SPECTRA SAMPLE PAPER (2025 - 26)
SPECTRA CLASSES
CLASS 08 - MATHEMATICS

Time: 3 hours **Maximum Marks : 80**

General Instructions

1. This Question paper contains - Four sections A, B, C and D. Each section is compulsory.
2. Section A has 18 MCQ's and 02 Assertion - Reason based questions of 1 mark each.
3. Section B has 6 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 6 Long Answer (LA) - type questions of 5 marks each.
6. Draw neat figures wherever required. Take $\pi=22/7$ wherever required if not stated.
7. Use of calculator is not allowed.

Section A

1 An irrational number is **[1]**

a) a non - term inating and non - repeating decimal

b) a non - terminating and repeating decimal

c) a terminating and repeating decimal

d) a terminating and non - repeating decimal

2 Solve: $\frac{x}{2}-\frac{1}{5}=\frac{x}{3}+\frac{1}{4}$ **[1]**

a) $\frac{27}{10}$ b) 9 c) 27 d) 10

3 Solve: $\frac{x-4}{3}+\frac{2x-3}{35}=\frac{5x-32}{9}-\frac{x+9}{28}$ **[1]**

a) 5 b) 19 c) 20 d) 10

4 Which of the following statement (s) is/are true? **[1]**

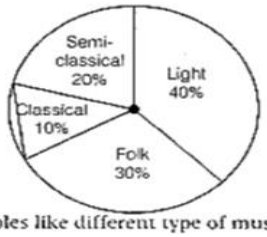
1. In a trapezium the diagonals bisect each other
2. In a rectangle diagonals intersect at right angle
3. The diagonals of a rhombus are equal
4. None of these

a) Option (iv) b) Option (iii) c) Option (i) d) Option (ii)

5 State the name of a regular polygon of 3 sides. **[1]**

a) hexagon b) quadrilateral c) Tetragon d) triangle

6 A pie chart is given below **[1]**

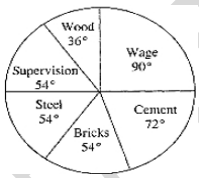


Peoples like different type of music

If a cassette company were to make 1000 CD'S, how many of semi - classical and folk would they make?

a) 200, 300 b) 100, 300 c) 100, 400 d) 200, 400

7 The pie - graph given here shows expenditure detail on building a house. By supposing this, the total expenditure on building this home is₹ 600000. **[1]**



The amount spent on account of cement is -

a) ₹ 120000 b) ₹ 100000 c) ₹ 200000 d) ₹ 160000

8 Find the smallest number by which 3125 must be divided so that the quotient is a perfect square. **[1]**

a) 4 b) 3 c) 5 d) 2

9 The least number of 4 digits which is a perfect square is: **[1]**

a) 1,024 b) 1,004 c) 1,000 d) 1,016

10 What should be added to 2714 to make the sum a perfect cube? **[1]**

a) 15 b) 128 c) 30 d) 110

11 Some on rupee, 50 paisa and 25 paise coins make up₹ 93.75 and their number are in proportion 3 : 4 : 5. The number of each type of coins, are **[1]**

a) 42, 56, 70 b) 40, 70, 75 c) 45, 60, 75 d) 46, 58, 75

12 Add: 7xy + 5yz - 3zx, 4yz + 9zx - 4y , - 3xz + 5x - 2xy. **[1]**

a) 5xy + 9yz + 3zx + 5x b) 5xy + 9yz + 3zx + 5x - 4y

c) 5xy + 9z d) 5xy + 9yz +3zx + 4y

13 What should be added to $\frac{1}{x}$, to make it equal to x? **[1]**

a) $\frac{x^2-1}{x}$ b) $\frac{x^2-x}{x^2}$ c) $\frac{x^2+1}{x}$ d) $\frac{x}{x^2-1}$

14 A brick measures 24 cm by 12 cm by 10 cm. How many such bricks are needed to construct a wall of length 5 m, height 2.88 m and thickness 20 cm? **[1]**

a) 100 b) 1000 c) 1100 d) 500

15 A metal sheet 27 cm long, 8 cm broad and 1 cm thick is melted into a cube. The side of the cube is **[1]**

a) 6 cm b) 12 cm c) 24 cm d) 8 cm

16 Find the multiplicative inverse of7^{-2} . **[1]**

a) 7^5 b) 7^2 c) 7^3 d) 7^4

17 If two quantities p and q vary inversely with each other, then **[1]**

a) $\frac{p}{q}$ remains constant b) p + q remains constant q

c) p× q remains constant d) p - q remains constant

18 Factorise: a^2 - b^2 - a - b **[1]**

a) (a - b +1) b) (a + b) c) (a - b - 1) d) (a + b)(a - b - 1)

19 **Assertion(A):** The value of $\frac{(3^{11}\times3^{5})}{3^{13}} = 9$. **[1]**

Reason(R): For any number a, $a^{m} \times a^{n} = a^{m+n}$.

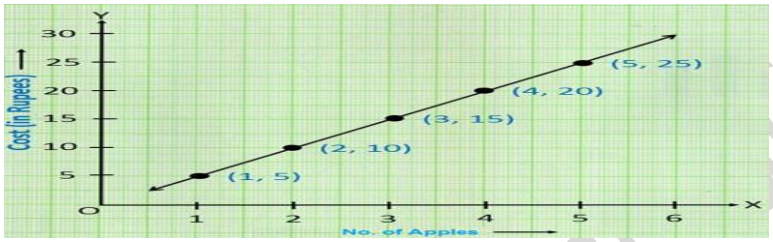
a) Both A and R are true and R is the correct explanation of A.

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.

20 **Assertion (A):** Given is the line graph for the Number of apples and cost they are sold. **[1]**



Reason (R): The minimum apples sold are 1 are cost is Rs 5 also the maximum number of apples sold are 5 and cost is ₹ 25.

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

b) Both A and R are true but R is not the correct explanation of A.

c) A is true but R is false.

d) A is false but R is true.

Section B

21 A $117\frac{1}{3}$ m long rope is cut into equal pieces measuring $7\frac{1}{3}$ m each. How many such small pieces are these? **[2]**

22 Solve the equations and check your result: 2x - 1 = 14 - x. **[2]**

23 Add: p(p - q), q(q - r) and r(r - p). **[2]**

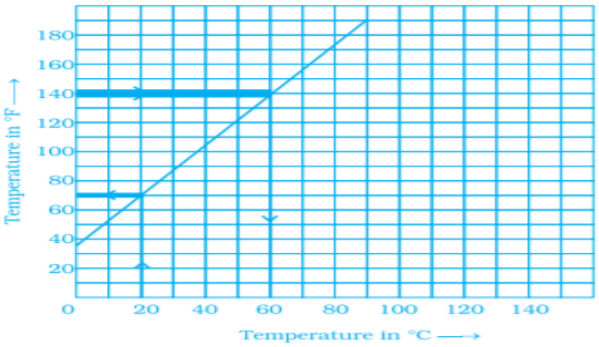
24 A cube of side 5 cm is cut into as many 1 cm cubes as possible. What is the ratio of the surface areas of the original cube to that of the sum of the surface areas of the smallcubes? **[2]**

25 Factorise $9x^2 + 2xy + \frac{y^2}{9}$, using the identity $a^2 + 2ab + b^2 = (a + b)^2$ **[2]**

26 The following is a conversion graph of temperature in $^{\circ}C$ and $^{\circ}F$. **[2]**

Use the graph to answer the following questions.

1. Convert $140^{\circ}F$ to $^{\circ}C$.
2. Convert $20^{\circ}C$ to $^{\circ}F$



Section C

27 Find the smallest number by which 135 must be divided to obtain a perfect cube. **[3]**

28 Calculate the compound interest on ₹20,000 for $1\frac{1}{2}$ years at the rate of 10% per annum compounded semi-annually. **[3]**

29 Add $p^3 - 1$, $p^3 + p + 2$ and $p^2 - 2p + 1$. **[3]**

30 Evaluate : $\left(\frac{5}{8}\right)^{-7} \times \left(\frac{8}{5}\right)^{-4}$ **[3]**

31 Observe the following table and find if x and y are directly proportional : **[3]**

x	5	8	12	15	18	20
y	15	24	36	60	72	100

32 Divide $24(x^2yz + xy^2z + xyz^2)$ by 8xyz using both the methods. **[3]**

Section D

Question No. 33 based on the given text. Read the text carefully and answer the questions: **[5]**

A picnic is being planned in a school for Class VII. Girls are 60% of the total number of students and are 18 in number. The picnic site is 55 km from the school and the transport company is charging at the rate of₹ 12 per km. The total cost of refreshments will be ₹ 4280.

(i) The number of students went for picnic are _____.

(ii) The ratio of the number of girls to the number of boys in the class?

a) 3 : 2 b) 3 : 5 c) 2 : 3 d) 5 : 3

(iii) The cost per head if two teachers are also going with the class?

a) ₹ 200 b) ₹ 175 c) ₹ 300 d) ₹ 150

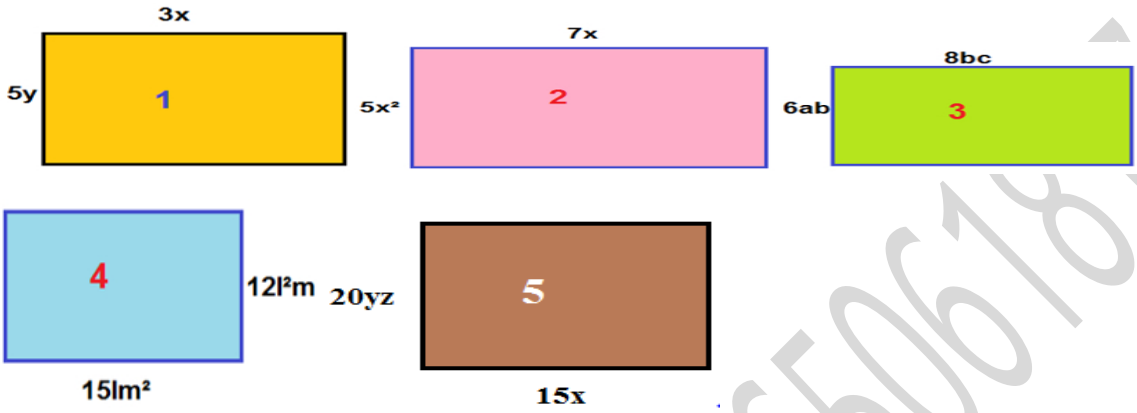
(iv) If their first stop is at a place 22 km from the school, what per cent of the total distance of 55 km is this?

a) 20% b) 40% c) 10% d) 30%

(v) 60% of the distance is left to be covered.

Question No. 34 based on the given text. Read the text carefully and answer the questions: **[5]**

Once teacher drew the following rectangles on the board and asked the following questions:



(i) What is the area of rectangle 1?

a) 10xy b) 3xy c) 5xy d) 15xy

(ii) What is the area of rectangle 3?

a) 16abc b) 48abc c) $48ab^2$ c d) $16abc^2$

(iii) What is the area of rectangle 4?

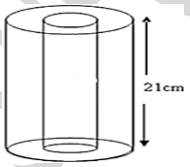
a) 180 l^3 m^3 b) 18 lm^2 c) 180 l^2 m^2 d) 10 lmn

(iv) $35x^3$ is the area of rectangle _____.

(v) The area of rectangle 5 = $300x^2$ yz.

Question No. 35 based on the given text. Read the text carefully and answer the questions: **[5]**

An iron pipe is 21 cm long and its exterior diameter is 8 cm. The thickness of the pipe is 1 cm and iron weighs $8g/cm^3$.



(i) The internal radius of the pipe is _____.

(ii) Find the External volume of pipe?

a) 1056 cm^3 b) 1556 cm^3 c) 1156 cm^3 d) 1506 cm^3

(iii) Find the internal volume of the pipe?

a) 596 cm^3 b) 594 cm^3 c) 546 cm^3 d) 549 cm^3

(iv) Find the weight of the pipe?

a) 3.70 kg b) 0.37 kg c) 0.39 kg d) 37 kg

(v) Volume of the cylinder is $\pi r^2 h$.

36 ABCD is a trapezium such that AB ∥ CD, ∠ A: ∠ D = 2: 1, ∠ B = ∠ C = 7: 5. Find the angles of the trapezium. **[5]**

37 If 60% people in a city like cricket, 30% like football and the remaining like other games, then what percent of the people like other games? If the total number of people are 50 lakh, find the exact number who like each type of game. **[5]**

38 Simplify $\left[\left(\frac{6}{7}\right)^{-1} - \left(\frac{1}{6}\right)^{-1}\right]^{-1} \div 29^{-1}$. **[5]**