D.A.V. PUBLIC SCHOOL, THANE
SESSION: 2021 – 2022
PERIODIC TEST – III
SUBJECT: MATHEMATICS

STD: VIII **Max Marks: 40**
Date: 15/01/2022 **Time: 2 Hrs**

General Instructions:

1. This question paper contains two parts A and B.
2. Both Part A and Part B have internal choices.

Part – A:

1. It consists of two sections- I and II
2. Section I has 7 questions. Internal choice is provided in 2 questions.
3. Section II has two case study-based questions. Each case study has 5 case-based sub-parts. An examinee is to attempt any 4 out of 5 sub-parts.

Part – B:

1. Section III Question No 10 to 12 are Very Short Answer Type questions of 2 marks each.
2. Section IV Question No 13 to 15 are Short Answer Type questions of 3 marks each.
3. Section V Question No 16 to 17 are Long Answer Type questions of 5 marks each.
4. Internal choice is provided in 1 question of 2 marks, 1 question of 3 marks and 1 question of 5 marks.

PART - A
Section-I
(Section I has 7 questions of 1 mark each. Internal choice is provided in 2 questions.)

Q1. If the square root of 5625 is 75, then find the value of $\sqrt{5625} + \sqrt{56.25} + \sqrt{0.5625}$

(OR)

If $(0.4)^2 + (0.2)^2 = \sqrt{x}$, then find the value of x

Q2. If F = 18, V = 10 then find the value of E (Edges) by Euler's formula.

Q3. Find the volume of a cylinder whose base area is 154 cm^2 and height is 2.5 cm.

Q4. Evaluate: $4 \times (32)^{\frac{2}{5}} \times (3)^{-2}$

Q5. Simplify and express the result with positive exponents: $4x^{\frac{1}{5}} \times x^{\frac{-6}{5}}$

Q6. Divide: $\frac{\sqrt{125}\, y^4}{5y^2}$

Q7. Solve the equation: $\frac{3p+5}{3-2p} = \frac{5}{3}$

(OR)

The sum of two consecutive multiples of 8 is 136. Find the multiples.

Section-II

(Case study-based questions are compulsory. Attempt any four sub-parts of each question. Each sub-part carries 1 mark.)

Case study based – 1

Q8. Archana bought an aquarium in the form of a cuboid whose measures are 80 cm × 30 cm × 40 cm. She covered the base of the aquarium with brown paper, back with blue paper and the sides with green paper.

(i) Find the area of brown paper required to cover the base of the aquarium.

a) 2100 cm^2 b) 2400 cm^2 c) 3800 cm^2 d) 1500 cm^2

(ii) Find the area of the blue paper required to cover the back of the aquarium.

a)1200 cm^2 b) 1900 cm^2 c)1700 cm^2 d) 3200 cm^2

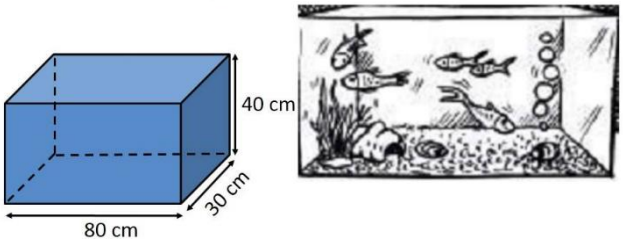
(iii) Find the area of green paper required to cover the sides of the aquarium.

a) 1300 cm^2 b) 1000 cm^2 c) 2400 cm^2 d) 1600 cm^2

iv) Find the area of the uncovered faces.

a) 4400 cm^2 b) 4520 cm^2

c) 5600 cm^2 d) 3800 cm^2



v) Find the volume of the aquarium.

a) 94500 cm^3 b) 7860 cm^3

c) 15245 cm^3 d) 96000 cm^3

Case study based – 2

Q9. The breadth of a rectangle is x cm and length exceeds its breadth by 5 cm. If length and breadth are each increased by 5 cm, the area of the new rectangle will be 250 sq. cm more than that of the given rectangle.

(i) Find the length of the new rectangle in cm.

a) $(x+5)$ b) $(x+10)$ c) $(x+8)$ d) x

(ii) Find the breadth of the new rectangle in cm

a) $(x-5)$ b) $(x+15)$ c) $(x+5)$ d) $(x+10)$

(iii) Find the area of the new rectangle in cm^2

a) $x^2+15x+50$ b) $x^2+10x+50$ c) $x^2-15x+50$ d) $x^2-15x-50$

(iv) Find the length of the original rectangle in cm

a) 20 b) 18 c) 25 d) 30

(v) Find the breadth of the original rectangle in cm

a) 15 b) 20 c) 16 d) 22

Part –B (2 marks each)
(All questions are compulsory. In case of internal choices, attempt anyone.)

Q10. The sum of the squares of two numbers is 145. If the square root of one number is 3, find the other number.

Q11. Using factor method, divide $x^4 + 3x^2 - 10$ *by* $x^2 + 5$

(OR)

Find the value of p if $20x^2 - 32x - p$ is divisible by $5x + 2$

Q12. Mr. A is four times as old as his son. Four years hence the sum of their ages will be 43 years. Find the present age of the son.

Part –B (3 marks each)
(All questions are compulsory. In case of internal choices, attempt anyone.)

Q13. The thickness of a hollow metal cylinder is 2 cm. It is 35 cm long and its inner radius is 12 cm. Find the volume of metal required to make the cylinder assuming it is open at either end.

(OR)

The area of a trapezium is 91 m^2 and its height is 7 m. If one of the parallel sides is larger than the other by 8 m, find the two parallel sides.

Q14. Divide $6x^3 + 19x^2 + 13x - 3$ *by* $2x + 3$ and verify the result.

Q15. A steamer going downstream in a river, covers the distance between two town in 5 hours. Coming back upstream, it covers this distance in 6 hours. If the speed of the water is 3 km/hr., find the distance between the two towns.

Part – B (5 marks each)
(All questions are compulsory. In case of internal choices, attempt anyone.)

Q16. The length, breadth and height of a room are 5 m, 450 cm and 300 cm respective Find the cost of white washing the inner of the room and ceiling at the rate of ₹ 80 per square metre.

Q17. Find the value of: $\frac{\mathbf{3}}{(\mathbf{243})^{\frac{-3}{5}}} + \frac{\mathbf{4}}{(\mathbf{512})^{\frac{-5}{9}}} + \frac{\mathbf{5}}{(\mathbf{125})^{\frac{-2}{3}}}$

(OR)

Find the value of x, if $\mathbf{5^x + 15(5^0) + 5^2 + 4(5^x) = 665}$

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