SPECTRA SAMPLE PAPER 2025-26
SPECTRA CLASSES
CLASS VIIIth (NEW BOOK)
MATHEMATICS

TIME: 3 Hrs. **Marks: 80**

General Instruction:

(i) All the questions are compulsory.
(ii) The question paper consists of 38 questions divided into 5 sections A, B, C, D and E.
(iii) Section A comprises of 20 questions of 1 mark each. Section B comprises of 6 questions of 2 marks each. Section C comprises of 7 questions of 3 marks each. Section E comprises of 3 questions of 5 marks each. Section D Case Study Based Questions comprises of 3 questions of 4 marks each.
(iv) Use of calculators is not permitted.

Section A

1 Which of the following is Hardy - Ramanujan Number? **[1]**

a) 1729 b) 1725 c) 1724 d) 1727

2 Cube root of the expression . **[1]**

a) 10 b) 25 c) 125 d) 5

3 The smallest natural number by which 243 must be multiplied to make the product a perfect cube is _____. **[1]**

a) 7 b) 8 c) 9 d) 3

4 The value of$(3^2)^3$ is - **[1]**

a) 3^9 b) 9^3 c) Both3^9 and 9^3 d) 3^6

5 $(2^3)^4$= ? **[1]**

a) 2^{12} b) 128 c) 8^4 d) 2^7

6 Express 1,000,000 in exponential form of 10. **[1]**

a) 10^5 b) 10^7 c) 10^6 d) 10^4

7 Which quadrilateral is both a rectangle and a rhombus? **[1]**

a) Parallelogram b) Kite c) Trapezium d) Square

8 Diagonals of a parallelogram: **[1]**

a) Always equal b) Never bisect each other

c) Always perpendicular d) Always bisect each other

9 In a parallelogram, opposite sides are: **[1]**

a) Parallel only b) Equal only

c) Equal and parallel d) Unequal and not parallel

10 If non - parallel sides of an isosceles trapezium are equal, then: **[1]**

a) Diagonals are equal b) Opposite sides are unequal

c) Opposite angles are complementary d) Diagonals are unequal

11 If a number is divisible by 8, then its last three digits must be divisible by: **[1]**

a) 4 b) 8 c) 16 d) 2

12 Find the missing digit in 32x1, if it is divisible by 9. **[1]**

a) 7 b) 5 c) 4 d) 6

13 Which number is a multiple of both 3 and 9? **[1]**

a) Both 36 and 45 b) 27 c) 36 d) 45

14 Number 672 is divisible by: **[1]**

a) 3 and 5 b) 2, 3, and 4 c) 2 and 3 only d) 2 and 5

15 Which is the most suitable method to simplify 25× 35? **[1]**

a) Using identity: (30 - 5)(30 + 5) b) Direct multiplication

c) Both Using distributive property: 25(30 + 5) and Using identity: (30 - 5)(30 + 5)

d) Using distributive property: 25(30 + 5)

16 Which property is shown by: 7× (9+ 11) = 7 × 9 + 7 × 11? **[1]**

a) Identity Property b) Commutative Property

c) Associative Property d) Distributive Property

17 The ratio 150 : 200 in simplest form is: **[1]**

a) 15 : 20 b) 3 : 4 c) 4 : 3 d) 30 : 40

18 1 hectare equals how many square meters? **[1]**

a) 2.471 b) 10,000 c) 43,560 d) 1000

19 **Assertion (A):** All rhombuses are squares. **[1]**

Reason (R): A rhombus has all sides equal.

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):** If a number is divisible by both 3 and 4, then it must also be divisible by 12. **[1]**

Reason (R): 12 is the least common multiple (LCM) of 3 and 4.

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 Find the cube roots of 27000 and 10648. **[2]**

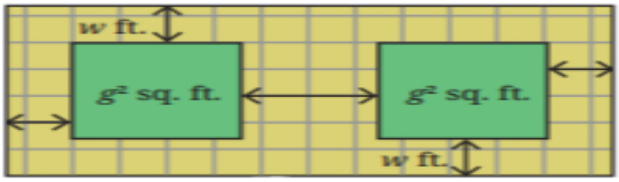
22 Calculate and write the answer using scientific notation: **[2]**

1. If one star is counted every second, how long would it take to count all the stars in the universe? Answer in terms of the number of seconds using scientific notation.
2. If one could drink a glass of water (200 ml) every 10 seconds, how long would it take to finish the entire volume of water on Earth?

23 A rectangle has a diagonal of 25 cm and one side 24 cm. Find the other side. **[2]**

24 How many multiples of 9 are there between the numbers 4300 and 4400? **[2]**

25 A tiny park is coming up in Dhauli. The plan is shown in the figure. The two square plots, each of area g^2 sq. ft., will have a green cover. All the remaining area is a walking path w ft. wide that needs to be tiled. Write an expression for the area that needs to be tiled. **[2]**



26 In a school, 120 boys and 80 girls are present.Find the ratio of boys to girls.Express the same ratio in simplest form. **[2]**

Section C

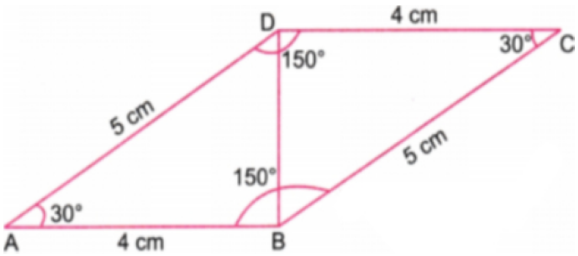
27 Find the cube root of 10648 by the prime factorisation method. **[3]**

28 Express the following numbers in standard form. **[3]**

1. 0.0000000015
2. 0.00000001425
3. 10200000000000000000

29 How do we construct an isosceles trapezium? **[3]**

30 Is it wrong to write $\triangle ABD = \triangle CBD$ in the following parallelogram? Why? **[3]**



31 Check the divisibility of the following numbers by 9 as well as 3. **[3]**

1. 9061
2. 5712

32 Expand the following using both Identity 1B and by applying the distributive property **[3]**

1. $(b-6)^2$
2. $(-2a+3)^2$
3. $\left(7y-\frac{3}{4z}\right)^2$

33 A mixture contains water and milk in ratio 7 : 3. Total mixture = 100 litres. **[3]**

1. Find quantity of water and milk.
2. If 20 litres of water is added, find new ratio.
3. Check if the new ratio is proportional to original.

Section D

34 **Read the following text carefully and answer the questions that follow:** **[4]**

Anita is preparing decoration boards for her classroom. She wants to use small square tiles to completely cover the boards. First, she collects 4096 tiles. She checks if 4096 is a perfect square. On factorization, she finds that all prime factors can be grouped into pairs, so 4096 is a perfect square with square root 64. Later, she tries the same with 2450 tiles, but after factorization, she notices that some prime factors remain unpaired. Hence, 2450 is not a perfect square. Anita realizes that prime factorization is a good way to check whether a number is a perfect square. **Questions:**

1. Is 4096 a perfect square? What is its square root? **(1)**
2. Why is 2450 not a perfect square? **(1)**
3. Anita arranged 4096 square tiles. Explain with factorization why it is a perfect square. **(2)**

   OR

   Anita checked 2450 tiles. Show by factorization why it is not a perfect square. **(2)**

35 **Read the following text carefully and answer the questions that follow:** **[4]**

A toy factory produces $2x+3$ toys per day. On Monday, it produces $2x+3$ toys, and on Tuesday, production increases to $2x+5$ toys. Using different methods (distributive law, identity, direct multiplication), the manager wants to find the total toys produced over two days and verify using numbers $x = 10$.

Questions:

1. Expression for toys produced on Monday. **(1)**
2. Expression for toys produced on Tuesday. **(1)**
3. Total toys produced in two days using distributive law. **(2)**

   OR

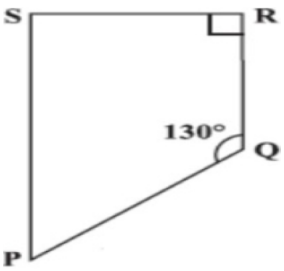
   Verify the total for x = 10. **(2)**

Section E

36 By using prime factorization, determine whether the following numbers are perfect cubes or not. **[5]**

8000 and 3375

37 Find the measure of angles P and S if SP and RQ are parallel. **[5]**



38 A two - digit number is 3 more than 4 times the sum of its digits. If 18 is added to the number, its digits are reversed. Find the number. **[5]**