COMMON ANNUAL EXAMINATION - 2025

STANDARD - IX

Reg. No. | | | | | | |

MATHEMATICS

Time : 2.30 hrs Marks : 100

I. Answer ALL the questions: 14×1=14

1) The set P = {x/x∈z, –1<x<1} is a
   a) Singleton set b) Power set
   c) Null set d) Subset

2) Which one of the following is an irrational number?
   a) $\sqrt{25}$ b) $\sqrt{9/4}$ c) $\frac{7}{11}$ d) π

3) Degree of the constant polynomial is _____.
   a) 3 b) 2 c) 1 d) 0

4) Which of the following is not a linear equation in two variable?
   a) ax+by+c = 0 b) ox+oy+c = 0
   c) ox+by+c = 0 d) ax+oy+c = 0

5) The angles of the triangle are 3x–40, x+20 and 2x–10, then the value of x is _____.
   a) 40° b) 35° c) 50° d) 45°

6) The exterior angle of a triangle is equal to the sum of two
   a) Exterior angles b) Interior opposite angles
   c) Alternate angles d) Interior angles

7) If the y-co-ordinate of a point is zero then the point always lies _____.
   a) in the I quadratant b) in the II quadrant
   c) on x-axis d) on y-axis

8) The value of tan1° tan2° tan3°.....tan89° is
   a) 0 b) 1 c) 2 d) $\frac{\sqrt{3}}{2}$

9) The capacity of a water tank of dimensions 10m×5m×1.5m is _____.
   a) 75 litres b) 750 litres c) 7500 litres d) 75000 litres

10) The distance between the point (5, –1) and the origin is _____.
   a) $\sqrt{24}$ b) $\sqrt{37}$ c) $\sqrt{26}$ d) $\sqrt{17}$

11) If the ratio of the sides of two cubes are 2:3, then the ratio of their surface areas will be _____.
   a) 4:6 b) 4:9 c) 6:9 d) 16:36

12) The decimal form of 6.34×10^4 is _____.
a) 6340000 b) 63400 c) 634000 d) 634

13) The mean of the square of first 11 natural number is _____.
a) 26 b) 46 c) 48 d) 52

14) A particular result of an experiment is called _____.
a) Trial b) Simple event
c) Compound event d) Outcome

II. Answer ANY TEN of the following. (Question No. 28 is compulsory) 10×2=20

15) Write the set of letters of the word 'PARALLELOGRAM' in Roster form.

16) Draw the Venn diagram: (i) $A\cup B$ (ii) $A-B$

17) Express $0.\overline{24}$ as rational number.

18) Evaluate $7^3-10^3+3^3$ using identity.

19) Write the co-efficient of x^2 and x for the polynomial $6-2x^2+3x^3-\sqrt{7}x$.

20) The angles of a quadrilateral are in the ratio 2:4:5:7. Find all the angles.

21) Find the centroid of the triangle whose vertices are A(6, –1), B(8, 3) and C(10, –5).

22) In which quadrant does the following points lie?
(i) (3, –8) (ii) (–1, –3) (iii) (2, 5) (iv) (–7, 3)

23) Find the value of $\tan15^\circ\tan30^\circ\tan45^\circ\tan60^\circ\tan75^\circ$.

24) Find the volume of cube whose side is 10 cm.

25) Find the median of the given values: 47, 53, 62, 71, 83, 21, 43, 47, 41

26) Find the mode of the following data:

Marks	0-10	10-20	20-30	30-40	40-50
No. of students	22	38	46	34	20

27) What is the probability of throwing an even number with a single standard dice of six faces?

28) Find the value of $\cos19^\circ59'$.

	0'	6'	12'	18'	24'	30'	36'	42'	48'	54'	Mean Difference				
	0.0°	0.1°	0.2°	0.3°	0.4°	0.5°	0.6°	0.7°	0.8°	0.9°	1	2	3	4	5
19°										0.9403					5

III. Answer ANY TEN of the following. (Question No. 42 is compulsory) 10×5=50

29) Verify $(A \cap B)' = A' \cup B'$ using Venn diagram.

30) In a school, all students play either Hockey or Cricket or both. 300 play Hockey, 250 play Cricket and 110 play both games. Find
   i) the number of students who play only Hockey.
   ii) the number of students who play only Cricket.
   iii) the total number of students in the school.

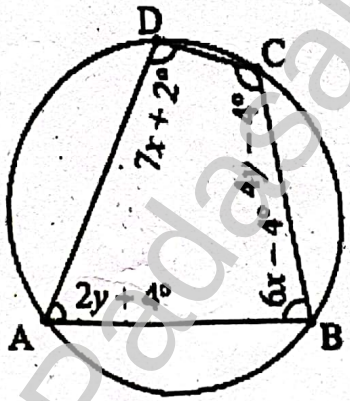
31) Arrange surds in descending order: $\sqrt[3]{5}$, $\sqrt[9]{4}$, $\sqrt[6]{3}$

32) Simplify: $(2.75\times10^7) + (1.23\times10^8)$

33) Factorise $2x^3-3x^2-3x+2$.

34) If the quotient obtained on dividing $(8x^4-2x^2+6x-7)$ by $(2x+1)$ is $(4x^3+px^2-qx+3)$, then find p, q and also the remainder.

35) Find all the angles of the given cyclic quadrilateral ABCD in the figure.



36) Show that the points A(5, 4), B(2, 0), C(–2, 3) taken in order form an isosceles triangle.

37) The sides of the triangular ground are 22m, 120m and 122m. Find the area and cost of levelling the ground at the rate of ₹ 20 per m^2.

38) A cubical tank can hold 64000 litres of water. Find the length of its sides in metres.

39) Find the mean for the following frequency table.

Class Interval	100-120	120-140	140-160	160-180	180-200	200-220	220-240
Frequency	10	8	4	4	3	1	2

40) Find the mode of the following data:

Marks	0-10	10-20	20-30	30-40	40-50
Number of students	22	38	46	34	20

41) 1500 families were surveyed and following data was recorded about their maids at homes.

Types of maids	only part time	only full time	both
Number of families	860	370	250

A family is selected at random. Find the probability that the family selected has
(i) Both types of maids (ii) Part time maids (iii) No maids

42) Represent 4.863 on Number line.

IV. Answer ALL the following questions: **2×8=16**

43) a) Construct the circumcentre of the ΔABC with AB = 5 cm, $\angle A = 60°$ and $\angle B = 80°$. Also draw the circumcircle and find the circumradius of the ΔABC.

(OR)

b) Construct the ΔLMN such that LM = 7.5 cm, MN = 5 cm and LN = 8 cm. Locate its centroid.

44) a) Solve graphically: $x+y = 7$; $x-y = 3$

(OR)

b) Draw the graph for $y = 4x-1$.
