UV light can be reversed by
(A) DNA Endonuclease (B) DNA Exonuclease
(C) DNA Polymerase (D) DNA Photolyase **(1)**

12. Leucotrienes are signaling molecule that are included in
(A) Eicosanoids (B) Protein receptors
(C) MAP (D) None of these **(1)**

Contd...2

In the question 13 to 16 two statements are given. One labelled as Assertion (A) and other labelled as Reason (R). Select the correct answer to these questions from the given options: (A), (B) (C) and (D).

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

13. **Assertion (A) :** Maltose is a reducing sugar.
Reason (R) : Maltose consists of glucose and fructose. **(1)**

14. **Assertion (A) :** Endosperm provides nutrition to the developing embryos.
Reason (R) : It is formed from primary endosperm nucleus by mitotic division. **(1)**

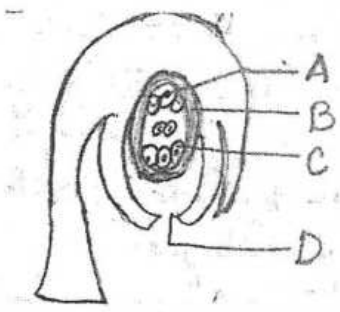
15. **Assertion (A) :** Growth medium used in culturing cells should be sterilized.
Reason (R) : Sterilisation of medium prevents contamination. **(1)**

16. **Assertion (A) :** **Xeroderma** pigmentosum is a type of skin cancer and is recessive autosomal hereditary disease.
Reason (R) : It is caused by the deficiency of DNA photolyases. **(1)**

SECTION – B

17. Write the structure of the following:
(a) Sucrose (b) Lactose **(2)**

18. (a) How do microsome differ from polyribosomes?
(b) Ribosomes are chemically ribonucleoproteins. Explain. **(2)**

19. 

(a) Label A, B, C and D. State the function of C.
(b) State the function of Microsporangia and endosperm. **(2)**

20. Draw a well labelled diagram of tRNA. **(2)**

21. State the structural and functional difference between Cellulose and Peptidoglycan. **(2)**

OR

State the structural and functional difference between Myoglobin and Haemoglobin.

SECTION – C

22. State the application and the technological part of the following in the field of biotechnology.
(a) Biosensors (b) rDNA technology (c) Cloning and Protein Engineering **(3)**

23. (a) Expand ELISA. State the properties of enzymes.
(b) How do they differ from inorganic catalyst.
(c) State the function of endonucleases. **(3)**

24. Explain the various test to estimate the presence of the following in a given sample.
(a) Amino Acids (b) Reducing Sugars (c) Lipids **(3)**

25. Draw a well labelled diagram of an immunoglobulin molecule. Explain humoral immune response by flow chart. **(3)**

26. Tallness of pea plant is a dominant trait, while dwarfness is the alternate recessive trait. When a pure line tall is crossed with pure line dwarf, what fraction of tall plant in F_2 shall be heterozygous.
(a) Give reason and explain. Give an example to it.
(b) What is codominance? Give an example. **(3)**

27. State the difference between complete dominance and incomplete dominance. Explain incomplete dominance with the help of an example. **(3)**

Contd...3

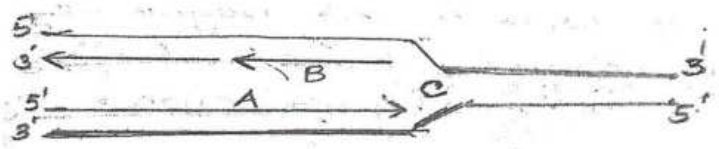
28. What is genetic recombination? Explain how does it occur in bacteria? (3)

OR

Write the structure and function of the following organelles.
(a) Lysosome (b) Cytoskeleton

SECTION – D

Case Based Question:

29. 

(a) What does the above figure depict? (1)
(b) Name A and B. How are they formed. (1)
(c) What are the key players taking part in the above process ? (2)

OR

(c) State the function of single stranded binding proteins. (2)

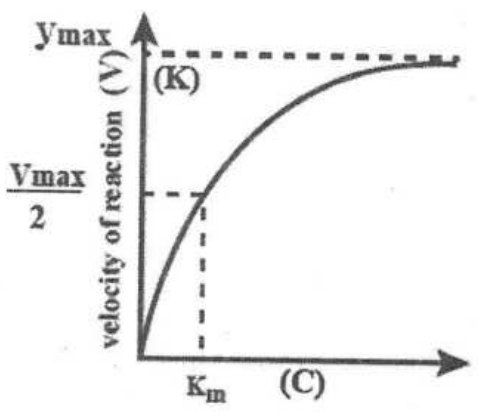
30. 

(a) Identify the disorder shown in the given figure. What causes this disorder? (1)
(b) What is frame shift mutation? Name a chemical mutagen. (1)
(c) What is point mutation? State the difference between Transition and Transversion. (2)

OR

(c) What is aneuploidy? State an application of it. (2)

SECTION – E

31. 

(a) What does above graph depict? Explain.
(b) How do enzymes function? Explain the nature of enzyme action.
(c) Name any three industrially used enzymes and its application. (5)

OR

What are the major forms of RNA present in a cell? Explain each form and how are they produced? What are introns and exons?

32. Explain the steps and process of transfer of sequence information from DNA to RNA with the help of diagram. (5)

OR

(a) What are the unusual bases found in tRNA?
(b) Explain Wobble pairing.
(c) How does tRNA gets charged during translation?
(d) How termination happens during translation? How many sites are present on the ribosomes for binding tRNA during translation process. Explain each site.

33. State the function and features of the following:
(a) Nuclear Pore (b) Membrane Proteins (c) Stem Cells
(d) Cholesterol (e) Genetic Code (5)

OR

(a) What is apoptosis? Explain with the help of diagram.
(b) What is meant by clonal propagation? State any two applications of it.

DELHI PUBLIC SCHOOL, BHILAI

Date : 05.03.2025 **ANNUAL EXAMINATION 2024-25** **Time : 3 Hrs.**

Class : XI **SUBJECT : ENGINEERING GRAPHICS** **Max. Marks : 70**

Name : _____ **Roll No.** _____

INSTRUCTIONS:

i. Attempt all questions. Use both side of drawing sheet if necessary.
ii. All dimensions are in mm. Missing and mismatching dimension if any may be suitably assumed.
iii. Follow the SP: 46-2003 revised codes with first angle method of projection.

1. Construct a regular pentagon of side 35 mm, without using a protractor. **(04)**

2. Draw an external common tangent to two non-intersecting and unequal circles, with their radii as R25 mm and R 15 mm when their centres are 60 mm apart **(04)**

3. Draw the projections of the following points on the same XY, **(06)**

B, 20 mm above H.P. and 25 mm in front of V.P.

D, 25 mm below the H.P. and 15 mm behind the V.P.

E, 15 mm above the H.P. and 10 mm behind the V.P.

F, 20 mm below the H.P. and 25 mm in front of V.

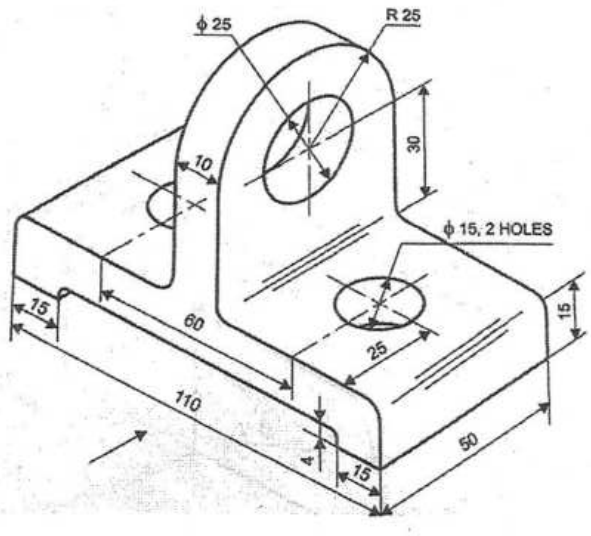
4. A straight line PQ of 55 mm length has its one end P 18 mm from the H.P. and 25 mm from the V.P. Draw the projections of the line if it is parallel to the V.P. and inclined at 30° to the H.P. Assume the line to be located in each of the four quadrants by turn. **(08)**

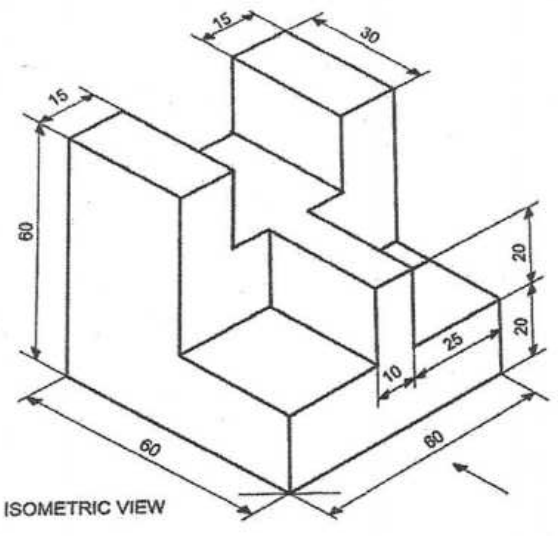
5. Draw the projections of a circle of 60 mm diameter, having its plane vertical and inclined at 30° to the V.P. Its centre is 50 mm above the H.P. and 40 mm in front of V.P **(06)**

6. A cone of 48 mm base diameter and 56 mm axis, rests on H.P. so that its axis is parallel to V.P. and inclined at 30° towards the right. Draw its projections. **(06)**

7. A hexagonal pyramid is resting on its base on the ground with two of its base edges of length 30 mm, parallel to V.P. A horizontal section plane, bisects the 80 mm long axis. The axis is perpendicular to H.P. Draw the Front View and sectional Top View. **(07)**

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





9. (a) Construct an isometric scale which can convert length upto 120 mm. **(05)**

(b) Draw isometric projection of a regular pentagon of 45 mm long side in vertical position if its plane is perpendicular to V.P. It is resting on a corner on H.P. and an edge on top is parallel to H.P. **(06)**

(c) Draw isometric projection of a circle of diameter 55 mm in horizontal position. **(04)**

DELHI PUBLIC SCHOOL, BHILAI

Date : 24.02.2025 | **ANNUAL EXAMINATION 2024-25** | **Time : 3 Hrs.**

Class : XI | **SUBJECT : ACCOUNTANCY** | **M.M. : 80**

Name : _____ **Roll No.** _____

GENERAL INSTRUCTIONS:

1. This question paper contains 34 questions. All questions are compulsory.
2. This questions paper is divided into two parts, **Part A** and **Part B**.
3. Questions 01 to 15 and 26 to 30 carries 1 mark each.
4. Questions 16 to 20 and 31 carry 3 marks each.
5. Questions 21, 22 and 32 carry 4 marks each.
6. Questions 23 to 25 and 33, 34 carry 6 marks each.
7. There is no overall choice. However, an internal choice has been provided in 7 questions of one mark, 2 questions of three marks and 1 question of four marks and 2 questions of six marks.

PART – A

01. Which of the following will increase an asset and capital at the same time?
(A) Drawings (B) Withdrawal of Capital
(C) Additional Capital Introduced (D) Payment to creditors at a discount (1)

02. **Assertion (A) :** Double Entry System of Accounting is an Accounting System by which both aspects i.e., Debit and Credit of a financial transaction are recorded.
Reason (R) : Single Entry System of Accounting is a system of accounting by which both the aspects, i.e., Debit and Credit may or may not be recorded. (1)
(A) Both Assertion (A) and Reason (R) are correct but Reason (R) is not the correct explanation of Assertion (A).
(B) Both Assertion (A) and Reason (R) are correct and Reason (R) is the correct explanation of Assertion (A).
(C) Both Assertion (A) and Reason (R) are not correct.
(D) Assertion (A) is correct but Reason (R) is not correct.

03. What is the last step in Accounting?
(A) Recording (B) Classifying
(C) Communication (D) Analysis and Interpretation (1)
OR
Which of the following is not a limitation of accounting?
(A) Window dressing (B) It ignores effect of price level changes
(C) It ignores qualitative elements (D) Can be used as an evidence in court

04. Which GST is levied on intra state transactions ?
(A) IGST (B) CGST and SGST (C) SGST (D) CGST (1)
OR
What does 'I' stand for in IGST?
(A) Internal (B) Inter (C) Integrated (D) Intra

05. Ledger Account is prepared from :
(A) Vouchers (B) Trial Balance (C) Financial Statements (D) Journal (1)

06. In a cash book, a contra entry is recorded on the
(A) Debit and Credit side of a Cash Book (B) Debit side of a Cash Book
(C) Credit side of a Cash Book (D) Not recorded in the Cash Book (1)

07. Debit means
(A) an increase in asset (B) an increase in liability
(C) an increase in the proprietors' equity (D) a decrease in asset (1)
OR
Sale of goods to Ram for cash is debited to
(A) Ram B) Cash A/c (C) Sales A/c (D) Return Outward A/c

08. ₹ 2,000 received from Krish, which were written off last year will be debited to which account?
(A) Bad Debts Recovered A/c (B) Bad Debts A/c (C) Debtors A/c (D) Cash A/c (1)
OR
Insurance Premium paid by the firm of ₹ 10,000 by cheque will be debited to which account?
(A) Drawings Account (B) Insurance Premium Account
(C) Bank Account (D) Cheques in hand Account

09. **Assertion (A) :** Credit vouchers are evidence of cash payments.
Reason (R) : Credit voucher is a source voucher. (1)
(A) Both Assertion (A) and Reason (R) are correct but Reason (R) is not the correct explanation of Assertion (A).
(B) Both Assertion (A) and Reason (R) are correct and Reason (R) is the correct explanation of Assertion (A).
(C) Both Assertion (A) and Reason (R) are not correct.
(D) Assertion (A) is correct but Reason (R) is not correct.

Contd...2

10. Return of goods by a customer is recorded in
(A) Purchase book (B) Sales book (C) Sales Return book (D) Purchase Return Book (1)

11. Trial Balance is used to check the accuracy of
(A) Balance Sheet Balance (B) Ledger Account Balances
(C) Cash Flow Balances (D) Income Statement Balance (1)

12. Which of the following would not affect Bank Reconciliation Statement ?
(A) Dishonoured Cheque (B) Discount Received
(C) Bank Interest (D) Cheque not presented (1)

13. Amount of depreciation charged under diminishing balance method remains
(A) Increasing (B) Decreasing (C) Fixed (D) Fluctuating (1)

14. Any reserve which is not apparent on the face of Balance Sheet is known as:
(A) Secret Reserve (B) General Reserve (C) Revenue Reserve (D) Capital Reserve (1)

OR

Reserve is:
(A) a part of provision (B) An appropriation of profit
(C) a charge against profit (D) None of these

15. If wages paid for installation of new machinery is debited to the wages account, it is:
(A) An error of Commission (B) An error of Principle
(C) A Compensating error (D) An error of Omission (1)

OR

Rectification entries are passed in :
(A) Purchase Book (B) Sales Book (C) Return Inward Book (D) Journal Proper

16. Differentiate between Reserves and Provisions on the basis of
(a) Nature (b) Purpose (c) Presentation (3)

17. From the following information find:
(a) Closing capital; (b) Total liabilities; (c) Total Assets of the firm other than stock.

Capital in the beginning	₹ 6,00,000
Bank Overdraft	₹ 60,000
Creditors	₹ 1,40,000
Revenue earned during the year	₹ 2,50,000
Expenses incurred during the year	₹ 1,80,000
Drawings	₹ 10,000
Unsold Stock at the end	₹ 80,000

OR

Prepare Trial Balance from the following ledger balances :

Capital	₹ 15,000
Stock (1.4.2023)	₹ 3,000
Cash at Bank	₹ 3,000
Cash in Hand	₹ 500
Machinery	₹ 10,000
Furniture	₹ 1,300
Purchases	₹ 20,000
Wages	₹ 5,000
Carriage	₹ 3,300
Salaries	₹ 7,000
Discount Allowed	₹ 400
Discount Received	₹ 2,500
Advertisement	₹ 5,000
Office expenses	₹ 4,000
Sales	₹ 50,000
Debtors	₹ 9,000
Creditors	4,000

Value of Closing Stock on 31st March, 2024 was ₹ 5,000.

18. Explain the following principles of accounting with the help of examples:
(a) Business Entity (b) Prudence (3)

Contd...3

19. Mr Aman started a new business of selling readymade garments. His accountant advises him to follow a basis of accounting which is recognised by Companies Act, 2013. During the year he had the following transactions: (3)

Cash Sales	₹ 50,000
Credit Sales	₹ 20,000
Outstanding Wages	₹ 400
Prepaid Insurance	₹ 250
Outstanding Electricity Expenses	₹ 100
Cash Purchases	₹ 27,500
Credit Purchases	₹ 12,500
Wages paid	₹ 4,400
Insurance Expenses	₹ 750

On the basis of above state which basis of accounting should be adopted by Mr Aman and find out his income based on the same.

20. Vinay started business of buying and selling household items with cash ₹ 25,00,000; Land and Building ₹ 10,00,000 and Furniture worth ₹ 2,00,000. During the month he purchased two computers of ₹ 50,000 each and a truck for transportation of goods worth ₹ 2,00,000. He purchased goods worth ₹ 7,00,000 out of which ₹ 2,00,000 were on credit. He sold goods worth ₹ 40,000 for ₹ 60,000 to Harsh on credit. He paid salary ₹ 20,000 and commission ₹ 5,000. (3)
On the basis of the above, answer the following:
(a) What is the capital introduced by Vinay?
(b) What is the amount of debtors?
(c) What is the amount of total fixed assets?

21. Rectify the following errors by passing journal entries:
(a) Bad Debts aggregated to ₹ 1,700 were written off during the year but were not posted.
(b) ₹ 250 received from Sohan was credited to Mohan's account.
(c) Old furniture sold for ₹ 540 has been entered in the sales account as ₹ 450.
(d) Goods purchased from Ramesh for ₹ 5,000 was entered in the Sales Book. (4)

22. Classify the following into Assets, Liabilities, Capital, Revenue and Expenses.
(i) Excise Duty (ii) Bad Debts (iii) Bank Overdraft (iv) Goodwill
(v) Accrued Income (vi) Commission (vii) Sales (viii) Capital (4)

OR

Record the following transactions of Shyam & Co., Delhi into Purchase and Sales Book:
2025
Jan 1 Purchased Readymade clothes from Manoj of Gurgaon for ₹ 40,000 less 10% Trade Discount.
Jan 5 Sold Readymade Clothes to Santosh, Haryana for ₹ 10,000 less 10% Trade Discount.
Jan 10 Returned goods to Manoj of the list price ₹ 5,000.
Jan 12 Hari Singh of Chandigarh sold Readymade clothes to us for ₹ 30,000.
Jan 15 Sold Readymade clothes to Mahesh of Delhi for ₹ 8,000.
Jan 20 Mahesh returned goods worth ₹ 3,000.
Jan 22 Sold Readymade clothes to Karan, Amritsar for ₹ 5,000 cash.

23. Tiwari and Sons find that the bank balance shown by their Cash Book on December 31, 2024 is ₹ 40,500 (credit) but the Pass Book shows a difference due to the following reasons:
(i) A cheque for ₹ 5,000 drawn in favour of Manohar has not yet been presented for payment.
(ii) A post dated cheque for ₹ 900 has been debited in the bank column of the cash book but could not have been presented in any case.
(iii) Cheques totalling ₹ 10,200 deposited with the bank have not yet been collected.
(iv) A cheque of ₹ 4,000 deposited has been dishonoured.
(v) A Bill payable for ₹ 10,000 was retired by the Bank under a rebate of ₹ 150 but the full amount of the bill was credited in the bank column of the Cash Book.

Prepare a Bank Reconciliation Statement and find the balance as per Pass Book. (6)

24. A company purchased a Machinery on 01st July, 2020 for ₹ 1,50,000. It purchased another machine on 1st January, 2021 costing ₹ 2,00,000 and on 01st October, 2021 costing ₹ 3,00,000. On 1st July, 2022 the machinery purchased on 1st July 2020 became useless and was sold for ₹ 20,000. Show Machinery A/c charging 10% p.a. depreciation by fixed instalment method for three years. Accounts are closed on 31st March every year. (6)

OR

(i) Explain the terms Depreciation, Amortisation and Depletion with examples.
(ii) Write **any three** objectives of providing depreciation.

Contd...4

25. Write up Cash Book of Bhanu with cash and bank columns from the following transactions : (6)

2024		₹
Dec 1	Cash-in-hand	2,710
	Cash at bank	27,500
Dec 3	Received from Subash	3,500
Dec 4	Sold goods for Cash	10,000
Dec 7	Paid Rent for cheque	800
Dec 8	Paid Sohan by cheque	3,000
Dec 10	Bought foods for cash	15,000
Dec 12	Paid cash for stationery	200
	Drew from bank for office use	8,000
Dec 15	Received cheque from Surendra and sent it to bank	6,600
Dec 16	Paid for advertisement	750
Dec 18	Issued cheque in favour of Nath Brothers	4,300
Dec 19	Cash Sales	13,000
	Paid into Bank	16,000
Dec 20	Received cheque from Vinod and sent into Bank	2,400
Dec 22	Bought scooter and paid for the same by cheque	18,000
Dec 25	Surendra's cheque dishonoured	
Dec 28	Paid salary by cheque	7,200
	Paid Trade Expenses	2,000
Dec 29	Cash Sales	9,500

OR

Pass journal entries for the following transactions in the book of Garima:

2025

Jan 01 Bought goods from Amit for ₹ 2,00,000 at 20% trade discount and 5% cash discount. Paid ¾ th of the amount in cash at the time of purchase.

Jan 03 Ajay Singh who owed ₹ 2,500 was declared insolvent. Only 40 paise in a rupee was recovered from his estate.

Jan 05 Provide depreciation on furniture ₹ 500.

Jan 07 Paid Life Insurance Premium ₹ 20,000 by cheque

Jan 10 Paid Salary ₹ 10,000 and Rent ₹ 2,000.

Jan 15 Provide 10% interest on capital, on Capital amounting to ₹ 2,00,000.

PART – B

26. Goodwill is a

(A) Fictitious Asset (B) Tangible Asset (C) Current Asset (D) Intangible Asset (1)

27. Arrangement of Assets and Liabilities in the Balance Sheet is known as:

(A) Assets and Liabilities (B) Goodwill (C) Marshalling (D) Grouping (1)

28. Accrued income is :

(A) A Liability (B) Revenue (C) An Asset (D) An Expense (1)

OR

If Opening Stock is ₹ 30,000, Net Purchases ₹ 2,00,000 and Closing Stock ₹ 10,000; Cost of goods sold will be

(A) ₹ 2,20,000 (B) ₹ 2,40,000 (C) ₹ 1,60,000 (D) ₹ 2,00,000

29. Opening Statement of Affairs is prepared to know :

(A) Opening Capital (B) Closing Capital (C) Closing Balance of Cash (D) Credit Purchase (1)

30. Single Entry System is suitable only for :

(A) Registered Companies (B) Banks (C) Insurance Companies (D) Small Firms (1)

31. What will be the treatment of following adjustments while preparing Financial Statements?

(i) Income Received in Advance (ii) Depreciation (iii) Manager's Commission (3)

OR

Following is the extract from the Trial Balance of Dev as at 31st March, 2024 :

Trial Balance as at 31t March, 2024

Heads of Accounts	Dr. (₹)	Cr. (₹)
Sundry Debtors	5,00,000	

Additional Information : Create a provision for doubtful debts @ 5% on Sundry Debtors.

Pass necessary entry and show the above adjustments in the Profit and Loss Account and Balance Sheet.

Contd...5

32. Following information is provided by Dilip and Sons on 31st March, 2024.

Cash Purchases	₹ 2,70,000	Opening Stock	₹ 80,000
Credit Purchases	₹ 1,30,000	Production Expense	₹ 60,000
Return Inward	₹ 20,000	Cash Sales	₹ 3,70,000
Carriage of Purchases	₹ 40,000	Credit Sales	₹ 1,80,000
Carriage on Sales	₹ 30,000	Return Onward	₹ 25,000

Closing Stock at the end of the Financial Year was ₹ 90,000.

Find (i) Adjusted Purchase (ii) Net Sales (iii) Cost of Goods Sold (iv) Gross Profit (4)

33. Following information is provided by Mr. Bhaskar, a retail merchant, who has followed Single Entry System.

Particulars	1st April, 2023	31st March, 2024
Cash	690	900
Bills Receivable	11,074	4,860
Stock	11,380	9,360
Sundry Debtors	6,550	9,240
Sundry Creditors	6,914	8,700
Furniture	420	500
Motor Car	-	11,200

He withdrew ₹ 1,800 from the business during the year. Provide 10% depreciation on furniture and motor car. Write off ₹ 240 as bad debts. Make provision of 5% on debtors for bad and doubtful debts. Find out his profit or loss for the year. (6)

34. The following balances are extracted from the books of Mr. Kaushik as on 31st March, 2024:

Particulars	Dr (₹)	Cr (₹)
Cash in hand	100	-
Bills Payable	-	3,850
Office Expenses	500	-
Rent Received	-	320
Bad Debts Provision	-	1,900
Advertisement Expenses	1,280	-
Furniture	2,000	-
Purchases	39,000	-
Sales	-	65,360
Bank Loan	-	11,180
Bad Debts	550	-
Donation	2,500	-
Sundry Creditors	-	2,500
Sundry Debtors	6,280	-
Manufacturing Expenses	8,400	-
Salaries	1,320	-
Wages	2,240	-
Opening Stock	23,000	-
Machinery	9,340	-
Building	11,000	-
Commission	100	-
Drawings	2,000	-
Capital	-	24,500

Adjustments :

1. Prepared Salaries upto the extent of ₹ 50.
2. Closing Stock ₹ 23,500.
3. Provide ₹ 750 for outstanding interest on loan.
4. Write off further bad debts ₹ 160 and maintain a provision for bad debts @ 5% on debtors.
5. Depreciate machinery @10% and Furniture by ₹ 240.

Prepare Trading and Profit & Loss A/c for the year ending 31.3.2024 and a Balance Sheet as on that date. (6)

DELHI PUBLIC SCHOOL, BHILAI

Date : 01.03.2025 | **ANNUAL EXAMINATION 2024-25** | **Time : 3 Hrs**

Class : XI | **SUBJECT : BUSINESS STUDIES** | **Max. Marks : 80**

Name : _____ **Roll No.** _____

General Instructions

1. This question paper contains 34 questions.
2. Marks are indicated against each question.
3. Answer should be brief and to the point.
4. Answers to the questions carrying 3 marks may be from 50 to 75 words.
5. Answers to the questions carrying 4 marks may be about 150 words.
6. Answers to the questions carrying 6 marks may be about 200 words.
7. Attempt all parts of the questions together.

1. The government has established a number of fund providers all over the country to provide finance to business organisations. In addition to providing financial assistance, these institutions also conduct market surveys and provide technical assistance and managerial services to people who run the enterprises. Name the source of finance highlighted in the above-mentioned paragraph.
   (A) Retained earnings (B) Loans from Commercial banks
   (C) Trade credit (D) Loans from Financial institutions (1)

2. Mrs. Sushma Nayak is involved in the formation of the company. She mainly involves herself in conceiving a business idea and taking an initiative to form a company, so that a practical shape can be given to exploit the available business opportunities. Name the stage in the formation of the company in which Mrs. Sushma Nayak is involved?
   (A) Promotion (B) Incorporation
   (C) Capital subscription (D) Commencement of business (1)

3. Which of the following statements is not true in case of 'Business ethics'?
   (A) Business ethics and profit go together in the long run.
   (B) Business ethics are socially determined moral principles.
   (C) Business ethics are never enacted into laws.
   (D) Business ethics refer to 'Code of Conduct' (1)

4. Starlite Ltd. is a well-known company in the industry to which it belongs. A very important document at the time of its incorporation was prepared. The main feature of this document is that any act beyond it will be considered invalid and cannot be ratified even by a unanimous vote of the members. Name the document.
   (A) Prospectus (B) Memorandum of Association
   (C) Articles of Association (D) Partnership deed (1)

5. Which of the following enterprise is formed as a part of government and does not have a separate legal entity?
   (A) Public Corporation (B) Government Company
   (C) Departmental Undertaking (D) Public Ltd. Company (1)

6. Saksham is a friend of Akshat. Akshat is a partner in a software firm- Simplified Solutions. On Akshat's request, Saksham accompanies him to a business meeting with Krishna softwares and actively participates in the negotiation process. Saksham gives an impression that he is also a partner in Simplified Solutions. Which type of partner is Saksham?
   (A) Nominal partner (B) Partner by estoppel
   (C) Partner by holding out (D) Active partner (1)

7. **Assertion (A):** Every profession restricts the entry on the basis of examination or education.
   Reason (R): A strict code of conduct exists in every profession. (1)
   (A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
   (B) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).
   (C) Assertion (A) is true but Reason (R) is false.
   (D) Assertion (A) is false but Reason (R) is true.

Contd...2

8. Which of the following is not a function of insurance?
(A) Risk sharing (B) Assist in capital formation
(C) Lending of funds (D) Providing certainty (1)

9. **Assertion (A) :** The volume of B2B transactions is much higher than the volume of B2C transactions.
Reason (R) : To facilitate a single B2C transaction, there are number of B2B transactions.
(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(B) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).
(C) Assertion (A) is true but Reason (R) is false.
(D) Assertion (A) is false but Reason (R) is true.

10. The document which is issued by the shipping company as an instruction to the captain of the ship that the specified goods after their custom clearance at a designated port be received on board is known as
(A) Shipping bill (B) Shipping order (C) Mate's receipt (D) Bill of lading (1)

11. Which of the following statement is not true with regard to trade credit?
(A) It appears in the records of the buyer firm as 'accounts payable'.
(B) It depends upon the financial strength of the seller.
(C) It depends upon the reputation of the buyer.
(D) Large amount of funds can be generated through trade credit. (1)

12. Shipping bill is prepared by the exporter in order to
(A) Reserve space on the ship.
(B) To get the cargo physically moved into the port area.
(C) Obtain the custom clearance.
(D) To get the port dues cleared. (1)

13. Identify the type of fixed shop retailer illustrated in the image given below:

(A) Chain store (B) Departmental store (C) Speciality store (D) General store (1)

14. Sneha Textile Ltd. is involved in manufacturing textile products such as shirts, trousers, kurtas etc. In which industry is the company involved?
(A) Processing industry (B) Synthetical industry
(C) Analytical industry (D) Extractive industry (1)

15. A body corporate that can sue, be sued and enter into contracts in its own name
(A) Sole proprietorship (B) Departmental undertaking
(C) Statutory Corporation (D) Unregistered Partnership firm (1)

16. Match the following and choose the correct option:

A. Equity shares	(i) Unsecured investment
B. Debentures	(ii) Preferential rights
C. Public deposits	(iii) Ensures safety of investment and fixed return
D. Preference shares	(iv) Suitable for high risk takers

(A) A-(iii); B- (iv); C- (i); D- (ii) (B) A-(ii); B- (iv); C- (iii); D- (i)
(C) A-(iv); B- (iii); C- (i); D- (ii) (D) A-(iii); B- (i); C- (iv); D- (ii)

17. Government departments and regulatory authorities are allowing electronic filing of returns and reports. In fact, e-commerce tools are effecting the administrative reforms aimed at speeding up the process of granting permissions, approvals and licences. Identify the benefit of e-business being discussed above.
(A) Ease in rules and regulations (B) Movement towards a paperless society
(C) Convenience (D) Speed

Contd...3

18. Shikha desires to have two benefits from her bank account. First to earn higher interest on balance and second, to face minimum risk of dishonouring a cheque. Which type of account should be opened by Shikha in this case?
(A) Recurring deposit account (B) Fixed deposit account
(C) Multiple option account (D) Current account (1)

19. **Assertion (A) :** Social responsibility is a legal responsibility of the business.
Reason (R) : Companies Act, 2013 provides for the social responsibility of business. (1)
(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(C) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation of Assertion (A).
(C) Assertion (A) is true but Reason (R) is false.
(D) Assertion (A) is false but Reason (R) is true.

20. Which of the following cannot be classified as an objective of business?
(A) Investment (B) Productivity (C) Innovation (D) Profit earning (1)

21. State the objectives of WTO.

OR

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

22. Briefly discuss the classification of small-scale enterprise as per MSMED Act, 2006.

OR

Explain briefly the features of a small business. (3)

23. Yummiez Ltd. is a well-known company engaged in the manufacturing of packed frozen ready-to-eat items. The company is committed to take proper precautions against malpractice like adulteration, poor quality and misleading advertising. The company not only follows the rules and regulations of the country, it also pays the due amount of taxes regularly. It maintains proper financial records and aims to ensure efficient utilisation of funds. By quoting the lines from the given paragraph, identify the different interest groups towards which the company is fulfilling its social responsibilities. (3)

24. Which type of e-business transaction is highlighted in the following cases?
(i) Conducting surveys to determine customer's preference.
(ii) Inventory and cash management of an organisation.
(iii) Purchase of Security Lock system by Hyundai from Autocops. (3)

25. Nehru Place Market, the heart of IT industry, is situated in New Delhi. It is known for the biggest IT market for computers, laptops, mobiles, cameras, printers and all related peripheral devices. There are various merchants who deal in buying and selling of the above items in the market. Local shopkeepers and even general public from different parts of the city and states approach this market. The merchants receive orders from these shopkeepers and pass the pool of such orders to the companies. The merchants buy the computer components in their own name, keep them in their warehouses and bear the variety of risk such as fall in price, theft, piracy etc.
(a) State the trade being discussed in the above case.
(b) Name the parties involved at the both ends to these merchants.
(c) Explain briefly any two services being provided by such merchants to companies by quoting the lines. (4)

26. Om Sales Ltd., owns the agency of different food products, which sells goods of different brands to retailers after purchasing them from several companies. It purchases almost all goods for cash while all its sales are on credit of one month. So, the company keeps struggling with the short term finance. To overcome this problem, the company's finance department held a meeting. The chairperson of the meeting asked the members to express their views on the solution of this problem. The first person said, "We should use a source of finance which does not involve any bureaucracy and legal problems and the market of which maintains secrecy." The view of the second person was that the company should buy goods on credit. The third person's opinion was that the company often needs cash credit and overdraft. Therefore, the source of finance should be selected considering this fact.
(a) Identify and explain the sources of finance as suggested by different persons in the above paragraph.
(b) Also, explain any other source of finance which can be used by the company which is not mentioned in the above paragraph.

Contd...4

27. It is a Public enterprise established under the Indian Companies Act and conducts business in competition with companies in Private sector.
(a) Identify the type of Public enterprise highlighted above.
(b) What is the minimum investment government has to make in such companies?
(c) In whose name shares of this type of company are purchased?
(d) State any one limitation of such type of company. (4)

28. Sneha is running an organic store under the brand name, 'Naturals' in a popular market in Delhi. She acknowledges that risk in her business cannot be predicted with utmost accuracy as business environment is dynamic in nature. Therefore, it is not possible to predict future events with accuracy like change in consumer preferences, increase in competition, natural calamities etc. Also, she feels that the risks in business can be minimised, but cannot be eliminated altogether. As her business is operated at a small scale, she feels her quantum of risk is relatively low. At the same time, she truly believes in the saying that 'No risk, no gain' is applicable to all business organisations.

Identify and explain the various characteristics of business risk being described in the above paragraph. (4)

29. Explain briefly the next four steps in the export procedure after obtaining the Certificate of Origin.

OR

Explain briefly the next four steps in the import procedure after obtaining the foreign exchange. (4)

30. Discuss the various ways to fund Start up.

OR

Discuss any four incentives provided by the Indian government for industries in backward and hilly areas. (4)

31. Animesh owns a training school of performing arts in Jaipur. On the suggestion of one of his friends, he took an insurance policy of ₹ 500000 for the school. A few months later, a fire broke out in one portion of the school due to bursting of a gas cylinder in the kitchen. He immediately called up the nearest fire station and started removing the things from the school building in order to save them from fire. He took all reasonable steps to minimise the loss or damage. The total amount of loss was estimated to be ₹ 60000 which included a few musical instruments that was partly burnt. As per Animesh's estimation ₹ 10000 could be realised by selling off these partly burnt instruments. Animesh filed an insurance claim with the company and received a cheque of ₹ 60000 in due course of time. But the insurance company refused to let him take the money which was realised from selling the partly damaged musical instruments. Identify and explain the related principles of insurance which has been described in the above paragraph. (6)

32. Explain the types of taxes under Goods and Services Tax. Also discuss any three key features of Goods and Services Tax. (6)

33. Explain briefly the different types of Cooperative Societies.

OR

Explain the following: (6)
(a) Prospectus
(b) Articles of Association
(c) Memorandum of Association
(d) Preliminary contracts
(e) Minimum Subscription
(f) One Person Company

34. Mention the two preferential rights which preference shareholders enjoy over equity shareholders. Also, explain any four features of preference shares as a source of finance.

OR

What do you mean by Equity shares? Why are equity shareholders called the primary risk bearers? Explain any four features of equity shares as a source of finance. (6)

DELHI PUBLIC SCHOOL, BHILAI

Date : 03.03.2025 **ANNUAL EXAMINATION 2024-25** **Time : 3 Hrs.**

Class : XI **SUBJECT : HOME SCIENCE** **Max. Marks : 70**

Name : _____ **Roll No.** _____

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 require.

SECTION – A (OBJECTIVE TYPE QUESTIONS)

1. Which area of development refers to the development of a child's social-emotional skills?
   (A) Social development (B) Sensory development
   (C) Emotional development (D) Cognitive development (1)

2. If the original planning was poor due to factors beyond the family's control, such as emergencies, family members going on an unplanned shopping spree, or insufficient checking mechanisms that do not alert the family to a significant gap between the plan and its execution, alterations may be required. What is the phenomenon that is being talked about in the passage?
   (A) Evaluation (B) Management (C) Adjustments (D) Planning (1)

3. What is the medium of communication?
   (A) Receiver (B) Source (C) Message (D) Channel (1)

4. Ayush is a 28-year-old office going male. He is physically fit and does not suffer from any diseases or illness. But, his productivity at office is less and he often feels fatigued while doing his office work. What could be the possible reason for this?
   (A) Mentally unwell (B) Emotionally unwell
   (C) Suffering from underlying diseases (D) Both (A) and (B) (1)

5. Full form of ICMR is:
   (A) Indian Cure-Most Mediated Research (B) Indian Council of Medical Research
   (C) Indian Council of Meteor Research (D) Indian Cure for Most Readymade Products (1)

6. To attain a better standard of living, what one must do?
   (A) Effectively plan (B) Closely evaluate
   (C) Manage resources well (D) Balance time (1)

   OR

   Dresses with which kind of sleeve provide more freedom as well as room for growth?
   (A) Long (B) Raglan (C) Short (D) Cotton

7. Rust stain can be removed by:
   (A) Use of salt water (B) Use of lime juice and salt
   (C) Soak in methylated spirit (D) Wash with soap and cold water (1)

8. On the basis of origin fibres are classified into?
   (A) Staple fibres (B) Filament fibres
   (C) Natural fibres (D) Monofilament fibres (1)

9. Match the following:

List I	List II
(i) Cognitive development	1. Ability to think and reason
(ii) Emotional development	2. Changes in the body
(iii) Socio cultural development	3. Mood swings
(iv) Biological development	4. Different sections of the society responding differently

   Choose the correct option from the following:
   (A) i –1, ii – 2, iii – 3, iv – 4 (B) i – 1, ii – 3, iii – 4, iv – 2
   (C) i – 2, ii – 1, iii – 4, iv – 3 (D) i – 2, ii – 3, iii – 4, iv – 1 (1)

Contd...2

10. What are the factors to be considered while selecting a five-year-old infant's cloth?

I. They should trap heat.
II. They should be comfortable.
III. They should be a sign of status.
IV. They should be fashionable.

Choose the correct option:

(A) I and II (B) II and III (C) III and IV (D) I and IV (1)

OR

Match the following:

	List I	List II
(i)	Milk	1. Soak in oxalic acid and rub
(ii)	Paint	2. Sponge with hydrogen peroxide
(iii)	Rust	3. Sponge with a solvent
(iv)	Scorch	4. Rub with kerosene

Choose the correct option from the following:

(A) i – 2, ii – 1, iii – 3, iv – 4 (B) i – 3, ii – 4, iii – 1, iv – 2
(C) i – 4, ii – 3, iii –1, iv – 2 (D) i – 2, ii – 1, iii – 4, iv – 3

11. Match the following:

List I		List II
(i)	Capital	1. Self-cultivated vegetables.
(ii)	Direct Income	2. Material goods and services
(iii)	Indirect Income	3. Fixed deposit in banks
(iv)	Investment	4. Net worth

Choose the correct option from the following:

(A) i – 3, ii – 4, iii – 2, iv – 1 (B) i – 2, ii – 1, iii – 4, iv – 3
(C) i – 4, ii – 1, iii – 2, iv – 3 (D) i – 3, ii – 2, iii – 1, iv – 4 (1)

For the questions numbers 12 and 13, two Statements are given.
One labelled as Assertion (A) and other labelled as Reason (R).
Select the correct answer to these questions from the options 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 is false, but R is true.

12. **ASSERTION (A)** : Adolescents are very conscious of their appearance.
REASON (R) : They find it hard to make good friends. (1)

13. **ASSERTION (A) :** Higher income families have a higher potential to save as compared to lower income families.
REASON (R) : A family's savings are determined by ability to save which is determined by the per capita income. (1)

CASE BASED QUESTIONS

Read the passage carefully and answer question no. 14 to18.

Health is promoted not only by appropriate, well-balanced diets but also by physical activity and fitness. As the human body advances in age, certain changes take place resulting in various changes including decline in capacities and body functions. Exercise and some physical activities are of utmost importance for maintenance of physical fitness and to sustain a healthy life as well as to establish a certain quality of life. Regular exercise makes a person fit. Persons who exercise regularly experience a sense of well-being and sleep better. Exercise also makes the heart and lungs work more efficiently, improving circulation and respiration. Exercise carried out for about 20 minutes at least three times a week is beneficial. Older people should undertake exercise regularly so as to prevent and control several of the diseases like obesity, hypertension, diabetes, etc. In fact, youth and young adults should begin to take precautionary health regimen to stave off these diseases at a later stage.

14. ..... is a precautionary measure so as to not catch heart or respiratory diseases at a later stage of life.
(A) Training (B) Blood testing (C) Education (D) Exercise (1)

15. ..... was the theme set by the WHO on the occasion of World Health Day in 2002.
(A) Narcotics awareness (B) Physical activity (C) Mortality rate (D) Health benefits (1)

Contd...3

16. Wellness improves ..... by reducing risk of disease, disability, discomfort and distress throughout the life cycle.
(A) Quantity of life (B) Legality of life (C) Quality of life (D) Purpose of life (1)

17. Which of the following is not a benefit of exercising regularly?
(A) Eating junk food without guilt (B) Have a good physique
(C) Immune against non-communicable diseases (D) Good mental health and better sleep (1)

18. Why does one feel physical pain and soreness in the first few days of new exercise regime?
(A) Due to stretching of stiff muscles (B) Due to new exercise regime
(C) Due to taking exercise as a punishment (D) All of the above (1)

SECTION B (SHORT ANSWER QUESTIONS)

19. (a) What role does "Endorphins" play for human body?
(b) Why increase in BMI is considered as a risk factor for health? (2)

20. Write about the two process through which laps are unrolled and straightened. (2)

21. Draw the SMCRE model of communication. (2)

22. How time period affects the investment? (2)

23. (a) What does the term "Operation" means in cognitive development?
(b) "Thinking of adolescents is idealistic and utopian". Elaborate it. (2)

24. Which kind of modification is suitable for a "Spastic child"? (2)

OR

Give the immunisation schedule for a child of:
(a) 16 months -2 years.
(b) 5 years

25. Define "Glucose Tolerance". (2)

26. (a) What do you mean by SES Homes.
(b) Give a brief description of two ways of privacy consideration. (3)

27. (a) What are the basic steps of planning?
(b) Define the term "Implementing" from the aspect of management. (3)

28. How does income affect the selection of clothing in different levels of society? (3)

29. Which factors are responsible for success of budget? (3)

SECTION C (LONG ANSWER QUESTIONS)

30. What is the difference between blues and optical brighteners? (4)

31. Mention the benefits of breast feeding. (4)

32. (a) Name the two fabrics that are made directly from fibres.
(b) Which process is involved in manufacturing of such fabrics?
(c) What do you mean by t.p.i ? (4)

33. (a) Write about individual and shared resources in brief.
(b) What are the various characteristics of resources? (4)

34. (a) What are the various mental processes involved in thinking?
(b) How does a child becomes less ego centric from being egocentric? In which period does this transition takes place? (5)

OR

Write a short note on SITE.

35. Explain the "Dimensions of Wellness". (5)

DELHI PUBLIC SCHOOL, BHILAI

Date : 05.03.2025 **ANNUAL EXAMINATION 2024-25** **Time : 3 Hrs.**

Class : XI **SUBJECT : ECONOMICS** **Max. Marks : 80**

Name : _____ **Roll No. _____**

GENERAL INSTRUCTIONS –

1. This question paper contains two sections:
   Section A – Statistics for Economics
   Section B – Introductory Micro Economics
2. This paper contains 20 Multiple Choice Questions type questions of 1 mark each.
3. This paper contains 4 Short Answer Questions type questions of 3 marks each to be answered in 60 to 80 words.
4. This paper contains 6 Short Answer Questions type questions of 4 marks each to be answered in 80 to 100 words.
5. This paper contains 4 Long Answer Questions type questions of 6 marks each to be answered in 100 to 150 words.

SECTION – A (STATISTICS)

1. High degree of correlation exists when two values of coefficient of correlation is between ..... and ..... **(1×10=10)**
   (A) 0 and 0.25 (B) 0.25 and 0.5 (C) 0.5 and 0.75 (D) 0.75 and 1

2. Primary data is comparatively ..... than the secondary data. (economical/costlier).

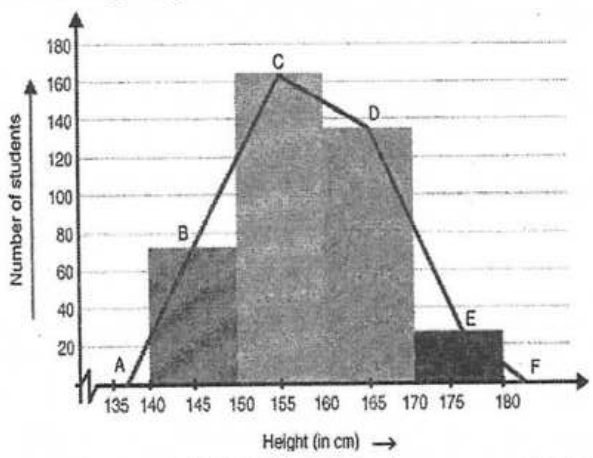
3. Histograms are drawn only for equal class intervals. (True/False).

4. Read the following statements carefully and choose the correct alternative among those given below.

   Statement I – Diagrammatic presentation provide simple and understandable information.
   Statement II – Diagrams have a long-lasting impact.
   Alternatives –
   (A) Both the statements are correct.
   (B) Both the statements are false.
   (C) Statement I is true and statement II is false.
   (D) Statement I is false and statement II is true.

5. Which of the following is a merit of a good questionnaire?
   (A) difficulty (B) a smaller number of questions
   (C) not in a proper order (D) invalid questions

6. Identify the following diagram and choose the correct alternative



   (A) Frequency polygon with histogram (B) Frequency polygon
   (C) Ogive (D) Histogram

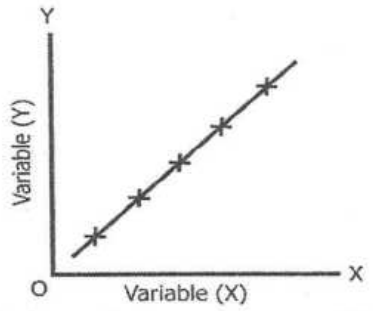
7. Identify the characteristics of Index Numbers and choose the correct alternatives:
   I. Expressed in numbers
   II. Absolute Measure
   III. Average of percentage
   IV. Helpful in fixation of salary and allowances
   Alternatives –
   (A) I and II (B) II and III (C) I, II and III (D) I, III and IV

8. Sushila wants to know the average of marks obtained in six different subjects. The tool that she will use is .....
   (A) Arithmetic Mean (B) Median (C) Mode (D) Geometric Mean

Contd...2

9. What is the relationship between mean, median and mode?
(A) Mode = 3 Median + 2 Mean (B) Mode = 3 Median – 2 Mean
(C) Mean = 3 Mean – Mode (D) Median = Mean + Mode

10. Study the diagram given below and choose the correct option.



(A) Perfectly positive correlation (B) Perfectly negative correlation
(C) High degree positive correlation (D) No correlation

11. Read the following case study carefully and answer the following questions on the basis of the same:

Sampling design is an important tool as well as flexible method of data collection in the legal research. Whenever it is difficult to study of entire universe or total population, it gets difficult to do the research, the researcher having an option to particular portion or select sample out of total population. This process is called as sampling method and that portion is called as sample. This method is used in legal research as well as in social science research. The main objective of drawing a sample is to make inferences about the larger population from the smaller sample. There are some basic requirements have been mentioned while selecting the sample from total population.

(a) While selecting sample researcher should be able to avoid the bias.
(b) There is need to achieve maximum accuracy for give outlay resources.
(i) What is sampling? What are its advantages? **(2+1=3)**
(ii) What is meant by Random Sampling.

12. State any three difficulties of constructing Index Number. **(3)**

OR

Explain any three advantages or uses of Index Number

13. What is statistical average? In an examination in Economics, the students of a class secured following marks. Calculate mean marks. **(1+3=4)**

Marks – more than	0	10	20	30	40	50
No. of students	50	46	40	20	10	3

14. Define Median. Find the missing frequency in the following distribution if N=150 and Median=30. **(1+3=4)**

Marks	0 –10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
Frequency	10	-	25	30	-	10

15. When is grouping method used for calculating Mode & explain the steps for calculating Mode using grouping method. **(4)**

OR

Calculate Mode of the following series.

C.I	0 – 5	5 – 10	10 – 15	15 – 20	20 – 25	25 – 30	30 – 35
Frequency	1	2	10	4	10	9	2

16. State any two merits of Karl Pearson's correlation coefficient. Calculate Karl Pearson's coefficient correlation between price and supply. **(2+4=6)**

Cost	4	6	8	15	20
Supply	10	15	20	25	30

17. What are the properties of Correlation Coefficient? Find out Rank Correlation of X and Y. **(2+4=6)**

X	80	78	75	75	58	67	60	59
Y	12	13	14	14	14	16	15	17

OR

What do you mean by a circular diagram? Explain the method of its construction. Present the data on the expenditure of a labour family in the form of a circular diagram. **(1+2+3=6)**

Items of expenditure	Food	Clothing	Housing	Fuel and Light	Others
Percentages of Income spent	65	15	12	5	3

Contd...3

SECTION – B (MICROECONOMICS)

(1x10=10)

18. Identify the price elasticity of demand from the given information by using percentage method. (Choose the correct alternative)

PRICE	QUATITY
P_0 = ₹ 6	Q_0 = 20
P_1 = ₹ 7	Q_1 = 18

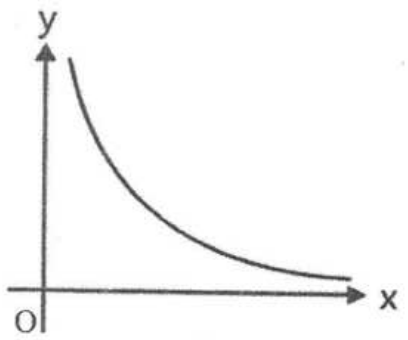
(A) Elasticity of demand $(E_d) = 1$
(B) Elasticity of demand $(E_d) = 0.6$
(C) Elasticity of demand $(E_d) = 1.2$
(D) Elasticity of demand $(E_d) = 0.4$

19. When a good X reaches the point of satiety, the marginal utility of that good will be equal to:
(A) Zero (B) Positive (C) Negative (D) Unity

20. If a seller gets ₹ 1500 by selling three chairs, his Average Revenue is:
(A) ₹ 300 (B) ₹ 500 (C) ₹ 250 (D) ₹ 150

21. Give two examples on variable costs.

22. Identify the following curve:



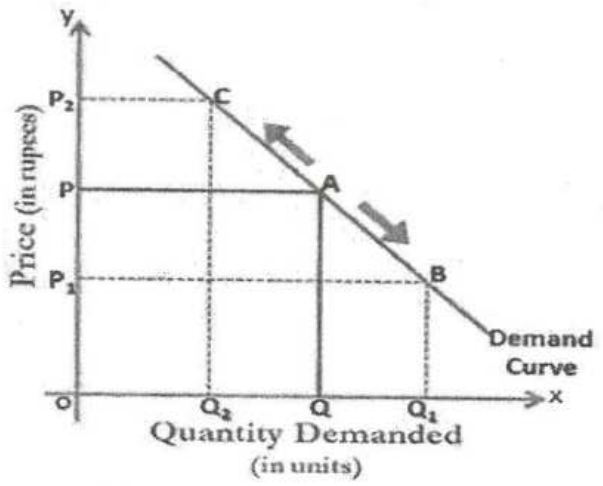
(A) AFC (B) TFC (C) AR (D) TVC

23. Ram opens a new factory for which he takes a building on rent. He manages the factory himself. Identify the explicit cost and implicit cost in the given situation.

24. The problem of 'How to Produce' involves choice between consumer goods and capital goods. **(True /False)**

25. When the supply of a good changes due to change in any factor other than its own price of the good, it is known as
(A) Change in supply (B) Expansion in supply
(C) Contraction in supply (D) Change in quantity supplied

26. Study the diagram given below and name the arrows



27. Suppose a consumer can afford to buy 6 units of good 1 and 8 units of good 2 if she spends her entire income. The prices of the two goods are ₹ 6 and ₹ 8 respectively. How much is the consumer's income?
(A) ₹ 180 (B) ₹ 140 (C) ₹ 120 (D) ₹ 100

28. Define price elasticity of supply? What is the method for measuring price elasticity of supply? A seller sells 80 units when price is ₹ 4/unit. Price elasticity of supply is 2. How much quantity will be the seller supply when price rises to ₹ 5/unit? **(3)**

OR

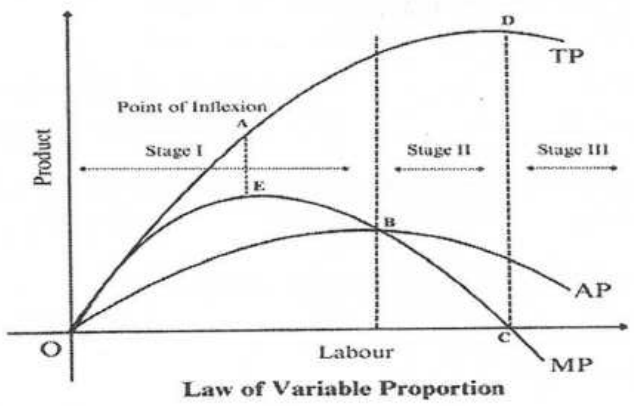
Draw supply curves showing –
(a) $Es = 1$ (b) $Es > 1$ (c) $Es < 1$

Contd...4

29. How is the demand for a good affected by the price of other goods? Explain. **(3)**

30. Explain relationship between – **(2+2=4)**
(a) MC & AC
(b) MR & AR

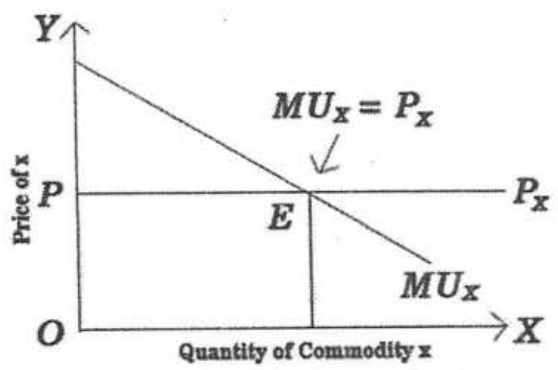
31. Study the following diagram carefully and explain the same: **(4)**



Law of Variable Proportion

OR

Explain the diagram given below –



32. Read the following para carefully and answer the following questions.

The concept of total fixed cost and total variable cost is extremely important in understanding the short – run production of a firm. They are also important concepts of costs. Total fixed cost is incurred on fixed factors of production like land, labour, etc., whereas total variable cost is incurred on the variable factors of production like salaries, taxes, etc. The change in the former is independent of output, whereas the change in the latter is dependent on output. The firm incurs total fixed cost even when the production is temporarily ceased, but in total variable cost, the firm doesn't incur any cost if the production ceases. Average cost and marginal cost are concepts in economics that describe the cost of producing goods and services. Marginal cost is referred to as the cost that is incurred by any business when there is a need for producing additional units of any goods or services. It is calculated by taking the total cost of producing the additional goods into account and dividing that by the change in the total quantity of the goods produced. **(1+1+2=4)**

(a) Can there be some fixed cost in the long run? If not why?
(b) Why does variable cost curve originate from the point of origin?
(c) Electricity tariff is increased for the commercial use. Would it affect fixed cost or variable cost of the industry? Explain with a reason.

33. (a) Explain using a diagram what happens to the PPC of Kashmir if the widespread floods have led to the destruction of human lives. **(2+2+2=6)**
(b) What is the likely impact of 'Sarv Shikha Abhiyan' and 'Skill India Campaign' on PPC of the Indian economy?
(c) 'Massive unemployment shifts the PPC to the left.' Defend or refute the statement. Why?

34. Explain the shift in Demand and Supply and Market equilibrium for the following – **(2+2+2=6)**

(a) Increase in demand is greater than increase in supply.
(b) Increase in demand is less than decrease in supply.
(c) Increase in demand is equal to decrease in supply.

OR

The following table gives the total cost schedule of a firm.
Find the TVC, TFC, AVC, AFC, AC & MC.

Output	0	1	2	3	4	5	6
TC	10	30	45	55	70	90	120

DELHI PUBLIC SCHOOL, BHILAI

Date : 05.03.2025 **ANNUAL EXAMINATION 2024-25** **Time : 3 Hrs.**
Class : XI **SUBJECT : COMPUTER SCIENCE** **Max. Marks : 70**
Name : _____ **Roll No.** _____

General Instructions:

1. This question paper contains **two parts A and (B)** Each part is compulsory.
2. Both Part A and Part B have choices.
3. **Part-A** has **2 sections**:
   (A) **Section – I** is **short answer questions**, to be answered in one word or one line.
   (B) **Section – II** has **two case studies questions**. Each case study has **5 case-based sub-parts**. An examinee is to attempt **any 4** out of the 5 subparts.
4. **Part - B** is **Descriptive Paper**.
5. **Part- B** has **three sections:**
   (A) **Section-I** is short answer questions of 2 marks each in which two questions haveinternal options.
   (B) **Section-II** is long answer questions of 3 marks each in which two questions haveinternal options.
   (C) **Section-III** is very long answer questions of 5 marks each in which one question hasinternal option.
6. All programming questions are to be answered using Python Language only

Q.NO.	**Section – I** Select the most appropriate option out of the options given for each question. Attempt any 15 questions from question no 1 to 21.	**Marks allocated**
1.	Which of the following is not a valid identifier name in Python? Justify reason for it not being a valid name. (A) 5Total (B) _Radius (C) pie (D)While	1
2.	What is the output when following code is executed? >>>str="Class11CS" >>>str[::-1]	1
3.	Write the full form of RAM & ROM.	1
4.	Which of the following is a relational operator in Python? (A) ? (B) < (C) = (D) //	1
5.	Suppose a tuple T1 is declared as T = (10, 20, 30, 40, 50,(1,"a",3),"b") which of the following statement will print "a" ? (A) print(T[6][2]) (B) print(T[6]) (C) print(T[5][1]) (D) print(t[5][1])	1
6	Which of the following statement create a dictionary? (A) X = { } (B) X = {"Sohan":40, "Mohan":45} (C) X = dict() (D) All of the above	1
7	A tuple is declared as T = (10,5,5,10,15) What will be the output of >>> print(T+("a","b"))?	1
8	These are the small text files for storing a small piece of information related to someone's online habits. (A) Spyware (B) Virus (C) Cookies (D) Spam	1
9	Which function out of the following will return the data type of the object: (A) type() (B) id() (C) ord() (D) str()	1
10	Your friend Suresh is complaining that he is receiving useless back-to-back mails regarding downloading a software from their site. Identify the type of cybercrime for such situations.	1
11	Which of the following falls under utilities? (A) Text Editor (B) Backup (C) Disk Defragmenter (D) All of these	1
12	This term refers to a person who purposely posts opposing, sarcastic, demeaning or insulting comments about something or someone. (A) Cyber Criminal (B) Cyber Thief (C) Cyber troll (D) Cyber stalker	1
13	Unauthorized monitoring of other people's communication is called: (A) Spamming (B) Malware (C) Adware (D) Eavesdropping	1
14	Which of the following are the example of system software: (A) Operating system (B) MS Office (C) Aarogya setu app (D) Games	1

Contd...2

15	Ramesh wants to print all the key values of the dictionary((D) so which of the following command he should use: (A) print(D.key()) (B) print(D.keys()) (C) print(D. keys) (D) print(D.key_values())	1
16	State output produced by the following code statements? (i) 87//5 (ii) 87//5.0	1
17	The binary number$(11011)_2$ will be equal to the which of the following decimal number: (A) 25 (B) 33 (C) 27 (D) 4	1
18	Write the output of the following code: S="Chhattisgarh" for i in range(len(S)): print(S[i],end="@")	1

19	Write the output of the following code:
	L=[5, 12, 15, 18, 20]
	for i in L:
	if i%5==0:
	print("divisible by 5")
	else:
	print("divisible by 3")
		1

	Directions: In the questions given below, there are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the correct option. (A) Both Assertion ((A) and Reason (R) are true, and Reason (R) is the correct explanation of Assertion ((A). (B) Both Assertion (A) and Reason (R) are true, but Reason (R) is not the correct explanation of Assertion ((A). (C) Assertion ((A) is true, but Reason (R) is false. (D) Assertion ((A) is false, but Reason (R) is true.	
20	**Assertion (A)** : In Python, strings, lists and tuples are called Sequences. **Reasoning (R)** : Sequence is referred to as an ordered collection of values having similar or different data types.	1
21	**Assertion (A)** : The data type of a variable is taken according to the type of value assigned to it. **Reasoning (R)** : Data types do not require initialization at the time of declaration. This process is described as dynamic Typing	1
	Section-II Both the Case study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark	
22	Ravi a student of class XI has created the following code , helped him by writing the correct code in space given in the following coding: Line="Delhi Public School Bhilai 2024" Length=_____# code for line1 print("Total no of characters are :",Length) cnt=0 for j in Line: if j. _____: # code for line2 cnt +=1 print("Total no of digits in given Line are",_____) #code for line3 print(Line.) # code for line4 _____ print("DPS Code : ",Line[ ]) # code for line5	
	line 1 : Ravi wants to count the number characters in a string "Line".	1
	line 2 : Ravi wants to check whether the element in loop variable j is a digit or not.	1
	line 3 : Ravi wants to print the total number of digits in a string "Line"	1
	line 4 : Ravi wants to change all the uppercase letters into lowercase and lowercase letters into uppercase.	1
	line 5 : Ravi want to print the DPS Code i.e. 2024 which is given at the end of the string Line.	1

Contd...3

23	Identify the type of cyber crime/activity from the following Situations:	
	(i) A person who starts quarrels or upsets people on the internet to distract and sow discord by posting inflammatory and digressive, extraneous or off-topic messages to an online community. This person will be referred as _____ in cyber world. (A) cyber troll (B) cyber stalker (C) Spyware (D) Hacker	1
	(ii) The activity of making false accusations or statements of fact, monitoring, making threats, identity theft ,damage to data or gathering information that may be used to harass someone by using internet or other electronic means. This may be referred as _____ . (A) Cyber stalking (B) cyber bullying (C) digital footprinting (D) Fishing	1
	(iii) _____ is the attempt to acquire sensitive information such as usernames, passwords and credit card details by masquerading as a trustworthy entity in an electronic communication. (A) Pharming (B) Phishing (C) Attack (D) Malware	1
	(iv) _____ is an attack in which a hacker attempts to redirect a website's traffic to another fake or bogus website. (A) Pharming (B) Phishing (C) Addware (D) Malware	1
	(v) _____ refers to a type of malware that displays unwanted Advertisement on your computer or device. (A) Pharming (B) spyware (C) Addware (D) Malware	1

	Part B	
	Section – I	
24	Evaluate the following expressions also show the step of order of operation: (A) 15*(4%4)//2+6 (B) not 10> 5 and 2 < 11 or not 10 < 2	2
25	What is an ip address? what does it do?	2
26	What is a module in Python? Define any two functions of Math module in python. **OR** Write **any four** differences between List and Tuple.	2
27	Observe the following Python code very carefully and rewrite it after removing all errors with each correction underlined. Str="Jagdalpur" L= length(Str) for j in range(L) print(j) **OR** How many times "Hello DPS" will be printed after the execution of the following code: for x in range(0,20,2): print('Hello DPS') print("Hello DPS"*2)	2

28	Write **any two** differences between Virus and Worms.	2
29	Convert $(2C9)_{16}$ into Octal number system.	2

30	Find out the errors in the code given below , underline each correction and write its correct version:
	Val = int(input("Value:"))
	Adder = 0
	for C in range(1, Val, 3):
	Adder =+ C
	if C%2 = 0;
	print(C*10)
	Else:
	print(C*)
	print(Adder)
		2

Contd...4

	Section – II	
31	(a) How is clear() function is different from del statement? (b) What is the output produced by the following code: D={"rno":[1,2,3],"name":["ravi","kavi","chhavi"],"marks":[20,23,25]} print(D.values()) print(D.keys())	3
32	Write a program to accept a string and display the string with second alphabet of each word in upper case. **OR** State and prove the Demorgan's Theorem.(Using Truth Table)	3
33	Define the following terms: (i) Application software (ii) Cache Memory (iii) Language processor	3
34	What is Social Media? Give examples of some social media platform with their usage. **OR** Define any 3 methods to prevent identity theft?	3
	Section- III	
35	Write the function name for the following task: 1. Function to add a list element at the end of the existing list. 2. Function to remove all the elements of the dictionary. 3. Function to count the number of characters in a string. 4. Function to find the ASCII code of given character. 5. Function to find the index value of an element of the list.	5
36	Create a dictionary whose keys are month names and whose values are the number of days in the corresponding months. (1) Ask the user to enter a month name and use the dictionary to tell how many days are in the month. (2) Print out all of the keys in alphabetical order. (3) Print out all of the months with 31 days. (4) Print out the (key-value) pairs sorted by the number of days in each month.	5
37	Write the program to find the sum of the geometric series given below: S =x – x3/3! + x5/5! and so on **OR** Write a program that should prompt the user to type some sentence(s) followed by "enter". It should then print the original sentence(s) and the following statistics relating to the sentence(s) : • Number of words • Number of characters (including white-space and punctuation) • Percentage of characters that are alphanumeric	5

DELHI PUBLIC SCHOOL, BHILAI

Date : 03.03.2025 **ANNUAL EXAMINATION 2024-25** **Time : 3 Hrs.**

Class : XI **SUBJECT : INFORMATICS PRACTICES** **Max. Marks : 70**

CODE (065)

Name : _____ **Roll No.** _____

General Instructions:

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

Section –A

Q1. _____ component of CPU is responsible for carrying out arithmetic and logic operations.
(A) CU (B) ALU (C) RAM (D) Register **(1)**

Q2. Which of the following memory is also known as Volatile Memory ?
(A) Primary (B) RAM (C) ROM (D) All of these **(1)**

Q3. Python code can run on a variety of platforms , it means Python is a _____language.
(A) OSS (B) Cross Platform (C) FLOSS (D) all of these **(1)**

Q4. Which of the following Exception is raised when the import module is not found ?
(A) ImportError (B) ModuleNotFound (C) FileNotFound (D) None **(1)**

Q5. Which of the following is not a valid Boolean literal in Python ?
(A) True (B) true (C) False (D) Both (A) and (C) **(1)**

Q6. Which of the following is an identity operator ?
(A) and (B) is (C) id (D) in **(1)**

Q7. _____ function gives memory cell address of an identifier –
(A) type( ) (B) id ( ) (C) int( ) (D)str( ) **(1)**

Q8. Which of the following python statement is used for creating empty dictionary ?
(A) { } (B) dict( ) (C) both (A) and (B) (D) None **(1)**

Q9. Which of the following will return the last element of a list named Ls ?
(A) Ls[0] (B) Ls[-1] (C) Ls[1] (D) None of these **(1)**

Q10. Which of the following module is imported for pretty printing in Dictionary ?
(A) json (B) dicts (C) random (D) pretty **(1)**

Q11. An attribute in a relation is a Foreign key if it is_____ key in another relation.
(A) Candidate (B) Primary (C) Alternate (D) Sub **(1)**

Q12. Which of the following clause is used in MySQL to eliminate repeated values of a Field ?
(A) Like (B) between (C) % (D) both (A) and (C) **(1)**

Q13. _____ command is used to change the name of a column/Field in a Relation –
(A) ALTER (B) LIKE (C) UPDATE (D) MODIFY **(1)**

Q14. To delete a Database in MySQL _____ command is used:
(A) Drop (B) Delete (C) Remove (D) Clear **(1)**

Q15. Which component of a computer connects the processor to the other hardware ?
(A) System Bus (B) Cache memory (C) Registers (D) None **(1)**

Contd...2

Q16. SSI stands for _____ :
(A) Small Scale Integration (B) System Service Integration
(C) Secured System Impact (D) None **(1)**

Q17 and 18 are **ASSERTION AND REASONING** based questions. Mark 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 but R is True.

Q17. **Assertion (A)** – A Primary Key is used to uniquely identify the rows in a data table.
Reasoning (R) – A primary key is a field or attribute which has a unique value for each row. **(1)**

Q18. **Assertion (A)** – Data Redundancy may solve many problems.
Reasoning (R)– In RDBMS, data redundancy is 100% removed. **(1)**

Section – B

Q19. Describe the terms **Data Retrieval** and **Access Time**. **(2)**

Q20. Write one advantage and one disadvantage of Open Source Software over Proprietary Software. **(2)**

Q21. Name the input/output device used to do the following task: **(¼ x4=2)**
(a) To output audio
(b) To enter textual data
(c) To make hard copy of a text file
(d) To assist a visually-impaired individual in entering data

Q22. Distinguish between CHAR and VARCHAR data types in MySQL with suitable example of each. **(2)**
OR
Distinguish between Alternate key and Candidate key.

Q23. Explain the following commands used in MySQL with suitable example: **(any 2)**
(a) DROP (b) DELETE (c) UPDATE **(2)**

Q24. Predict the output of the given code snippets – **(1+1=2)**

(a)
```
no1=len('SUCCESS')
for sp in range(0,no1,-2):
print(sp+5, end=' ')
```

(b)
```
s1='logic'
s2=s1+'100'
s3=s1*3
print(s1,"\n", s2,"\n",s3)
```

Q25. What is the difference between explicit and implicit type conversion in Python? Give examples. **(2)**

Section – C

Q26. Create a dictionary named INVENT whose keys are name of the products and whose values are cost of the products. **(3)**
(a) Using the above dictionary, display each product name and cost of it.
(b) Ask the user to enter any product name and give code which will display the cost of that product.

Q27. Write a program to calculate BMI of a person after input of weight in kg and height in meters and print the **"Nutritional Status"** as follows - **(3)**

BMI cut off	Nutritional Status
< 19	Underweight
19 – 25	Normal
25 – 30	Overweight
>30	Obese

Q28. (a) Write a program to input a list named **LST** of n integers (positive and negative numbers). Create two new lists from it - **LSTP** containing only positive numbers of **LST** and **LSTN** containing only negative numbers of **LST**. **(3)**
OR
(b) Write a program to find the largest, smallest and sum of all elements of a list given by user.

Contd...3

Q29. Consider the table **Gadgets** given below: **(1x3=3)**

Table : Gadgets

GCode	Gadget_Name	Qty	Price	Transaction_ Date
G001	Smart Ring	100	13400	2014-12-14
G004	Electric Spa Machine	20	14500	2015-01-31
G005	HackRF One	25	38000	2015-02-28
G009	Power Bank	200	1400	2015-03-12
G011	Smart watch	300	15000	Null

(i) Observe the above given table carefully and write the name of the most appropriate column which can be considered as primary key.
(ii) Write SQL statement to display structure of the table **Gadgets.**
(iii) Write SQL statement to display Name of all gadgets and price.

Q30. Mr Jatin, a AC Manager in a multinational company "HP-E" has created the following table to store the records of Employees. He wrote few SQL commands, predict correct output.**(any 3)**

Table : Employee **(1x3=3)**

EMPID	ENAME	DEPARTMENT	DOB	DOJ	SALARY
E1	Anita	HRD	1991-08-28	2020-02-14	50000
E2	Monika	CS	1997-10-15	2021-11-19	40000
E3	Ranjana	Accounts	1998-10-02	Null	48000
E4	Purva	Sales	2000-02-17	2020-05-01	35000
E5	Sanjana	CS	2001-12-05	2018-06-13	75000
E6	Sohna	Accounts	1995-01-03	2019-07-15	Null
E7	Robert	Sales	1985-11-13	2020-08-19	35000

(i) Select Ename from Employee where Department in('CS','Sales','HRD')
(ii) Select Empid, DOJ from Employee where Salary is Null;
(iii) Select *from Employee where department like '%r%';
(iv) Select Ename, Department from Employee where salary >40000;

Section – D

Q31. Read the following questions which are based on Python's Expressions, Data Types and Variables assignments and answer the following: **(2+2+1)**

(a) For each of the following Python expressions, write down the value that is output when the expression is evaluated using a Python interpretor. Write **'Error'** if you think the expression will raise an error.
(i) 2**3 (ii) 3*5//12 (iii) "QUEST"*4 (iv) 600-"500"

(b) Assume the following list definition in Python:
strings=['ascii','byte','octal','cpu','peta']
What would be displayed in a Python shell for each of the following expressions if they are evaluated in the given order ? If it would give an error the write **'Error'.**

>>>strings[-1] **(i)**

>>>strings[-len(strings)] **(ii)**

>>>strings+["zeta"] **(iii)**

>>>strings **(iv)**

(c) Let **trainee1** and **trainee2** be two non-empty lists. Write a Python command that will add all elements of **trainee1** at the end of **trainee2.**

Contd...4

Q32. Study the given case and answer the following : **(1x5=5)**

A smart city is a framework that uses digital and modern technology to develop, deploy and promote sustainable development for the social physical, institutional and economic infrastructure of a city..

(a) What technology play important role in smart cities?
(b) Since a lot of data is generated in smart cities, what is the special term given to such type of data?
(c) What are the five main characteristics of Big data?
(d) Write two benefits of Big data processing.
(e) Does a Traditional Database can store Big data?

OR

Explain the following Terminologies:
(a) NLP (b) Cloud Computing
(c) Virtual Reality (d) Machine Learning
(e) WoT

Q33. Answer the following - **(1x5=5)**

(a) Write SQL command to remove the database '**Resources**'.
(b) Give SQL command to display name of all tables.
(c) Write SQL command to change the name of a column **'Sirname'** to '**Lastname**' of data type VARCHAR and size 30 of the table **'Soldiers'**.

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

Select 105%10 ;

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

Insert _____ Stock values ('A1','cell',100);

OR

Give SQL commands to perform the following:

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

Column Name	TID	Title	Duration	StartDate	EndDate
Data type	integer	Varchar	integer	Date	Date
Length		25			
Key	Primary				

(b) Add a new column named **'Documentation'** of CHAR(100) data type.
(c) Change the length of the column to 50 of **Title** Column.
(d) Remove the entire table **'Tender'.**

Section – E

Q34. Give output for the following Python code snippet: **(1x4=4)**

```
List1=[10,20,40,50,70,80,90]
List2=List1.copy( )
List2.append(100)
List1.pop()
print(List1[1:7:2])
print(List1*2)
print(List1[-5:-1])
print(List2)
```

OR

Distinguish the following functions/methods with suitable Python code example: **(2+2=4)**
(a) insert( ), append( ) used in list
(b) sort( ), sorted( ) used in list

Q35. Write SQL statement for the given queries based on the created table **"Tender":** **(1x4=4)**
(Refer Table given in Question No. 33).
(a) Display all records of Table **"Tender"**.
(b) Display different unique values of **Title** (removing duplicate).
(c) Increase Duration of each row by 10.
(d) Remove / Delete all rows of Tender table.

DELHI PUBLIC SCHOOL, BHILAI

Date : 19.02.2025 **ANNUAL EXAMINATION 2024-25** **Time : 3 Hrs.**

Class : XI **Subject : Physical Education (048)** **Max. Marks : 70**

Name : _____ **Roll No.** _____

General Instructions :

(1) The question paper consists of 5 sections and 37 questions.
(2) **Section A** consists of question **1-18 carrying 1 mark** each and is **multiple choice questions**. All questions are compulsory.
(3) **Section B** consists of questions **19-24 carrying 2 marks each** and are **very short answer types** and should not exceed 60-90 words. Attempt any 5 questions.
(4) **Section C** consist of questions **25-30 carrying 3 marks each** and **are short answer types** and should not exceed 100-150 words. Attempt any 5 questions.
(5) **Section D** consist of question **31-33 carrying 4 marks each** and are **case studies**. There is internal choice available.
(6) **Section E** consist of question **34-37 carrying 5 marks each** and are **short answer types** and should not exceed 200-300 words. Attempt **any 3** questions.

Section – A (1x18=18)
(Multiple Choice Questions)

01. The nutritional requirement of an athlete depends on his/her **(1)**
(A) Fitness level (B) Sports
(C) Mental health (D) Both (A) and (B)

02. In which year, the FIT INDIA Movement was started? **(1)**
(A) 2014 (B) 2017 (C) 2019 (D) 2021

03. The place where the Olympic Flame is lit before the start of Olympic Games : **(1)**
(A) Capital city of Host Nation (B) Olympia (C) Capital City of Asia (D) Athens

04. **Assertion (A) :** Nauli Kriya is helpful in resolving problem of gas and constipation. **(1)**
Reason (R) : Nauli Kriya is performed by sitting in Padmasana Position.
(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
(B) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).
(C) Assertion (A) is true but Reason (R) is false.
(D) Assertion (A) is false but Reason (R) is true.

05. Match List I with List II and select the answer from the code given below: **(1)**

S.No.	List I	List II	
	ELEMENT	MEANING	
(i)	Yama	1	Rules for self-purification
(ii)	Niyama	2	Social behaviour
(iii)	Asana	3	Breath control
(iv)	Pranayama	4	Posture

CODE:

	(i)	(ii)	(iii)	(iv)
(A)	1	3	2	4
(B)	4	1	2	3
(C)	2	1	4	3
(D)	3	4	1	2

06. Musculoskeletal and neuromuscular are two categories of disability. **(1)**
(A) Cognitive (B) Intellectual (C) Physical (D) Sensory

07. A disorder is related to brain in which it faces trouble in receiving and responding to information can be termed as: **(1)**
(A) ODD (B) OCD (C) ADHD (D) SPD

08. Which of the following is not a component of Physical fitness? **(1)**
(A) Endurance (B) Alertness (C) Strength (D) Agility

Contd...2

09. For an individual, a test is conduct to evaluate: (1)
(A) Skill (B) Knowledge (C) Ability (D) All of these

10. What should be the range of BMI for a healthy person? (1)
(A) Less than 18.5 (B) 18.5 to 24.9
(C) 25 to 29.9 (D) All of these

11. Which of the following is a property of muscles? (1)
(A) Excitability (B) Contractability
(C) Elasticity (D) All of these

12. Which of the following blood cells contains haemoglobin? (1)
(A) Red blood cell (B) White blood cell
(C) Platelet (D) Bone marrow

13. Newton's first law of motion is also known as: (1)
(A) Law of inertia (B) Law of acceleration
(C) Law of learning (D) Law of action and reaciton

14. Kinesiology deals with the – (1)
(A) Study of movements (B) Study of speed of running
(C) Study of throwing angle (D) Study of jumping distance

15. What is main problem of adolescent? (1)
(A) Rapid Physical Changes (B) Rebellions behaviour
(C) Concern about future and career (D) All of these (1)

16. Sports Psychology Plays a vital role in which field? (1)
(A) Confirming Victory in Sports (B) Enhancing motor skills
(C) Removing Psychological barriers (D) Both (B) and (C)

17. Which of the following is a principles of sports training? (1)
(A) principle of specificity (B) principle of overload
(C) principle of continuity (D) All of these

18. What is the effect of diuretics? (1)
(A) Reduce body weight (B) Control body tremors
(C) Increase Speed (D) Relieve Pain

Section – B (2x5=10)
(Attempt any 5 Questions)

19. How many elements are there in yoga? (2)

20. Define disability. (2)

21. Define test, measurement and evaluation. (2)

22. Mention <u>two</u> functions of circulatory system. (2)

23. Define sports psychology. (2)

24. What is the full form of NADA? (2)

Section – C (3x5=15)
(Attempt any 5 Questions)

25. Write in brief about different wearable gears. (3)

26. What are the benefits of doing kapalbhati? (3)

27. Write <u>any two</u> components of wellness. (3)

28. Discuss the principles of biomechanics. (3)

29. Write <u>any two</u> types of cohesion in detail. (3)

30. What is the meaning of overload? (3)

Contd...3

Section – D (CASE STUDIES) (4x3=12)
(Internal Choice Available)

31. Look at the following figure and answer these questions. **(1x4=4)**

(a) What do the five rings of the given flag represent?
(b) The Olympic Flag was first hoisted in _____ .
(c) What does the white background of the flag symbolize?
(d) The Olympic symbol of five rings was designed by _____ .

OR

What is the full form of IOC?

32. In a class of 50 students, a teacher was taking a lesson on components of wellness. The students were later assessed on what they had learnt. **(1x4=4)**

On the basis of the case given, answer the following questions:

(a) What will happen if a person does not pay attention to Social Wellness?
(b) How can financial wellness be achieved?
(c) If a person responds intelligently to circumstances and is receptive to new ideas and challenges, then _____ component of wellness justifies her/his qualities.
(d) Physical Wellness highlights the _____ aspects of wellness.

OR

There are _____ components of wellness.

33. A set of players tried to enhance their performance by unnatural means (doping) for an international tournament. **(1x4=4)**

On the basis of the information given, answer the following question:

(a) Which agency is responsible to set-up rules and regulations against such unnatural performance enhancement practices?
(b) How did the need for an independent international body to set strict and full-proof standards for anti-doping arise?
(c) WADA was set up on _____ is in Switzerland and is the ancronym for _____ .
(d) The WADA developed a code known as the _____ to set anti – doping policies, rules and regulations.

OR

What is the full form of WADA?

Section – E (5x3=15)
(Attempt any 3 questions)

34. Write <u>any five</u> objectives of Khelo – India Program in detail. **(5)**

35. Explain the importance of test, measurement and evaluation with suitable example in the field of sports. **(5)**

36. Write a note on the various parts of the respiratory system. **(5)**

37. What is axis and plane? Discuss its various types. **(5)**

DELHI PUBLIC SCHOOL, BHILAI

Date : 05.02.2025 **ANNUAL EXAMINATION 2024-25** **Time : 50 Minutes**

Class : XI **SUBJECT : GENERAL KNOWLEDGE** **Max. Marks : 50**

Name of the student: _____ Class/Sec._____ Roll No._____

Invigilator's Signature _____ Marks obtained : _____/50

General Instructions:

- **All the questions are compulsory.**
- **There are 50 questions of 1 mark each.**
- **Write the correct option in the provided box against each question.**

01.	Who was called "Frontier Gandhi"? (A) Rajmohan Gandhi (B) Khan Abdul Gaffar Khan (C) Liaquat Ali Khan (D) Ram Monohar Lohia	
02.	Which of the following measures the intensity of an earthquake? (A) Pyrometer (B) Pyrohelimeter (C) Sismograph (D) Pyknometer	
03.	The Blue Revolution is associated with – (A) Fish (B) Agriculture (C) Industry (D) Oilseeds	
04.	Which of these bodies decides the currency management in India? (A) Ministry of Commerce (B) Ministry of Finance (C) Reserve Bank of India (D) Finance Commission	
05.	The Headquarters of UNICEF is situated at – (A) The Hague (B) New York (C) Washington (D) Geneva	
06.	X-rays were discovered by – (A) Roentgen (B) H. Davy (C) Faraday (D) Lavoisier	
07.	Which are the only snakes in the world that build nests? (A) Python (B) King Cobra (C) Anaconda (D) None	
08.	Who was the first woman President of UN-General Assembly? (A) Indira Gandhi (B) Sarojini Naidu (C) Vijaya Laxmi Pandit (D) Annie Besent	
09.	When is National Science Day observed? (A) 28 February (B) 14 February (C) 4 February (D) 16 February	
10.	The plastic that is used in light weight, rust proof plumbing pipe is – (A) Teflon (B) Poly ethylene (C) PVC (D) Bakelite	
11.	The real bleaching agent present in bleaching powder is – (A) Oxygen (B) Calcium (C) Chlorine (D) Suphuric acid	
12.	Who among the following first used the word 'Swaraj'? (A) Raja Ram Mohan Roy (B) Bal Gangadhar Tilak (C) Mahatma Gandhi (D) Swami Vivekananda	
13.	Which city in India is located on the bank of river Yamuna? (A) Agra (B) Bareily (C) Varanasi (D) Kanpur	
14.	When did India's Chandrayan – 3 land on the Moon? (A) 23 August 2023 (B) 15 August 2023 (C) 12 September 2023 (D) 31 August 2023	
15.	Nail Polish remover contains – (A) Acetone (B) Benzene (C) Petroleum (D) Acetic acid	
16.	"Atal Tunnel" is situated in – (A) Arunachal Pradesh (B) Jammu and Kashmir (C) Himachal Pradesh (D) Uttarakhan	
17.	Who authored the book titled "Why the Sky is blue"? (A) Dr. H.J. Bhabha (B) Dr. C.B. Raman (C) Dr. APJ Abdul Kalam (D) Dr. Man Mohan Singh	
18.	Where is the famous "Bhoramdeo Temple" of Chhattisgarh situated? (A) Bijapur (B) Raigarh (C) Kawardha (D) Korba	
19.	What does the air bag used for safety of car drivers contain? (A) Sodium bicarbonate (B) Sodium azaide (C) Sodium Nitrite (D) Sodium Paroxide	
20.	Which language was used for spreading Buddhism? (A) Sanskrit (B) Prakrit (C) Pali (D) Hindi	
21.	Which game/sports is D. Gukesh associated with ? (A) Cricket (B) Chess (C) Football (D) Hockey	
22.	Which is fourth estate in democracy? (A) Press (B) Property (C) Metals (D) Tax	

Contd...2

23.	Which one is wrongly spelt? (A) Thunder (B) Fragrans (C) Armour (D) Inflation	
24.	Detroit is famous for which industry? (A) Textile (B) Food processing (C) Automobiles (D) Locomotives	
25.	Which of the following stars in closest to the earth? (A) Dhruv (B) Alpha centauri (C) Sun (D) Sirius	
26.	The Grand Trunk road was built during the reign of – (A) East India Company (B) British Government (C) Akbar (D) Sher Shah Suri	
27.	Vasco da Gama who reached India through sea route via "Cape of Good Hope", first arrived in – (A) Goa (B) Daman (C) Diu (D) Calicut	
28.	First speaker of Lok Sabha was – (A) G.V. Mavalankar (B) Sachindra Ray (C) S. Mukherjee (D) Manohar Joshi	
29.	'Prithvi' is – (A) Fighter plane (B) Passenger plane (C) Surface to Surface Missile (D) Unmanned air vehicle	
30.	Which game is associated with "Ranji Trophy"? (A) Hockey (B) Football (C) Cricket (D) Badminton	
31.	Who were the winners of T-20 World Cup 2024? (A) England (B) Australia (C) South Africa (D) India	
32.	The only jute industry of Chhattisgarh is located in – (A) Raigarh (B) Koriya (C) Jashpur (D) Ambikapur	
33.	The famous "Chitrakot" water fall in C.G. is situated – (A) Baghel Khand Plateau (B) Chhattisgarh Basin (C) Jashpur – Samri region (D) Dandakaranya region	
34.	Who is the Governor of Chhattisgarh? (A) Dr. Raman Singh (B) Vishnudev Sai (C) Ramen Deka (D) Dharm Kaushik	
35.	On which of the following rivers is the "Mini Mata Project" situated? (A) Mahanadi (B) Hasdeo (C) Eb (D) Shivnath	
36.	Which of the following are used to measure very short intervals of time accurately? (A) Atomic Clocks (B) Pulsar (C) While Vamara (D) Chronoscope	
37.	Electromagnetic waves which are used for satellite communications are - (A) Radio waves (B) Infrared radiation (C) X-rays (D) Ultra violet rays	
38.	The Tropic of Cancer does not pass through – (A) India (B) Pakistan (C) Bangladesh (D) Myanmar	
39.	Who is the present Chief Minister of Andhra Pradesh? (A) S. Siddharamaiah (B) Revant Reddy (C) Chandra Babu Naidu (D) Yaddyurappa	
40.	Zozila pass connects – (A) Nepal and Tibet (B) Leh and Kargil (C) Leh and Srinagar (D) Kashmir and Tibet	
41.	Who became the first woman recipient of Bharat Ratna Award? (A) Mother Teresa (B) Indira Gandhi (C) Kamla Nehru (D) Vijaya Laxmi Pandit	
42.	Which one is the classical dance of Assam? (A) Nati (B) Kuchipudi (C) Yaksha gana (D) Bihu	
43.	In Shinchan Cartoon Series, what is the name of Shinchan's sister? (A) Suzuka (B) Shilee (C) Zenny (D) Hemawari	
44.	If a person has a fear of fire, he is suffering from – (A) Microphobia (B) Misophobia (C) Pyrophobia (D) Anthrophobia	
45.	Which is known as "Ganga of Chhattisgarh"? (A) Indravati (B) Shivnath (C) Doodh (D) Mahanadi	
46.	Pedology is the study of – (A) Coins (B) Numbers (C) Stamps (D) Soil	
47.	A doctor who treats the disorder of feet/feet ailments is called – (A) Chiropodist (B) Cardiologist (C) Orthopaedist (D) Legologist	
48.	Who wrote the epic "Paradise Lost" and "Paradise Regained" ? (A) William Shakespeare (B) John Keats (C) John Milton (D) William Wordsworth	
49.	Who is the Vice President of India? (A) Venkaiah Naidu (B) Dropadi Murmu (C) Jagdeep Dhankhar (D) Rajnth Singh	
50.	Which of the following is called the "Prayag of Chhatttisgarh"? (A) Ratanpur (B) Dongargarh (C) Rajim (D) Champakaranya	