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MODERN CONVENT SCHOOL
PERIODIC TEST - II (2017 - 18)
CLASS : IX -
SUB. : MATHEMATICS (041)

Time : 3 Hrs.

M.M. 80

SET - II

General Instructions :-

- i) All questions are compulsory.
- ii) The question paper consists of 30 questions divided into 4-sections A, B, C and D. Section A comprises of 6 questions of 1 mark each. Section B comprises of 6 questions of 2 marks each. Section C comprises of 10 questions of 3 marks each and Section D comprises of 8 questions of 4 marks each.
- iii) All questions in Section A are to be answered in one word, sentence or as per the exact requirement of the question.
- iv) There is no overall choice in this question paper.
- v) Use of calculator is not permitted.

SECTION - A

- Q1. Evaluate : $(25)^{\frac{1}{3}} \times (5)^{\frac{1}{3}}$
- Q2. If $P(x) = -4x^2 + 5x + 3$, then find $P(-1)$
- Q3. The point in which abscissa and ordinate have different signs will lie in which quadrant (s)?
- Q4. Find the angle whose complement is equal to the angle itself.
- Q5. Two sides of a triangle are 13cm and 14cm and its semi-perimeter is 18cm. Find the third side of this triangle.
- Q6. The mean of the set of numbers 6, 3, x, 4, 3, 5 and y is given as 5. What is the value of $x + y$?

SECTION - B

- Q7. If $(x - 2k)$ is a factor of $f(x) = 5x^3 - 10x^2k - 3x - 6$, find k .
- Q8. Prove that every line segment has one and only one mid-point.
- Q9. If the difference between any two supplementary angles is 40° , then find the angles.

- Q10. The vertical angle of an isosceles $\triangle ABC$ is 60° . Prove that $\triangle ABC$ is an equilateral triangle.
- Q11. The base of a right angles triangle measure 4cm and its hypotenuse measures 5cm. Find the area of the triangle.
- Q12. The following data have been arranged in ascending order :
 12, 16, 17, 19, x, x+3, 27, 37, 38, 40
 If the median of the data is 23.5, find the value of x.

SECTION - C

- Q13. Express $0.\overline{32} + 0.\overline{35}$ as a fraction in simplest form.
- Q14. a) Evaluate : Using identity :- $(102)^3$
 b) Without actually calculating the cubes, find the value of :

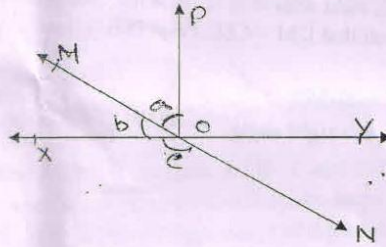
$$\left(-\frac{3}{4}\right)^3 + \left(-\frac{5}{8}\right)^3 + \left(\frac{11}{8}\right)^3$$
- Q15. Draw the quadrilateral with vertices $(-4, 4)$, $(-6, 0)$, $(-4, -4)$, $(-2, 0)$. Name the type of quadrilateral.
- Q16. S is any point on side QR of $\triangle PQR$. Show that $PQ + QR + RP > 2 PS$
- Q17. The temperature of a liquid can be measured in Kelvin units as xK or in Fahrenheit units as $y^\circ F$. The relation between the two systems of measurement of temperature is given by the linear equation :

$$y = \frac{9}{5}(x - 273) + 32$$

 i) Find the temperature of the liquid in Fahrenheit if the temperature of the body is 298K.
 ii) If the temperature is $113^\circ F$, then find the temperature in Kelvin.
- Q18. The perimeter of a triangular garden is 900cm and its sides are in the ratio 3:5:4. Using Heron's formula, find the area of triangular garden.
- Q19. Prove that angles opposite to equal sides of a triangle are equal.
- Q20. If the mean of the following data is 20.2, find the values of P

x_i	10	15	20	25	30
f_i	6	8	P	10	6

Q21. Lines XY and MN intersect at O. If $\angle POY = 90^\circ$ and $a : b = 2 : 3$, find C.



Q22. Find the area of triangle whose perimeter is 180cm and two sides are 80cm and 18cm. Calculate the altitude of triangle corresponding to its shortest side.

SECTION - D

Q23. Prove that the sum of the angles of a triangle is 180° .

Q24. Factorise : $x^3 - 2x^2 - x + 2$

Q25. A field is in the shape of a trapezium whose parallel sides are 60m and 77m and non-parallel sides 25m and 26m long. Find the area of the field.

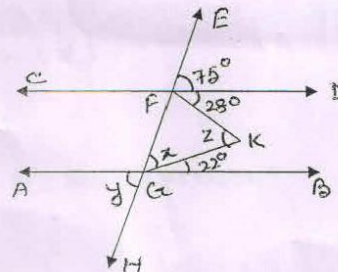
Q26. Draw the graph of linear equations $x = 4$ and $y = 5$. Find the area formed by the two graphs and the axes.

Q27. The marks obtained (out of 50) by a class of 80 students are given below :

Marks	0 - 10	10 - 20	20 - 30	30 - 40	40 - 50
No. of students	6	17	15	16	26

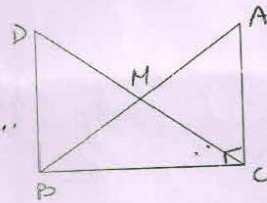
Draw histogram of the given information.

Q28. In the given figure, find x , y and z , if $AB \parallel CD$



Q29. In right $\triangle ABC$, right angled at C. M is the mid-point of hypotenuse AB. C is joined to M and produced to a point D such that $DM = CM$. Point D is joined to point B. Show that

- i) $\triangle AMC \cong \triangle BMD$
- ii) $\angle DBC$ is a right angle



Q30. Two classmates Anya and Madhur simplified two different expressions during the revision hour and explained to each other their simplification. Anya explained simplification of $\frac{\sqrt{2}}{\sqrt{5} + \sqrt{3}}$ and Madhur explains simplification of $\sqrt{28} + \sqrt{98} + \sqrt{147}$. Write both the simplification. What values does it depict?