

DAV PUBLIC SCHOOLS, BHUBANESWAR

PERIODIC ASSESSMENT-I (2022-23)

- Please check that this question paper contains 4 printed pages.
- Check that this question paper contains 17 questions.
- Write down the serial number of the question in the left side of the margin before attempting it.
- 15 minutes time has been allotted to read this question paper. The question paper will be distributed 15 minutes prior to the commencement of the examination. The students will read the question paper only and will not write any answer on the answer script during this.

CLASS :IX

SUB :MATHEMATICS

Time Allowed: 1½ Hours

Maximum Marks: 40

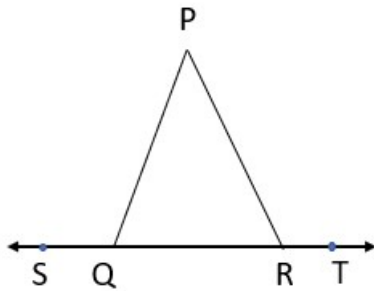
General Instructions:

1. The question paper consists of 17 questions divided into 4 sections A, B, C & D
2. All questions are compulsory.
3. Section A comprises of 6 questions of 1 mark each.
4. Section B comprises of 3 questions of 2 marks each.
5. Section C comprises of 4 questions of 3 marks each.
6. Section D comprises of 4 questions of 4 marks each .It includes two case study questions.

SECTION-A

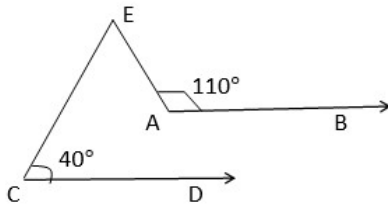
- Q1. Simplify: $\frac{3}{\sqrt{8}} + \frac{1}{\sqrt{2}}$ (1)
- Q2. For what value of 'm', the polynomial $x^3 - 2mx^2 + 16$ is divisible by $x + 2$? (1)
- Q3. If the perpendicular distance of a point P from the X-axis is 5 units and is lying on the Y-axis, then write all possible coordinates of the point P. (1)
- Q4. State Playfair's Axiom. (1)
- Q5. How many planes can be made to pass through two different points? (1)

- Q6. In the given figure, $\angle PQR = \angle PRQ$, then prove that $\angle PQS = \angle PRT$ (1)



SECTION-B

- Q7. Express $0.\overline{235}$ in $\frac{p}{q}$ form. (2)
- Q8. Simplify: $(x + 4y)^3 - (x - 4y)^3$ (2)
- Q9. In the given figure, $AB \parallel CD$. Find $m\angle AEC$ (2)

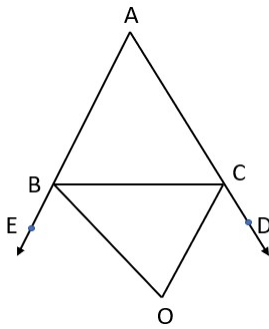


SECTION-C

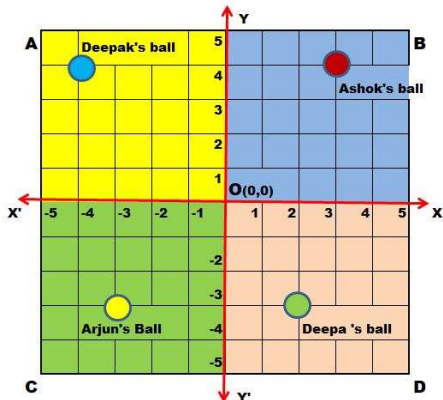
- Q10. If $\sqrt{2} = 1.4142$, then find the value of $\sqrt{\frac{\sqrt{2}-1}{\sqrt{2}+1}}$. (3)
- Q11. Factorise: $x^3 - 23x^2 + 142x - 120$ (3)
- Q12. Plot the points $A(-3,5)$, $B(-3,0)$ and $C(2,0)$ on the cartesian plane. Find the coordinates of D, if ABCD is a square. (3)
- Q13. AP and DP are the bisectors of two adjacent angles A & D meet inside the quadrilateral ABCD at P. Prove that $2\angle APD = \angle B + \angle C$ (3)

SECTION-D

- Q14. Evaluate: (4)
- $$\frac{(1.5)^3 + (4.7)^3 + (3.8)^3 - 3 \times 1.5 \times 4.7 \times 3.8}{(1.5)^2 + (4.7)^2 + (3.8)^2 - 1.5 \times 4.7 - 4.7 \times 3.8 - 3.8 \times 1.5} - \frac{(1.1)^3 + (2.2)^3 - (3.3)^3}{3 \times 1.1 \times 2.2 \times (-3.3)}$$
- Q15. In the given figure, the sides AB and AC of a triangle ABC are produced to points E and D respectively. If bisectors BO and CO of $\angle CBE$ and $\angle BCD$ respectively meet at point O, then prove that $\angle BOC = 90^\circ - \frac{1}{2}\angle BAC$. (4)



- Q16. Read the Source/Text given below and answer the following questions: (2+2)



There is a square park ABCD in the middle of Saket colony in Delhi. Four children Deepak, Ashok, Deepa and Arjun went to play with their balls. All four children roll their balls from Centre point O in the direction of $X'OY$, XOY , XOY' and $X'OY'$. Their balls stopped as shown in the above image.

Answer the following questions:

- (i) Find the area of the quadrilateral formed by joining the four balls in order.
- (ii) Find the distance of Ashok's ball from the origin.

- Q17. In a classroom activity on real numbers, the students have to pick a number card from a pile and frame a question on it if it is not a rational number for the rest of the class. The number cards picked up by first 5 students and their questions on the numbers for the rest of the class are as shown below. (4X1)

Answer the following questions : (ANY FOUR)

- (i) Suraj picked up $\sqrt{8}$ and his question was: Which of the following is true about $\sqrt{8}$?
 - (a) It is a natural number
 - (b) It is an irrational number
 - (c) It is a rational number
 - (d) None of these

- (ii) Shreya picked up a card and her question was: Which of the following is not irrational?
- (a) $3 - 4\sqrt{5}$
 - (b) $1 + \pi$
 - (c) $\frac{3\sqrt{3}}{\sqrt{75}}$
 - (d) $4\sqrt{11} - \sqrt{121}$
- (iii) Ananya picked up a card and the question was : which of the following is the product of $\sqrt{2}$ and $\sqrt[3]{3}$
- (a) $\sqrt{6}$
 - (b) $\sqrt[3]{6}$
 - (c) $\sqrt[5]{6}$
 - (d) $\sqrt[6]{72}$
- (iv) Suman picked up $\frac{1}{\sqrt{5}}$ and her question was: which of the following is the difference between $\sqrt{20}$ and the reciprocal of the number she picked?
- (a) $\sqrt{5}$
 - (b) $\frac{1}{\sqrt{5}}$
 - (c) $\frac{9}{\sqrt{5}}$
 - (d) $\frac{2}{\sqrt{5}}$
- (v) Preeti picked up $1.\bar{3}$ and her question was: which of the following is not true about the number she picked?
- (a) It can be expressed on number line
 - (b) It can be expressed in $\frac{p}{q}$ form, where $q \neq 0$
 - (c) The denominator of the number is an integer.
 - (d) The reciprocal of the number is irrational.
