Atomic Energy Central School - Narora

Periodic Test III – 2018-19 (Mathematics)

Time-1 hour

Class-IX

Max. Marks – 40

General Instructions: Q.N. 1 - 4 is of one mark each. Q.N. 5 - 8 is of two marks each. Q.N. 9-12 is of three marks each. Q.N. 13-16 is of four marks each.

Q1. Express 0.6 in the form p q , where p and q are integers and q \neq 0.

Q2. Locate the points (5, 2) and (–3, 5) in the Cartesian plane.

- Q3. If A, B and C are three points on a line, and B lies between A and C, then prove that AB + BC = AC.
- Q4. The angles of quadrilateral are in the ratio 3 : 5 : 9 : 13. Find all the angles of the quadrilateral.
- Q5. Two circles of radii 5 cm and 3 cm intersect at two points and the distance between their centres is 4 cm. Find the length of the common chord.
- Q6. Show that bisectors of two linear pair angles are perpendicular to each other.
- Q7. Find the value of k, if x = 2, y = 1 is a solution of the equation 2x + 3y = k.
- $Q8. \label{eq:Q8}$ Find the remainder when x^3 + $3x^2$ + 3x + 1 is divided by x + 1
- Q9. Verify that $x^3 + y^3 + z^3 3xyz = \frac{1}{2}(x + y + z)\{(x-y)^2 + (y-z)^2 + (z-x)^2\}$.
- Q10. AD is an altitude of an isosceles triangle ABC in which AB = AC. Show that (i) AD bisects BC (ii) AD bisects \angle A.

 $Q11. \ \mbox{Show}$ that the line segments joining the mid-points of the opposite sides of a quadrilateral bisect each other.

"OR"

The medians BE and CF of a triangle ABC intersect at G. Prove that the area of Δ GBC = area of the quadrilateral AFGE.

Q12. Find the area of a triangle, two sides of which are 8 cm and 11 cm and the perimeter is 32 cm

Q13.ABCD is a trapezium with AB || DC. A line parallel to AC intersects AB at X and BC at Y. Prove that ar (ADX) = ar (ACY).

Q14.(a)Prove that, the sum of either pair of opposite angles of a cyclic quadrilateral is 180°. (b) ABCD is a cyclic quadrilateral whose diagonals intersect at a point E. If \angle DBC = 70°, \angle BAC is 30°, find \angle BCD.

"OR"

(a) The line segment joining the mid-points of two sides of a triangle is parallel to the third side. (b) Show that the diagonals of a rhombus are perpendicular to each other.

Q15. Construct a triangle ABC, in which $\angle B = 60^\circ$, $\angle C = 45^\circ$ and AB + BC + CA = 11 cm.

Q16. A field is in the shape of a trapezium whose parallel sides are 25 m and 10 m. The non-parallel sides are 14 m and 13 m. Find the area of the field.
