

CLASS 9 MATHEMATICS SAMPLE PAPER

Time Allowed: 2.5 Hours | Maximum Marks: 80

General Instructions:

1. The question paper is divided into two sections: Section A and Section B.
 2. **Section A (40 Marks)** is compulsory. Attempt all questions from this section.
 3. **Section B (40 Marks)** contains 7 questions. Attempt any 4 questions from this section.
 4. All working, including rough work, must be clearly shown and must be done on the same sheet as the rest of the answer.
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SECTION A (40 Marks)

Attempt all questions from this section

Question 1 [15 × 1 = 15 Marks]

Choose the correct answers to the questions from the given options.

(i) The simplified value of $\sqrt{3 - 2\sqrt{2}}$ is:

- (a) $\sqrt{2} - 1$
- (b) $\sqrt{2} + 1$
- (c) $1 - \sqrt{2}$
- (d) $3 - \sqrt{2}$

(ii) The difference between compound interest and simple interest on Rs 1000 for 3 years at 10% per annum is:

- (a) Rs 30
- (b) Rs 31
- (c) Rs 33
- (d) Rs 10

(iii) If $x^2 - 5x + 1 = 0$, then the value of $x^2 + \frac{1}{x^2}$ is:

- (a) 23
- (b) 25
- (c) 27
- (d) 21

(iv) If $x^{x\sqrt{x}} = (x\sqrt{x})^x$, then the value of x (where $x > 0, x \neq 1$) is:

- (a) $\frac{3}{2}$
- (b) $\frac{9}{4}$
- (c) $\frac{4}{9}$
- (d) 1

(v) The value of $\log_2(\log_2(\log_2 16))$ is:

- (a) 0
- (b) 1
- (c) 2
- (d) 4

(vi) The factors of the expression $x^4 + x^2y^2 + y^4$ are:

- (a) $(x^2 + y^2)^2$
- (b) $(x^2 + xy + y^2)(x^2 - xy + y^2)$
- (c) $(x^2 - y^2)^2$
- (d) $(x^2 + xy + y^2)^2$

(vii) In $\triangle ABC$, $\angle B = 90^\circ$ and $\tan A = \frac{3}{4}$. The value of $\cos A + \sin C$ is:

- (a) $\frac{8}{5}$
- (b) $\frac{6}{5}$
- (c) $\frac{3}{5}$
- (d) 1

(viii) The coordinates of the point $(2, -3)$ reflected in the line $y = -1$ are:

- (a) (2,1)

- (b) $(2, -1)$
- (c) $(-4, -3)$
- (d) $(2, 5)$

(ix) The solution to the simultaneous equations $3^{x+y} = 81$ and $81^{x-y} = 3$ is:

- (a) $x = 17/8, y = 15/8$
- (b) $x = 2, y = 2$
- (c) $x = 15/8, y = 17/8$
- (d) $x = 4, y = 1/4$

(x) The simplified value of $\frac{\sin^3\theta + \cos^3\theta}{\sin\theta + \cos\theta} + \sin\theta\cos\theta$ is:

- (a) 0
- (b) 1
- (c) 2
- (d) $\sin\theta\cos\theta$

(xi) If $2^x = 3^y = 6^{-z}$, then the value of $\frac{1}{x} + \frac{1}{y} + \frac{1}{z}$ is:

- (a) 1
- (b) -1
- (c) 0
- (d) xyz

(xii) Between any two distinct rational numbers, there is/are:

- (a) Exactly one rational number
- (b) No irrational numbers
- (c) Infinitely many irrational numbers
- (d) Only one irrational number

(xiii) A sum of money doubles itself in 4 years at compound interest. In how many years will it become 8 times of itself?

- (a) 8 years
- (b) 12 years

- (c) 16 years
- (d) 24 years

(xiv) If $a\cos\theta - b\sin\theta = c$, then the value of $a\sin\theta + b\cos\theta$ is:

- (a) $\pm\sqrt{a^2 + b^2 + c^2}$
- (b) $\pm\sqrt{a^2 + b^2 - c^2}$
- (c) $\pm\sqrt{c^2 - a^2 - b^2}$
- (d) c

(xv) If $a + b + c = 0$, then $a^3 + b^3 + c^3$ is identically equal to:

- (a) 0
- (b) abc
- (c) $3abc$
- (d) $(a + b + c)^3$

Question 2 [$3 \times 4 = 12$ Marks]

(a) Rationalize the denominator and simplify fully:

$$\frac{1}{\sqrt{3} + \sqrt{2} - \sqrt{5}}$$

(b) A man borrows Rs. 21,000 at 10% per annum compound interest. How much should he pay at the end of each year to clear his debt in two equal annual installments?

(c) Factorize completely using the Factor Theorem: $4x^2 - y^2 - 3xy + 2x - 2y$.

Question 3 [$4 + 4 + 5 = 13$ Marks]

(a) Solve for x : $5^{x+1} + 5^{2-x} = 126$.

(b) If $\frac{\log x}{y-z} = \frac{\log y}{z-x} = \frac{\log z}{x-y}$, prove that $xyz = 1$.

(c) Prove the following trigonometric identity for $\theta = 60^\circ$:

$$\frac{\tan\theta}{1 - \cot\theta} + \frac{\cot\theta}{1 - \tan\theta} = 1 + \sec\theta\operatorname{cosec}\theta$$

SECTION B (40 Marks)

Attempt any four questions from this section

Question 4

(a) If $x = \frac{\sqrt{3}-\sqrt{2}}{\sqrt{3}+\sqrt{2}}$ and $y = \frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}$, find the value of $x^2 + y^2 - xy$. ****

(b) The centre of a circle is $(2a, a - 7)$. Find the value of a if the circle passes through the point $(11, -9)$ and has a diameter of $10\sqrt{2}$ units. ****

(c) Solve the logarithmic equation for x : ****

$$\log_{10}(x - 1) + \log_{10}(x^2 + x + 1) = \log_{10}(7)$$

Question 5

(a) The compound interest on a certain sum for the second year is Rs. 132 and for the third year is Rs. 145.20. Find the rate of interest and the original sum. ****

(b) Factorize the expression: $8x^3 + y^3 + 27 - 18xy$. ****

(c) If $\sin\theta + \cos\theta = \sqrt{2}\cos\theta$, show that $\cos\theta - \sin\theta = \sqrt{2}\sin\theta$. ****

Question 6

(a) Simplify the following expression completely: ****

$$\left(\frac{x^a}{x^b}\right)^{a^2+ab+b^2} \times \left(\frac{x^b}{x^c}\right)^{b^2+bc+c^2} \times \left(\frac{x^c}{x^a}\right)^{c^2+ca+a^2}$$

(b) The vertices of a triangle are $A(a, b)$, $B(a + 3, b + 4)$ and $C(a - 4, b + 3)$. Show that it is an isosceles right-angled triangle. ****

(c) If $a^2 + b^2 + c^2 = 250$ and $ab + bc + ca = 3$, find the value(s) of $a + b + c$. ****

Question 7

(a) If $x^2 + y^2 = 23xy$, prove that $\log\left(\frac{x+y}{5}\right) = \frac{1}{2}(\log x + \log y)$. ****

(b) If $\cos x = \cos 40^\circ \sin 50^\circ + \sin 40^\circ \cos 50^\circ$, then find the value of x

(c) A person borrowed a certain sum of money and paid it back in two equal annual installments of Rs. 8,820 each. If the rate of compound interest was 5% per annum, find the sum borrowed. ****

Question 8

(a) Factorize completely: $x^4 + 5x^2 + 9$. ****

(b) Solve the exponential equation for x : $4^x - 3 \cdot 2^{x+2} + 2^5 = 0$. ****

(c) Find the centre of a circle passing through the points $(6, -6)$, $(3, -7)$ and $(3, 3)$. Also find the radius

Question 9

(a) Find the values of rational numbers a and b if: ****

$$\frac{7 + 3\sqrt{5}}{3 + \sqrt{5}} - \frac{7 - 3\sqrt{5}}{3 - \sqrt{5}} = a + b\sqrt{5}$$

(b) The difference between compound interest and simple interest on a certain sum of money for 3 years at 5% per annum is Rs. 122. Find the sum. ****

(c) If θ is an acute angle and $\frac{\cos\theta + \sin\theta}{\cos\theta - \sin\theta} = \frac{1 + \sqrt{3}}{1 - \sqrt{3}}$, find the value of $2\sec^2\theta - 3\operatorname{cosec}^2\theta$

Question 10

(a) If $x + \frac{1}{x} = p$, show that $x^3 + \frac{1}{x^3} = p(p^2 - 3)$. ****

(b) If point P(x,y) is equidistant from the points A(a+b, b-a) and B(a-b, a+b), prove that $bx = ay$. ****

(c) Evaluate the following :

$$\frac{\log\sqrt{27} + \log 8 - \log\sqrt{1000}}{\log 1.2}$$

HISTORY & CIVICS QUESTION PAPER CLASS IX – HALF-YEARLY EXAMINATION

Time Allowed: 2 Hours

Maximum Marks: 80

Instructions to Candidates:

Answers to this Paper must be written on the answer sheet provided separately.

You must NOT start writing during reading time.

The time given at the head of this Paper is the time allowed for writing the answers.

Attempt all questions from Part I and Part II.

The intended marks for questions or parts of questions are given in brackets [].

PART I

Q1. Choose the correct answer:

(10 × 1 = 10 Marks)

The Constitution of India came into force on: a) 15 August 1947

b) 26 November 1949

c) 26 January 1950

d) 9 December 1946

Which one of the following was a characteristic of the Harappan cities? a) Unplanned streets

b) Grid-patterned streets

c) Wooden houses only

d) Absence of wells

Which Vedic assembly was mainly associated with smaller groups of people? a) Samiti

b) Sabha

c) Parishad

d) Gana

The founder of Buddhism was: a) Mahavira

b) Gautama Buddha

c) Ajivika Gosala

d) Parshvanatha

Which source gives information about the administration of the Mauryan Empire? a)

Arthashastra

b) Rajatarangini

c) Indica only

d) Sangam poems only

Ashoka's policy of Dhamma mainly emphasised: a) Military expansion

b) Religious intolerance

c) Moral and ethical conduct

d) Establishment of monarchy

The famous Tamil work Tirukkural is associated with: a) Sangam Age

b) Gupta Age

c) Mauryan Age

d) Vedic Age

The Chinese traveller who visited India during the reign of Chandragupta II was: a) Hiuen Tsang

b) Fa-Hien

c) Al-Biruni

d) Megasthenes

The head of the Election Commission of India is the: a) Chief Election Commissioner

b) Chief Justice of India

c) Speaker of Lok Sabha

d) President of India

A legislature having two Houses is called: a) Unicameral

b) Bicameral

c) Federal

d) Unitary

Q2. Short Answer Type Questions

(10 × 2 = 20 Marks)

a. State any two reasons why a Constitution is necessary for a country.

b. Mention any two Fundamental Duties of an Indian citizen.

c. What is meant by a by-election? Give one situation in which it is held.

d. Distinguish between direct and indirect elections.

e. Mention any two characteristics of Harappan town planning.

f. Name any two sources which help us to study the Vedic Period.

g. What were the Four Noble Truths of Buddhism?

h. State any two principles of Jainism.

- i. What was the importance of the Ashokan Edicts as a historical source?
- j. Mention any two important features of Gupta-period culture.

PART II

SECTION A – CIVICS

Q3. Answer the following:

(10 Marks)

- i. What is meant by Universal Adult Franchise? (2)
- ii. Give two differences between Fundamental Rights and Directive Principles of State Policy. (2)
- iii. Explain any three important features of the Indian Constitution. (3)
- iv. What is meant by a Welfare State? Mention two ways in which the Directive Principles help in establishing a Welfare State. (3)

Q4. Answer the following:

(10 Marks)

- i. What is an election? Why are elections essential in a democracy? (2)
- ii. Mention any two functions of the Election Commission of India. (2)
- iii. Distinguish between a General Election and a Mid-term Election. (3)
- iv. Explain the meaning of Unicameral and Bicameral legislature. Name one Indian State having a bicameral legislature. (3)

SECTION B – HISTORY

Q5. Answer the following:

(10 Marks)

- i. Why are seals considered an important source of information about the Harappan Civilisation? (2)
- ii. State any two changes that took place in the economy during the Later Vedic Period. (2)
- iii. Explain three important differences between the Early Vedic and Later Vedic societies. (3)
- iv. Describe three important features of Harappan trade and craft production. (3)

Q6. Picture-Based Question

Study the picture given below and answer the following:

[Picture of a Harappan Seal showing an animal and inscription]

- i. Identify the archaeological object shown in the picture. (2)
- ii. What type of script is associated with this object? (2)
- iii. Mention any three uses or possible purposes of Harappan seals. (3)
- iv. What does the study of seals reveal about the economic and cultural life of the Harappans? (3)

Q7. Answer the following:

(10 Marks)

- i. Name the first and last major rulers of the Mauryan dynasty in chronological order. (2)
- ii. What was the main objective of Ashoka's policy of Dhamma? (2)
- iii. Explain any three factors responsible for the growth of Jainism and Buddhism in the 6th century B.C. (3)
- iv. Describe any three contributions of the Gupta period to the fields of science, literature and culture. (3)

SILVER GROVE SCHOOL
CLASS IX – COMPUTER APPLICATIONS
SET – B

SAMPLE QUESTION PAPER – 2026–27

Time Allowed: 2 Hours Maximum Marks: 100

General Instructions

All questions are compulsory.

The paper is divided into four sections.

Answer all questions as instructed.

Write Java programs using proper syntax and meaningful variable names.

Show all necessary working wherever required.

The intended marks for questions or parts of questions are given in brackets [].

SECTION A – OBJECTIVE TYPE QUESTIONS

Question 1

(a) Choose the correct option. [10 × 1 = 10]

1. Which OOP principle combines data and the methods operating on that data?

a) Inheritance b) Encapsulation c) Polymorphism d) Abstraction

2. Which of the following represents the behaviour of an object?

a) Colour b) Height c) Weight d) Run()

3. Which of the following is NOT a valid Java identifier?

a) studentName b) _marks c) total1 d) 1total

4. Which data type can store a value such as 45.67?

a) int b) char c) double d) boolean

5. Which operator gives the remainder after integer division?

a) / b) % c) // d) rem

6. Which Scanner method is used to accept a String containing a complete line?

a) next() b) nextLine() c) nextString() d) readLine()

7. Which method returns the larger of two values?

a) Math.large() b) Math.maximum() c) Math.max() d) Math.high()

8. What is the result of Math.pow(2, 3)?

a) 5 b) 6 c) 8.0 d) 9.0

Which operator has the highest precedence among the following? a) + b) * c) = d) %

Java bytecode is executed by the:

a) Compiler b) JVM c) Editor d) Scanner

(b) Fill in the blanks. [5 × 1 = 5]

The four basic principles of OOP are _____, _____, _____ and _____.

A class is a _____ for creating objects.

The keyword used to create an object is _____.

The default package containing the Math class is _____.

The method Math.abs() returns the _____ value of a number.

(c) State whether the following statements are True or False. [5 × 1 = 5]

An object is an instance of a class.

char can store a complete word.

The % operator can be used with integers.

Scanner is used for taking input from the user.

Math.floor(6.8) returns 7.0.

SECTION B – CONCEPTUAL QUESTIONS

Question 2 [10]

What is Object Oriented Programming? [2]

Explain data abstraction with a suitable real-life example. [2]

What is encapsulation? [2]

Explain inheritance with a suitable example. [2]

What is polymorphism? [2]

Question 3 [10]

Differentiate between a class and an object. [2]

Explain the terms state and behaviour of an object. [2]

Give two real-life examples of classes and their corresponding objects. [2]

Why is a class considered a user-defined data type? [2]

Explain the statement: "Objects communicate with one another through methods." [2]

Question 4 [10]

Name any four primitive data types in Java. [2]

Differentiate between int and double. [2]

What is type conversion? Name its two types. [2]

What is the difference between a character and a String? [2]

Identify the data type most suitable for each: Age of a student; Percentage obtained; First letter of a name; Whether a student is present or absent. [2]

SECTION C – OPERATORS, INPUT AND OUTPUT

Question 5 [10]

(a) Find the output of the following: [3]

```
int a = 17; int b = 4;
```

```
System.out.println(a / b);
```

```
System.out.println(a % b);
```

```
System.out.println(a + b * 2);
```

(b) Find the output: [3]

```
int p = 10; int q = 5;
```

```
System.out.println(p > q);
```

```
System.out.println(p == q);
```

```
System.out.println(p != q);
```

(c) Evaluate: [4]

10 + 5 * 2

(10 + 5) * 2

25 % 4

6 > 3 && 4 < 2

Question 6 [10]

What is the difference between = and == operators? [2]

Explain the use of relational operators in Java. [2]

What are logical operators? Name the three logical operators used in Java. [2]

What is the difference between prefix and postfix increment? Give one example. [2]

Write the purpose of the following operators: += and !=. [2]

SECTION D – PROGRAMMING IN JAVA

Question 7 [10]

Write a Java program to accept the radius of a circle and calculate and display:

Diameter

Circumference

Area

Use an appropriate constant for the value of π .

Question 8 [10]

Write a Java program to accept the basic salary of an employee and calculate the gross salary using:

HRA = 20% of basic salary

DA = 10% of basic salary

Display the basic salary, HRA, DA and gross salary.

Question 9 [10]

Write a Java program to accept a number and display:

Its square

Its cube

Its square root

Its absolute value

Use appropriate methods of the Math class.

Question 10 [10]

Write a Java program to accept the principal, rate of interest and time from the user and calculate:

Simple Interest = $(\text{Principal} \times \text{Rate} \times \text{Time}) / 100$ Display the simple interest and the total amount.

Sample B

अर्द्ध-वार्षिक परीक्षा 2026–27

विषय: हिंदी

कक्षा: 9

पूर्णांक: 80

समय: 2½ घंटे (प्रश्न-पत्र पढ़ने हेतु अतिरिक्त 15 मिनट)

सामान्य निर्देश:

1. इस प्रश्न-पत्र को पढ़ने के लिए 15 मिनट का समय दिया जाएगा। इस अवधि में आप केवल प्रश्न-पत्र पढ़ें, उत्तर न लिखें।
2. ऊपर दिया गया समय केवल उत्तर लिखने के लिए है।

3. इस प्रश्न-पत्र में दो खंड हैं — खंड 'अ' और खंड 'ब'। दोनों खंडों के सभी प्रश्न करना अनिवार्य है।
4. प्रत्येक प्रश्न के सामने उसके अंक दिए गए हैं।
5. सभी उत्तर हिंदी में स्पष्ट एवं सुंदर लेख में लिखें।

खंड – अ (रचनात्मक लेखन)

[30 अंक]

प्रश्न 1. निम्नलिखित विषयों में से किसी एक पर लगभग 150–200 शब्दों में निबंध लिखिए।

[10]

(क) समय का सदुपयोग

(ख) वृक्षारोपण का महत्व

(ग) मेरा प्रिय त्योहार

(घ) इंटरनेट: वरदान या अभिशाप

प्रश्न 2. निम्नलिखित में से किसी एक पत्र को लगभग 100–120 शब्दों में लिखिए।

[10]

(क) औपचारिक पत्र — अपने विद्यालय के प्रधानाचार्य को पुस्तकालय में नई पुस्तकें मँगवाने हेतु आवेदन-पत्र लिखिए।

(ख) अनौपचारिक पत्र — अपने मित्र को परीक्षा की तैयारी के लिए समय-सारणी बनाने की सलाह देते हुए पत्र लिखिए।

प्रश्न 3. निम्नलिखित में से किसी एक का वर्णन 8–10 पंक्तियों में कीजिए।

[10]

(क) अपने विद्यालय में मनाए गए किसी वार्षिकोत्सव या खेल-दिवस का वर्णन कीजिए, जैसे आपने उसे अपनी आँखों से देखा हो।

(ख) एक ऐसे चित्र का वर्णन कीजिए जिसमें किसी नदी के किनारे का दृश्य है — नाविक नाव चला रहे हैं, लोग स्नान कर रहे हैं और पक्षी उड़ रहे हैं।

खंड – ब (व्याकरण एवं पाठ्यपुस्तक)

[50 अंक]

प्रश्न 4. निम्नलिखित मुहावरों/लोकोक्तियों में से किसी पाँच का अर्थ लिखकर अपने वाक्य में प्रयोग कीजिए।
[5]

- (i) आँखों में धूल झोंकना
- (ii) एक पंथ दो काज
- (iii) कान का कच्चा होना
- (iv) घी के दीये जलाना
- (v) नौ दो ग्यारह होना
- (vi) मुँह में पानी आना
- (vii) हाथ पैर फूलना

प्रश्न 5. निम्नलिखित में से किसी पाँच शब्दों के विलोम (विपरीतार्थक) शब्द लिखिए।
[5]

- (i) उन्नति
- (ii) आस्तिक
- (iii) प्रकाश
- (iv) स्वतंत्र
- (v) गुण
- (vi) शत्रु
- (vii) आदि

प्रश्न 6. निम्नलिखित में से किसी पाँच शब्दों में उपसर्ग और प्रत्यय अलग करके मूल शब्द लिखिए।
[5]

- (i) निडर
- (ii) सफलता
- (iii) अपमान
- (iv) दयालु
- (v) अनुशासन
- (vi) ईमानदारी
- (vii) बचपन

प्रश्न 7. निम्नलिखित में से किसी एक विषय पर संवाद-लेखन कीजिए (कम से कम 8 संवाद-वाक्य)।
[5]

(क) दो मित्रों के बीच गर्मियों की छुट्टियाँ बिताने की योजना को लेकर हुई बातचीत।

(ख) एक दुकानदार और ग्राहक के बीच वस्तु के मोल-भाव को लेकर हुई बातचीत।

प्रश्न 8. अपठित गद्यांश — निम्नलिखित गद्यांश को ध्यानपूर्वक पढ़कर नीचे दिए गए प्रश्नों के उत्तर दीजिए।

[10]

परिश्रम मनुष्य के जीवन की सफलता की कुंजी है। जो व्यक्ति परिश्रम से जी चुराता है, वह जीवन में कभी आगे नहीं बढ़ पाता। इतिहास इस बात का साक्षी है कि जिन लोगों ने कठिन परिश्रम किया, वे ही समाज में सम्मान और सफलता पा सके। परिश्रम केवल शारीरिक श्रम तक सीमित नहीं है, बल्कि मानसिक श्रम भी उतना ही महत्वपूर्ण है। विद्यार्थी जीवन में नियमित अध्ययन, अनुशासन और लगन से किया गया परिश्रम ही भविष्य की नींव तैयार करता है। भाग्य पर निर्भर रहने वाले लोग सदा असफलता का मुँह देखते हैं, जबकि परिश्रमी व्यक्ति कठिनाइयों को भी अवसर में बदल देता है। अतः प्रत्येक व्यक्ति को चाहिए कि वह आलस्य त्यागकर निरंतर परिश्रम करता रहे।

(i) परिश्रम को जीवन की सफलता की कुंजी क्यों कहा गया है?

(ii) विद्यार्थी जीवन में परिश्रम का क्या महत्व बताया गया है?

(iii) परिश्रमी व्यक्ति और भाग्यवादी व्यक्ति में क्या अंतर बताया गया है?

(iv) गद्यांश के लिए एक उपयुक्त शीर्षक दीजिए।

(v) गद्यांश में आए शब्द 'अनुशासन' या 'निरंतर' में से किसी एक का अपने वाक्य में प्रयोग कीजिए।

प्रश्न 9. निम्नलिखित पाठों में से किसी दो भागों पर आधारित प्रश्नों के उत्तर दीजिए।

[10]

(क) “बात अठन्नी की” पाठ के आधार पर —

(i) कहानी में लेखक के आत्मसम्मान से जुड़ी किस घटना का वर्णन है?

(ii) अठन्नी की घटना से लेखक के जीवन पर क्या प्रभाव पड़ा?

(ख) “काकी” पाठ के आधार पर —

(i) काकी के प्रति परिवार के सदस्यों का शुरुआती व्यवहार कैसा था?

(ii) इस पाठ से पारिवारिक संबंधों के बारे में क्या सीख मिलती है?

(ग) “महायज्ञ का पुरस्कार” पाठ के आधार पर —

(i) कहानी में त्याग की भावना को कैसे दर्शाया गया है?

(ii) पाठ के किसी एक पात्र की विशेषताएँ अपने शब्दों में लिखिए।

(घ) “स्वर्ग बना सकते हैं” पाठ के आधार पर —

(i) लेखक के अनुसार पृथ्वी को स्वर्ग बनाने के लिए क्या आवश्यक है?

(ii) इस निबंध का मूल संदेश अपने शब्दों में लिखिए।

(किसी दो भागों के उत्तर दीजिए। प्रत्येक भाग 5 अंक का है।)

प्रश्न 10. निम्नलिखित काव्यांशों में से किसी दो भागों पर आधारित प्रश्नों के उत्तर दीजिए।

[10]

(क) "साखी" (कबीर) के आधार पर —

(i) कबीर के अनुसार गुरु का महत्व क्या है? साखियों के आधार पर स्पष्ट कीजिए।

(ii) कबीर की साखियों से हमें क्या शिक्षा मिलती है?

(ख) "गिरधर की कुंडलियाँ" के आधार पर —

(i) कवि ने संगति के प्रभाव के बारे में क्या बताया है?

(ii) कुंडलियों में प्रयुक्त किसी एक अलंकार का उदाहरण सहित उल्लेख कीजिए।

(किसी दो भागों के उत्तर दीजिए। प्रत्येक भाग 5 अंक का है।)

SILVER GROVE SCHOOL

(SET B)

ENGLISH - II

Class: IX

Maximum Marks: 80 | Time: 2 Hours

Instructions:

1. Attempt all questions from Section A and one question from each of Sections B, C and D.

SECTION A - 20 MARKS - COMPULSORY

Q1. Choose the correct option: [20x1=20]

1. Who says "I rather tell thee what is to be fear'd than what I fear, for always I am Caesar"?

Caesar

b) Brutus

c) Cassius

d) Casca

2. What physical weakness did Caesar show at River Tiber?

a) Could not swim, cried "Help me, Cassius"

b) Fell due to epilepsy

c) Deafness

d) Blindness

3. Calpurnia dreamt Caesar's statue ran with blood from:

- a) A hundred spouts
- b) One wound
- c) Eyes
- d) Hands

4. Decius interprets Calpurnia's dream as:

- a) Good and lucky sign
- b) Death sign
- c) Bad omen
- d) War sign

5. "Cowards die many times before their deaths" is said by:

- a) Caesar
- b) Brutus
- c) Cassius
- d) Antony

6. Oliver asked for more gruel because:

- a) He was starving and others forced him
- b) Greedy
- c) For fun
- d) Wanted to test

7. Fagin's group trained boys for:

- a) Pickpocketing
- b) Farming
- c) Teaching
- d) Cooking

8. Why did Ang have to land on Earth?

- a) Equipment failed
- b) To meet Bonku
- c) To attack
- d) For fuel only

9. What subject did Bonku Babu teach?

- a) Bengali and Geography
- b) English
- c) Maths
- d) Science

10. Hughie Erskine's income was:

- a) £200 a year from uncle

- b) Very rich
- c) £10000
- d) Zero

11. What was Trevor painting when Hughie came?

- a) Beggar-man
- b) Baron
- c) Hughie
- d) Lady

12. Bonsai tree is kept small by:

- a) Cutting roots, trimming, wiring
- b) No water
- c) No sunlight
- d) Magic

13. Skimbleshanks is important because:

- a) Without him train cannot start
- b) He drives engine
- c) He sells tickets
- d) He cleans

14. "My father was a farmer upon the heath" shows:

- a) Simple past life
- b) Rich life
- c) City life
- d) Sad life

15. How did Caesar react when offered crown thrice?

- a) Refused thrice and fell down
- b) Accepted
- c) Ran away
- d) Laughed

16. Who says "And it is very much lamented, Brutus"?

- a) Cassius
- b) Caesar
- c) Casca
- d) Cicero

17. What punishment did Oliver get after asking?

- a) Beating and lock-up
- b) More food
- c) Money
- d) Praise

18. Ang gave Bonku Babu a small object that could:

- a) Control others
- b) Give money
- c) Fly
- d) Read mind

19. What could bonsai have grown into?

- a) 80 feet tall
- b) 9 inches
- c) 20 feet
- d) 5 feet

20. "Slender tops close against sky" shows:

- a) Childish imagination
- b) Adult knowledge
- c) Fear
- d) Dream

SECTION B - DRAMA - JULIUS CAESAR - 20 MARKS

Q2. Read the extract given below and answer the questions that follow:

Caesar: Let me have men about me that are fat, Sleek-headed men and such as sleep o' nights. Yond Cassius has a lean and hungry look; He thinks too much: such men are dangerous.

- (i) Where are Caesar and Antony? What has just happened? (4)
- (ii) Why does Caesar want fat men around him? What does he say about Cassius? (4)
- (iii) What does this speech reveal about Caesar's character? (4)
- (iv) What does Antony say to calm Caesar? (4)
- (v) What later events prove Caesar's fear was correct? (4)

Q3. Read the extract given below and answer the questions that follow:

Brutus: It must be by his death: and for my part, I know no personal cause to spurn at him, But for the general. He would be crown'd: How that might change his nature, there's the question.

- (i) Where is Brutus? What time is it? (4)
- (ii) What reason does Brutus give for killing Caesar though he loves him? (4)
- (iii) Explain "It must be by his death". (4)
- (iv) What analogy of serpent's egg does Brutus use? (4)
- (v) Is Brutus's decision justified? Give reasons. (4)

SECTION C - PROSE - TREASURE CHEST - 20 MARKS

Q4. Read the extract given below and answer the questions that follow:

Oliver was told by the other boys that if he did not ask for more gruel, they would beat him at night. The evening arrived, the gruel was served. Oliver went to the master with his porringer and basin in hand.

Why were other boys telling Oliver to ask for more? What threat did they give? (4)

Who was Mr. Limbkins? What did he say about Oliver? (4)

What was Mr. Bumble's reaction when told Oliver asked for more? (4)

What offer was made to give Oliver to anyone? How much money was offered? (4)

What does this show about cruelty of workhouse officials? (4)

Q5. Read the extract given below and answer the questions that follow:

Ang told Bonku Babu that he was from a planet far more advanced. He showed him a small transparent tube and said "This can make any human do what you want. Your lack of self-confidence is your real problem."

Who was Ang? From where did he come? Why did he come to Earth? (4)

What was the transparent tube? What power did it have? (4)

What was Bonku Babu's problem according to Ang? (4)

How did Bonku Babu use the tube at Nupur Babu's meeting? What did he make Nupur Babu do? (4)

How did Bonku Babu's life change after that? (4)

SECTION D - POETRY - TREASURE CHEST - 20 MARKS

Q6. Read the extract given below and answer the questions that follow:

They have cut its roots and bound them, They have limited its growth to nine inches.

They say it is beautiful, this stunted thing.

- (i) Who are "They"? What have they done to roots? (4)
- (ii) What does "nine inches high" show? (4)
- (iii) What does bonsai symbolize? What do roots symbolize? (4)
- (iv) How is condition of women similar to bonsai? (4)
- (v) What is poet's message about patriarchy today? (4)

Q7. Read the extract given below and answer the questions that follow:

Skimbleshanks: The Railway Cat, The Cat of the Railway Train, There's a whisper down the line at 11.39 When the Night Mail is ready to depart, Saying "Skimble where is Skimble has he gone?"

- (i) Who is Skimbleshanks? Why is he called the Railway Cat? (4)
 - (ii) What are his two main duties when train is about to start? (4)
 - (iii) How does Skimbleshanks keep order and discipline? (4)
 - (iv) What happens if Skimbleshanks is not there? (4)
- How is Skimbleshanks different from other cats? What human qualities does he show? (4)

SECTION A (40 Marks)

(Attempt all questions from this Section)

Question 1: Multiple Choice Questions [15 Marks]

Which organelle contains its own circular DNA and 70S ribosomes, supporting the endosymbiotic theory?

- (a) Golgi body.
- (b) Chloroplast
- (c) Lysosome
- (d) Centrosome

The permanent plant tissue that provides buoyancy to aquatic plants due to large air cavities is:

- (a) Chlorenchyma
- (b) Aerenchyma
- (c) Sclerenchyma.
- (d) Collenchyma

The male reproductive organ of a flower consists of:

- (a) Stigma and Style
- (b) Filament and Anther
- (c) Ovary and Ovule.
- (d) Petal and Sepal

Pollination that occurs between two flowers borne on the same individual parent plant is technically called:

- (a) Autogamy
- (b) Geitonogamy
- (c) Xenogamy.
- (d) Allogamy

During the process of syngamy in angiosperms, a male gamete fuses directly with the:

- (a) Central Cell
- (b) Antipodal cell
- (c) Egg cell.
- (d) Synergid

The structural framework inside a eukaryotic cell that maintains its shape is made of:

- (a) Cytoplasm
- (b) Cytoskeleton
- (c) Nucleoplasm
- (d) Middle lamella

Which animal tissue forms a continuous sheet and acts as a barrier regulating the exchange of materials?

- (a) Muscular tissue.
- (b) Connective tissue
- (c) Epithelial tissue
- (d) Nervous tissue

A condition where the style and filaments are of completely different lengths in different flowers of the same species to avoid self-pollination is:

- (a) Herkogamy
- (b) Heterostyly
- (c) Dichogamy.
- (d) Cleistogamy

Flowers that are dull, odorless, colorless, but produce massive quantities of dry pollen are adapted for:

- (a) Entomophily.
- (b) Anemophily
- (c) Hydrophily.
- (d) Chiropterophily

The target tissue that provides nutrition to the developing plant embryo inside a seed is:

- (a) Ovary wall
- (b) Endosperm
- (c) Integument
- (d) Tapetum

Which plant cells feature localized pectin deposits at the corners of their walls to provide flexible mechanical support?

- (a) Parenchyma
- (b) Sclerenchyma
- (c) Collenchyma
- (d) Xylem vessels

The selective permeability of the plasma membrane means it allows:

- (a) All substances to pass through freely
- (b) Only water molecules to pass through
- (c) Certain selected solutes and solvents to pass while restricting others
- (d) No substances to pass through under any condition

The swollen flat tip of the flower stalk upon which all floral whorls are arranged is the:

- (a) Pedicel
- (b) Thalamus
- (c) Bract.
- (d) Stigma

A specialized device where the female reproductive parts mature much earlier than the male parts is called:

- (a) Protandry
- (b) Protogyny
- (c) Autogamy
- (d) Dicliny

The site of ribosomal RNA (rRNA) synthesis inside a eukaryotic cell is the:

- (a) Cytoplasm.
- (b) Nucleolus
- (c) Endoplasmic reticulum.
- (d) Lysosome

Question 2 [25 Marks]

(a) Assertion-Reason Type Questions [5 Marks]

Directions: Select the correct option: (a) Both A and R are true and R is the correct explanation of A. (b) Both A and R are true but R is not the correct explanation of A. (c) A is true but R is false. (d) A is false but R is true.

1. Assertion (A): Lysosomes are commonly termed cellular garbage disposals or suicidal bags.
Reason (R): They house complex hydrolytic enzymes capable of digesting damaged cell fragments or the whole cell.

2. Assertion (A): Xylem vessels are living cells that actively pump water up the plant body.
Reason (R): Mature xylem vessels completely lack a protoplast and form continuous hollow pipelines.

3. Assertion (A): Cross-pollination brings about new genetic recombinations and healthier progeny.
Reason (R): It involves the mixing of genetic traits from two distinct parental plants.

4. Assertion (A): The endosperm in angiosperms is naturally triploid ($3n$).
Reason (R): It forms from the vegetative fusion of a haploid male gamete with a diploid secondary nucleus.

5. Assertion (A): Cardiac muscles get fatigued very quickly due to continuous pumping.
Reason (R): They are involuntary, highly branched, and striated fibers.

(b) Find the Odd One Out and Give a Reason [5 Marks]

Tracheids, Vessels, Xylem Fibers, Sieve tubes.

Ribosome, Centrosome, Nucleolus, Plasma membrane.

Filament, Anther, Pollen grain, Carpel.

Chlorenchyma, Aerenchyma, Storage parenchyma, Sclereids.

Wind, Water, Insects, Self-pollination.

(c) Match the Columns [5 Marks]

Column A

Column B

1. Mitochondria

(A) Tissue responsible for secondary growth / width increase

2. Lateral Meristem

(B) Outer covering layer of an ovule

3. Corolla

(C) Production of ATP via cellular respiration

4. Integument

(D) Brightly colored whorl to attract animal vectors

5. Syngamy

(E) Fusion of a male gamete with the egg cell

(d) Fill in the Blanks (Paragraph Format) [5 Marks]

The structural blueprint of life rests on the cell, inside which the (1) _____ acts as the site for light-driven food synthesis in plants. Specialized groups of cells form tissues like (2) _____ tissue, which features a hard, calcified matrix in animals. In reproductive structures, the (3) _____ represents the individual unit of the gynoecium. Following pollination, a tube grows through the style tissue. Upon reaching the embryo sac, (4) _____ fertilization takes place because two distinct fusions occur. Ultimately, the fertilized

egg transforms into an embryo, and the protective walls of the ovary thicken to form the (5)

_____.

(e) Analytical / Situation-Based Case Study [5 Marks]

Read the situational passage carefully and answer the five single-mark questions that follow:

Situation: Sneha covers a healthy, young, bisexual flower of a hibiscus plant with a fine butter paper bag before its buds open up. Another nearby hibiscus flower is left uncovered. After a few days, when both flowers bloom, she artificially introduces pollen grains collected from a completely different hibiscus plant onto the stigma of the bagged flower after snipping off its own immature anthers, and reseals it.

What is the technical term for the process of removing immature anthers to prevent self-pollination?

Why did Sneha cover the flower with a butter paper bag initially?

What type of artificial pollination did Sneha perform on the bagged flower?

Will the bagged flower develop into a fruit and set seeds?

Name one advantage of this experimental technique in modern agriculture.

SECTION B (40 Marks)

(Answer any four questions from this Section)

Question 3

(i) Define the term tissue. [1]

(ii) State any two structural or operational differences between Chromatin and Chromosomes. [2]

(iii) Mention the specific function of: (a) Sieve tubes, (b) Axon of a neuron. [2]

(iv) What is meant by division of labor in multicellular organisms? Give one cellular example. [2]

(v) Consider the structural model of a eukaryotic nucleus showing pores: [3]

(a) Name the double-layered membrane enclosing the hereditary material.

(b) What is the explicit role of the tiny pores present on this membrane?

(c) What dark, dense spherical structure inside the nucleus lacks a membrane wrapper?

Question 4

(i) Define inflorescence. [1]

(ii) Distinguish between Meristematic tissue and Permanent tissue based on their power of division. [2]

(iii) Name the three types of epithelial tissues categorized by cell shapes. [2]

(iv) Explain why a standard typical anther is described as dithecal and tetrasporangiate. [2]

(v) Draw a well labelled diagram of the flower. [3]

Question 5

(i) What is the genetic consequence of continuous self-pollination over? [1] (ii) Differentiate between Entomophily and Anemophily based on structural features of petals and nectar. [2]

(iii) List two major mechanical adaptations or barriers that prevent autogamy in nature. [2]

(iv) What is a perianth? When is it referred to as sepaloid or petaloid? [2] (v) Imagine a schematic timeline diagram showing anthers maturing and shedding pollen while the stigma of the same flower remains entirely closed and unreceptive: [3]

- (a) What specific type of dichogamy is highlighted here?
- (b) Does this layout favor self-pollination or cross-pollination?
- (c) Give an analytical reason for your answer to part (b).

Question 6

- (i) What path does a pollen tube take to reach the female egg cell inside the ovary? [1]
- (ii) Explain the exact process of Syngamy. What is its ploidy outcome? [2]
- (iii) What happens to the following structures inside an embryo sac post-fertilization:
(a) Antipodal cells, (b) Central Cell? [2]
- (iv) Define double fertilization. Name the scientist who discovered it. [2]
- (v) Copy the diagram of a germinated pollen grain: [3]

- (a) Label the two non-motile bodies moving down behind the tube nucleus.
- (b) Name the inner thin wall layer of the pollen grain that emerges out to form the tube.
- (c) What is the function of the enzyme secreted by the growing pollen tube tip?

Question 7

- (i) Name the primary fluid connective tissue that transports oxygen. [1]
- (ii) Differentiate between Collenchyma and Sclerenchyma based on their cell wall compositions. [2]
- (iii) Define the following terms related to flowers: (a) Actinomorphic, (b) Zygomorphic. [2]
- (iv) Describe how a selectively permeable membrane differs from a totally permeable membrane. [2]
- (v) Imagine a structural layout of human skeletal muscle fibers under a microscope:[3]

- (a) Identify the nature of this tissue (voluntary or involuntary).
- (b) Why are these cells multi-nucleated (syncytium)?
- (c) Where are these muscles located in the human body?

Question 8

- (i) State the main function of the nucleolus inside the eukaryotic nucleus. [1]
- (ii) Mention any two structural differences between Xylem tracheids and Xylem vessels. [2] (iii)
How does Chiropterophily differ from Malacophily? [2]
- (iv) Explain why double fertilization is essential for producing a viable angiosperm seed. [2]
- (v) Review a layout of a classic mature flower's carpel showing the structural attachment of ovules:

- (a) Name the tissue cushion on which ovules are arranged inside the locule.
- (b) What structural thread links the individual ovule to this tissue cushion?
- (c) What part of this arrangement eventually matures into the seeds we eat? [3]

CLASS 9 MATHEMATICS SAMPLE PAPER

Time Allowed: 2.5 Hours | Maximum Marks: 80

General Instructions:

1. The question paper is divided into two sections: Section A and Section B.
2. Section A (40 Marks) is compulsory. Attempt all questions from this section.
3. Section B (40 Marks) contains 7 questions. Attempt any 4 questions from this section.
4. All working, including rough work, must be clearly shown and must be done on the same sheet as the rest of the answer.

SECTION A (40 Marks)

Attempt all questions from this section

Question 1 [$15 \times 1 = 15$ Marks]

Choose the correct answers to the questions from the given options.

(i) The simplified value of $3^{-2}2$ is:

- (a) 2^{-1}
- (b) $2+1$
- (c) $1-2$
- (d) $3-2$

(ii) The difference between compound interest and simple interest on Rs 1000 for 3 years at 10% per annum is:

- (a) Rs 30
- (b) Rs 31
- (c) Rs 33
- (d) Rs 10

(iii) If $x^2-5x+1=0$, then the value of x^2+1/x^2 is:

- (a) 23
- (b) 25
- (c) 27
- (d) 21

(iv) If $xxx=(xx)x$, then the value of x (where $x>0, x \neq 1$) is:

- (a) 32
- (b) 94
- (c) 49
- (d) 1

(v) The value of $\log_2(\log_2(\log_2 16))$ is:

- (a) 0
- (b) 1
- (c) 2
- (d) 4

(vi) The factors of the expression $x^4+x^2y^2+y^4$ are:

- (a) $(x^2+y^2)^2$
- (b) $(x^2+xy+y^2)(x^2-xy+y^2)$
- (c) $(x^2-y^2)^2$

(d) $(x^2+xy+y^2)^2$

(vii) In $\triangle ABC$, $B=90^\circ$ and $\tan A=3/4$. The value of $\cos A + \sin C$ is:

(a) $8/5$

(b) $6/5$

(c) $3/5$

(d) 1

(viii) The coordinates of the point $(2, -3)$ reflected in the line $y = -1$ are:

(a) $(2, 1)$

(b) $(2, -1)$

(c) $(-4, -3)$

(d) $(2, 5)$

(ix) The solution to the simultaneous equations $3x+y=81$ and $81x-y=3$ is:

(a) $x=17/8, y=15/8$

(b) $x=2, y=2$

(c) $x=15/8, y=17/8$

(d) $x=4, y=1/4$

(x) The simplified value of $\sin^3\theta + \cos^3\theta + \sin\theta\cos\theta$ when $\theta=30^\circ$ is:

(a) 0

(b) 1

(c) 2

(d) $\sin\theta\cos\theta$

(xi) If $2x+3y=6-z$, then the value of $1/x + 1/y + 1/z$ is:

(a) 1

(b) -1

(c) 0

(d) xyz

(xii) Between any two distinct rational numbers, there is/are:

(a) Exactly one rational number

(b) No irrational numbers

(c) Infinitely many irrational numbers

(d) Only one irrational number

(xiii) A sum of money doubles itself in 4 years at compound interest. In how many years will it become 8 times of itself?

(a) 8 years

(b) 12 years

(c) 16 years

(d) 24 years

(xiv) If $a\cos\theta - b\sin\theta = c$, then the value of $a\sin\theta + b\cos\theta$ is:

(a) $a^2+b^2+c^2$

(b) $a^2+b^2-c^2$

(c) $c^2-a^2-b^2$

(d) c

(xv) If $a+b+c=0$, then $a^3+b^3+c^3$ is identically equal to:

(a) 0

- (b) abc
- (c) $3abc$
- (d) $(a+b+c)^3$

Question 2 [$3 \times 4 = 12$ Marks]

Rationalize the denominator and simplify fully:

$$\frac{13+2\sqrt{5}}{13-2\sqrt{5}}$$

- (b) A man borrows Rs. 21,000 at 10% per annum compound interest. How much should he pay at the end of each year to clear his debt in two equal annual installments?
- (c) Factorize completely using the Factor Theorem: $4x^2 - y^2 - 3xy + 2x - 2y$.

Question 3 [$4 + 4 + 5 = 13$ Marks]

- (a) Solve for x : $5x+1+\sqrt{52-x}=126$.
- (b) If $\log_{xy} z = \log_{yz} x = \log_{zx} y$, prove that $xyz=1$.
- (c) Prove the following trigonometric identity for $\theta=60^\circ$:

$$\tan \theta - \cot \theta + \cot \theta - \tan \theta = 1 + \sec \theta \csc \theta$$

SECTION B (40 Marks)

Attempt any four questions from this section

Question 4

- (a) If $x=3\sqrt{23}+2$ and $y=3\sqrt{23}-2$, find the value of x^2+y^2-xy .
- (b) The centre of a circle is $(2a, a-7)$. Find the value of a if the circle passes through the point $(11, -9)$ and has a diameter of 102 units.
- (c) Solve the logarithmic equation for x : $\log_{10}(x-1) + \log_{10}(x^2+x+1) = \log_{10}(7)$

Question 5

- (a) The compound interest on a certain sum for the second year is Rs. 132 and for the third year is Rs. 145.20. Find the rate of interest and the original sum.
- (b) Factorize the expression: $8x^3 + y^3 + 27 - 18xy$.
- (c) If $\sin \theta + \cos \theta = 2 \cos \theta$, show that $\cos \theta - \sin \theta = 2 \sin \theta$.

Question 6

- (a) Simplify the following expression completely: $xax^2 + ab + b^2 + b^2x + b^2c + bc + c^2 + c^2x + c^2a + ca + a^2$
- (b) The vertices of a triangle are $A(a, b)$, $B(a+3, b+4)$ and $C(a-4, b+3)$. Show that it is an isosceles right-angled triangle.
- (c) If $a^2 + b^2 + c^2 = 250$ and $ab + bc + ca = 3$, find the value(s) of $a+b+c$.

Question 7

- (a) If $x^2 + y^2 = 23xy$, prove that $\log x + y^5 = 12(\log x + \log y)$.
- (b) If $\cos x = \cos 40^\circ \sin 50^\circ + \sin 40^\circ \cos 50^\circ$, then find the value of x
- (c) A person borrowed a certain sum of money and paid it back in two equal annual installments of Rs. 8,820 each. If the rate of compound interest was 5% per annum, find the sum borrowed.

Question 8

- (a) Factorize completely: $x^4 + 5x^2 + 9$.
- (b) Solve the exponential equation for x : $4x - 32x^2 + 25 = 0$.
- (c) Find the centre of a circle passing through the points $(6, -6)$, $(3, -7)$ and $(3, 3)$. Also find the radius

Question 9

- (a) Find the values of rational numbers a and b if: $7+353+5-7-353-5=a+b5$
(b) The difference between compound interest and simple interest on a certain sum of money for 3 years at 5% per annum is Rs. 122. Find the sum.
(c) If θ is an acute angle and $\cos\theta + \sin\theta - \sin = 1+31-3$, find the value of $-3\operatorname{cosec}2\theta$

Question 10

- (a) If $x+1x=p$, show that $x^3+1x^3=p(p^2-3)$.
(b) If point $P(x,y)$ is equidistant from the points $A(a+b, b-a)$ and $B(a-b, a+b)$, prove that $bx=ay$.
(c) Evaluate the following: $\log 27 + \log 8 - \log 1000 \log 1.2$

SILVER GROVE SCHOOL

HALF-YEARLY EXAMINATION

CLASS – IX-A | CHEMISTRY — SET B

TIME: 2 Hrs.

M.M.: 80

General Instructions

1. Attempt all questions from Section I.
2. Attempt any four questions from Section II.
3. The marks of questions are given in brackets.

SECTION I

(40 Marks)

Question 1

Choose the correct option. ($10 \times 1 = 10$ marks)

(i) The scientist who discovered the electron was:

- (a) Rutherford
(b) J. J. Thomson

- (c) Chadwick
- (d) Bohr

(ii) The number of neutrons in an atom is calculated by:

- (a) Atomic number + Mass number
- (b) Mass number – Atomic number
- (c) Atomic number – Mass number
- (d) Mass number $\times$ Atomic number

(iii) The maximum number of electrons in the L-shell is:

- (a) 2
- (b) 8
- (c) 18
- (d) 32

(iv) Which of the following represents an isotope of hydrogen?

- (a) ^1H
- (b) ^2H
- (c) ^3H
- (d) All of these

(v) Which of the following is an example of temporary hard water?

- (a) Water containing calcium bicarbonate
- (b) Water containing sodium chloride
- (c) Water containing potassium nitrate
- (d) Distilled water

(vi) A positively charged ion is called:

- (a) Anion
- (b) Cation
- (c) Radical
- (d) Molecule

(vii) Which of the following contains an electrovalent bond?

- (a) H_2
- (b) Cl_2
- (c) NaCl
- (d) CH_4

(viii) In a covalent bond, electrons are:

- (a) Transferred completely
- (b) Shared between atoms
- (c) Removed from the atom
- (d) Converted into protons

(ix) Which of the following is an endothermic process?

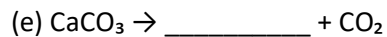
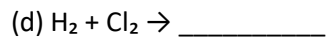
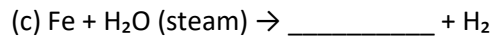
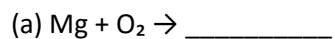
- (a) Burning of coal
- (b) Respiration
- (c) Photosynthesis
- (d) Neutralisation

(x) The electronic configuration of sodium (atomic number 11) is:

- (a) 2, 8, 1
- (b) 2, 7, 2
- (c) 8, 2, 1
- (d) 2, 8, 2

Question 2

Complete and balance the following equations. (5 marks)



Question 3

Fill in the blanks. (5 marks)

- (i) The negatively charged particle of an atom is called an _____.
- (ii) The nucleus contains _____ and _____.
- (iii) The mass number is equal to the sum of the number of _____ and _____.
- (iv) The combining capacity of an element is called its _____.
- (v) A substance which dissolves in a solvent is called the _____.

Question 4

Write the electronic configuration of the following elements. (5 marks)

- (i) Oxygen — atomic number 8
- (ii) Magnesium — atomic number 12
- (iii) Chlorine — atomic number 17
- (iv) Potassium — atomic number 19
- (v) Calcium — atomic number 20

Question 5

Answer the following. (5 marks)

- (i) What is meant by atomic number?
- (ii) What is meant by mass number?
- (iii) Why is an atom electrically neutral?
- (iv) What are valence electrons?
- (v) What is meant by a stable electronic configuration?

Question 6

Calculate the following: (5 marks)

An atom of an element has atomic number 17 and mass number 35.

Find:

- (i) Number of protons
- (ii) Number of electrons
- (iii) Number of neutrons
- (iv) Electronic configuration
- (v) Valency of the element

Question 7

Name the following: (5 marks)

- (i) The scientist who discovered the neutron.
- (ii) The negatively charged subatomic particle.
- (iii) The positively charged subatomic particle.
- (iv) The process of removal of temporary hardness of water by heating.
- (v) The bond formed by sharing of electrons.

SECTION II

(40 Marks)

Attempt any four questions from this Section.

Question 8

(a) State any three important observations of Rutherford's alpha-particle scattering experiment. (3 marks)

(b) What conclusion did Rutherford draw about the nucleus? (2 marks)

Question 9

(a) Differentiate between isotopes and isobars. (3 marks)

(b) Give one example of each. (2 marks)

Question 10

(a) Explain the formation of sodium chloride by transfer of electrons. (3 marks)

(b) Draw the electron-dot structure of sodium chloride. (2 marks)

Question 11

(a) What is hard water? (1 mark)

(b) Give two causes of hardness of water. (2 marks)

(c) State two methods of removing hardness of water. (2 marks)

Question 12

(a) Explain the formation of a chlorine molecule (Cl_2) by covalent bonding. (3 marks)

(b) Draw its electron-dot structure. (2 marks)

Question 13

(a) What is meant by an exothermic reaction? Give one example. (2 marks)

(b) What is meant by an endothermic reaction? Give one example. (2 marks)

(c) State whether melting of ice is exothermic or endothermic. (1 mark)

Question 14

(a) Define the following: (3 marks)

(i) Solute

(ii) Solvent

(iii) Solution

(b) A solution contains 20 g of sugar and 80 g of water. Calculate the percentage of sugar by mass. (2 marks)

Question 15

(a) Write the electronic configurations of the following: (3 marks)

(i) Nitrogen (7)

(ii) Aluminium (13)

(iii) Argon (18)

(b) State the valency of each of the above elements. (2 marks)

Sample Paper

Class 9 A

Set B

Subject Commercial Applications

MM 100

Time allowed: Two hours

Answers to this Paper must be written on the paper provided separately.

You will not be allowed to write during the first 15 minutes.

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.
Attempt all questions from Section A and any four questions from Section B.
The intended marks for questions or parts of questions are given in brackets[].

SECTION A (40 Marks)

(Attempt all questions from this Section.)

Question 1 [20]

1.Statement 1: The proprietor is personally liable for all the debts of the firm. Statement II: The life of sole proprietorship is uncertain.

- (a) Only I is correct
- (b) Both I and II are correct
- (c) Only II is correct
- (d) Both I and II are wrong

(Analysis)

2. In a joint Hindu family business, the karta passes away unexpectedly. However, the business operations continue without interruption as the eldest son takes over the role of karta. Which feature of joint Hindu family business does this demonstrate?

- (a) Perpetual succession

(Competency Focused) (Application)

- (b) Hasty decisions
- (c) Limited liability
- (d) Ease of formation

3.Statement 1: All the male members of a Joint Hindu family business are known as coparceners.

Statement II: The oldest member is known as Karta.

- (a) Only I is correct
- (b) Both I and II are correct

(Understanding)

(c) Only II is correct

(d) Both I and II are wrong

4. The disadvantages suffered by Joint Hindu Family business are:

(a) Hasty Decisions

(b) Unlimited Liability

(c) Limited Capital

(d) All of these

(Recall)

5. Statement I: Expenses of management are high in Joint Hindu Family Business.

Statement II: The Karta alone is authorised to take all important decisions of the family business.

(Analysis)

(a) Both I and II are correct

(b) Only I is correct

(c) Both I and II are wrong

(d) Only II is correct

6. How profit is distributed in Joint Hindu Family Business?

(Recall)

(a) Men have more share than women

(b) The older members of family receives more profit than younger members

(c) Equal shares for all of them

(d) Only the Karta has all the profit

7. Statement I: The secrets of business are known to the Karta only.

Statement II: The Karta is the head of the family.

(Understanding)

(a) Both I and II are correct

(c) Only I is correct

(b) Only II is correct

(d) Both I and II are wrong

8. Statement I: The existence of a joint Hindu family, any member or the Karta. business is not threatened by the death or incapacity of.

Statement II: The Joint Hindu family comes to an end only after the total breakdown of the Joint family.

(a) Both I and II are wrong

(Analysis)

(b) Only I is correct

(c) Both I and II are correct

(d) Only II is correct

9. How profit is distributed in Joint Hindu Family Business?

(a) Men have more share than women

(b) The older members of family receives more profit than younger members

(c) Equal shares for all of them

(d) Only the Karta has all the profit

10. Which of the following statement is incorrect?

(a) Each partner is liable to an unlimited extent for the firm's obligations towards outsiders.

(b) A partnership can be formed only for the purpose of carrying on a business.

(c) Each partner is liable for acts performed by other partners on behalf of the firm.

(d) An association of persons who jointly own a house without carrying on a business can be considered as partnership.

11. A company faces criticism for taking too long to make decisions due to bureaucratic delays. Which disadvantage of joint stock companies is highlighted here?

(a) Lack of motivation

(b) Delay in decision-making

(c) Unhealthy speculation

(d) Conflict of interests

12. A shareholder in a public company transfers all their shares to a competitor, leading to significant changes in company control. The board of directors raises concerns about the implications. What feature of public companies allows such an event to occur?

(a) Transferability of shares

(b) Limited liability

(c) Perpetual succession

(d) Common seal

13. Name the association of artisans and small producers which helps to improve the bargaining power and competitive position of its members -

(a) Consumer cooperatives

(b) Bargaining cooperatives

(c) Marketing cooperatives

(d) None of these

14. The principle of 'One Man, One Vote' in cooperative societies means that voting rights are proportional to the amount of capital a member contributes.

(a) True

(b) False

15. Assertion (A): Cooperative societies aim to provide service to their members rather than earning profits.

Reasoning (R): Members of cooperative societies earn dividends in proportion to their capital investment.

(a) Both A and R are true, and R explains A.

(b) Both A and R are true, but R does not explain A.

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

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

16. Public sector enterprises have been set up in India to achieve several objectives. Which of them is not correct-

(a) Substantial increase in industrial output

(b) To balance in the development of various sector of economy

(c) To provide opportunities for gainful employment to millions of people in rural area

(d) To curb private monopoly

17. Public enterprises frequently face labour trouble because

Statement 1: Workers of enterprises are permanent and can not be removed.

Statement II: Politicians use trade union for their selfish interest.

(a) Statement I is correct

(b) Statement II is correct

(c) State I & II are correct

(d) Neither statement I nor II is correct

18. Which of the following cannot be the form of Public Sector Enterprises?

- (a) Departmental Undertaking
- (b) Statutory Corporation
- (c) Private Corporation
- (d) Government Companies

19. Which of the following enterprises does not belong to departmental undertaking?

- (a) Indian Railways
- (b) Post and Telegraph
- (c) Air India
- (d) All India Radio

20. If the government wants to maintain secrecy in a national defence project, which form of public enterprise should it choose?

- (a) Government Company
- (b) Departmental Undertaking
- (c) Public Corporation
- (d) Private Company

Question 2(10)

I.Distinguish between

- a.Partnership at will and particular partnership
- b.Company and Partnership

ii.Justify the following sentences for or against and give a reason:

- a. Communication is the vehicle through which basic management functions are carried out.
- b.A temple is a non - commercial organisation.
- c. Communication is more important in a commercial organisation than in a non commercial organisation.

Question 3 Answer the following questions(10)

- I. State any two organisational barriers to communication state any two organisational barriers to communication.
- II. What is the implied agency in partnership?
- III. What is meant by semantic barriers in communication?
- IV. How does the principle of one member one vote in cooperative societies promote democratic decision making?
- V. State four characteristics of communication.

Section B(15×4=60)

(Answer any four questions from this section.)

- 4.1. As a team leader, how would you encourage upward communication among your team members to foster trust and mutual understanding?
 2. Both verbal and nonverbal communications are essential for effective communication. Evaluate.
 3. Enumerate the various methods of creating departments in a commercial organisation.
 - 5.1 What are the important objectives of departmentation?
 2. Cooperative societies may face challenges in raising external capital from non members .Explain with the help of an example.
 3. In what ways do public sector enterprises ensure equitable distribution of resources and services across various sections of society?
 - 6.1. Name and explain how Human Resource Management helps to improve the quality of work life of its employees.
 2. How joint Hindu family overcome the shortcomings of sole proprietorship?
 3. When a company is not required to insert word 'Public limited' or 'Private limited 'after its name?
 - 7.1. What are the disadvantages of the communication channel shown in the given picture?
 - 2.What advantages does a joint stock company enjoy over other forms of business organisation?
 3. What do you understand by Human Resources Management?
 - 8.1. how would you use marketing research to launch a new product in a highly competitive market? Provide examples.
 2. Explain the functions of general administration and legal department in a commercial organisation.
 3. Evaluate the challenges faced by cooperative societies in maintaining financial sustainability and operational efficiency.
- Question 9.

1. The bar graph below represents the percentage distribution of different forms of public sector enterprises adopted by the government to perform various economic functions.

On the basis of the given data, answer the questions that follow.

- (a) Which form of public sector enterprise is most common according to the graph?
- (Understanding)

(b) Why are departmental undertakings preferred for certain government activities?

(Analysis)

(c) What does the equal share of statutory corporations and government companies indicate?

(Understanding)

(d) How does the form of organisation affect efficiency and flexibility of public enterprises?

(Application)

(e) What overall conclusion can be drawn about the government's approach to managing public enterprises?

ICSE CLASS IX EXAMINATION
SCIENCE PAPER 1 (PHYSICS)

Maximum Marks: 80

Time Allowed: 2 Hours

SECTION A (40 Marks — Compulsory)

Question 1 [15 Marks]

Choose the correct option for each of the following questions:

(1) The least count of a Vernier Calipers having 10 divisions on the Vernier scale coinciding with 9 divisions of the Main scale (where 1 MSD = 1 mm) is:

- (a) 0.1 cm
- (b) 0.01 cm
- (c) 0.001 cm
- (d) 0.05 cm

(2) The area under a Velocity-Time graph represents:

- (a) Acceleration
- (b) Speed
- (c) Displacement
- (d) Retardation

(3) A body is thrown vertically upwards with a velocity u . The total time taken by it to return to the point of projection is:

- (a) u / g
- (b) $u^2 / 2g$
- (c) $2u / g$
- (d) $\sqrt{2u / g}$

(4) When a coin placed on a card over a glass tumbler is flicked horizontally, the coin falls into the tumbler. This is due to:

- (a) Inertia of motion
- (b) Inertia of rest
- (c) Momentum
- (d) Centripetal force

(5) The SI unit of linear momentum is:

- (a) kg m s^{-2}
- (b) kg m s^{-1}
- (c) N s^{-1}
- (d) J s

(6) The ratio of gravitational units of force to its SI unit is equal to:

- (a) 1
- (b) g
- (c) $1 / g$
- (d) 980

(7) Pressure at a depth h inside a liquid of density ρ is directly proportional to:

- (a) Surface area of the vessel
- (b) Mass of the liquid
- (c) Acceleration due to gravity
- (d) Shape of the container

(8) A piece of wood of mass m floats in water. The net force acting on the piece of wood is:

- (a) mg downwards
- (b) Upthrust upwards
- (c) Zero
- (d) $2mg$ upwards

(9) The relative density of a substance has:

- (a) kg m^{-3} as unit
- (b) g cm^{-3} as unit
- (c) No units
- (d) N m^{-2} as unit

(10) Water exhibits anomalous expansion between:

- (a) 0°C to 100°C
- (b) 0°C to 4°C
- (c) -4°C to 0°C
- (d) 4°C to 100°C

(11) The temperature at which water has maximum density is:

- (a) 0°C
- (b) 100°C
- (c) 4°C
- (d) 273 K

(12) The atmospheric pressure at sea level is approximately equal to:

- (a) 76 cm of Hg
- (b) 76 mm of Hg
- (c) 1 Pa
- (d) 100 N m^{-2}

(13) Which of the following is a non-renewable source of energy?

- (a) Wind energy
- (b) Natural gas
- (c) Hydroelectric energy
- (d) Solar energy

(14) Greenhouse effect is primarily caused by:

- (a) Oxygen
- (b) Nitrogen
- (c) Carbon dioxide
- (d) Hydrogen

(15) Heat transfer by convection occurs mainly in:

- (a) Solids only
- (b) Liquids and gases
- (c) Vacuum only
- (d) Solids and liquids

Question 2 [13 Marks]

1. (a) Define Pitch and Least Count of a screw gauge. [2]
(b) Give one example each of a fundamental unit and a derived unit. [1]
2. (a) Differentiate between Distance and Displacement (any two points). [2]
(b) Can a body have zero velocity and non-zero acceleration simultaneously? Give an example. [1]
3. State Newton's First Law of Motion and define Inertia. [2]
4. State Pascal's law of transmission of liquid pressure. Name one hydraulic appliance that works on this principle. [2]
5. A body weighs 200 gf in air and 160 gf when completely immersed in water. Calculate:
 - (i) The loss in weight of the body. [1]
 - (ii) The upthrust acting on the body. [1]
 - (iii) Relative density of the material of the body. [1]

Question 3 [12 Marks]

1. Explain why:
 - (a) A sharp knife cuts better than a blunt knife. [1]
 - (b) Buildings are constructed with wide foundations. [1]
2. State two differences between Heat and Temperature. [2]
3. (a) Define Greenhouse effect. [1]
(b) Mention two consequences of Global Warming. [2]
4. Draw a neat labelled volume-versus-temperature graph for water from 0°C to 10°C showing anomalous expansion. [2]
5. Give two advantages of using solar energy over fossil fuels. [3]

SECTION B (40 Marks — Attempt Any 4 Questions)

Question 4 [10 Marks]

1. A screw gauge has a pitch of 0.5 mm and 50 divisions on its circular scale. While measuring the diameter of a wire, the main scale reads 2 mm and the 28th division of the circular scale coincides with the reference line.
 - (i) Calculate the least count of the screw gauge. [1]
 - (ii) Find the observed diameter of the wire. [2]
 - (iii) If the zero error is +0.04 mm, calculate the corrected diameter. [1]
2. Derive the equation of motion $s = ut + \frac{1}{2}at^2$ graphically. [3]
3. A car accelerates uniformly from rest to a velocity of 20 m/s in 10 seconds.
 - (i) Calculate the acceleration of the car. [1]
 - (ii) Find the distance covered in this time. [2]

Question 5 [10 Marks]

1. (a) State Newton's Second Law of Motion and derive $F = ma$. [3]
(b) State the SI unit of Force and define it. [1]
2. A bullet of mass 20 g moving with a speed of 150 m/s strikes a wooden block and comes to rest in 0.02 s.
 - (i) Calculate the initial momentum of the bullet. [1]
 - (ii) Calculate the retardation of the bullet. [1]
 - (iii) Calculate the resistive force exerted by the wooden block. [1]
3. Give reason for the following:
 - (a) An athlete runs some distance before taking a long jump. [1]
 - (b) When a moving bus stops suddenly, passengers tend to fall forward. [1]
 - (c) Recoil velocity of a heavy gun is much smaller than the velocity of a bullet. [1]

Question 6 [10 Marks]

1. (a) Define thrust and pressure. Write their SI units. [2]
(b) Derive the expression for pressure exerted by a liquid column of depth h and density ρ : $P = h\rho g$. [2]
2. Mention three factors on which liquid pressure at a point inside a liquid depends. [3]
3. (a) What is atmospheric pressure? [1]
(b) Why do we not feel the atmospheric pressure acting on our body? [1]
(c) Name an instrument used to measure atmospheric pressure. [1]

Question 7 [10 Marks]

1. (a) State Archimedes' Principle. [2]
(b) State two characteristic features of upthrust (buoyant force). [2]
2. (a) State the Principle of Floatation. [1]
(b) A solid object floats in water with $\frac{3}{4}$ of its volume submerged. Calculate the density of the solid object. (Density of water = 1000 kg m^{-3}) [2]
3. Explain the following practical applications:
 - (a) Why an iron nail sinks in water, but a heavy ship made of iron floats on water. [1.5]
 - (b) Why a submarine can submerge or float in water at will. [1.5]

Question 8 [10 Marks]

1. (a) Define the terms: (i) Heat capacity (ii) Specific heat capacity [2]
(b) State the SI unit of specific heat capacity. [1]
2. (a) Explain Hope's Experiment briefly to demonstrate the anomalous expansion of water. [3]
(b) How does the anomalous expansion of water help aquatic life to survive in frozen lakes during winter? [1]
3. Calculate the heat energy required to raise the temperature of 2 kg of water from 20°C to 70°C .
(Given: Specific heat capacity of water = $4200 \text{ J kg}^{-1} \text{ K}^{-1}$) [3]

Question 9 [10 Marks]

1. (a) What is meant by energy degradation? Give one daily life example. [2]
(b) State the Law of Conservation of Energy. [1]
2. Differentiate between Renewable and Non-renewable sources of energy with two points of distinction and one example of each. [3]
3. Describe the energy transformations taking place in the following:

- (a) Photosynthesis in green plants [1]
- (b) Hydroelectric power generation [1]
- (c) An electric bulb glowing [1]
- (d) Charging a battery [1]