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MATHEMATICS

Class-IX

M.M.: 100

Time : 3 hrs.

Date –

- **General Instructions :**
 - All questions are **compulsory**.
 - The question paper consists of 32 questions divided into five sections A, B, C, D and E.
 Section-A comprises of 4 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 11 questions of 4 marks each. Section E comprises of one question from Open Text theme of 10 marks.
 - There is no overall choice.
 - Use of calculator is not permitted.

SECTION A

(4 Multiple Choice Questions each carries 1 mark)

Each question is provided with 4 choices out of which only one is correct. Choose the correct one.

- 1 Find the value of k for 2x + 37 = k, if x = 2, y = 1.
- 2 Write one property of a cyclic quadrilateral.
- **3** Find mode of the following data :

2, 3, 3, 5, 7, 2, 3, 5, 4, 3

4 Write the formula for the total surface area of hemisphere of radius 'r'.

SECTION-B

(2 marks each)

- 5 If x = 2 and y = -3 is a solution of equation kx 2y = 16, then find the value of k.
- 6 If the median of 5, 8, 12, 20, x, x+2, 38, 41, 45, 50 is 31 then find the value of x.
- 7 The angles of the quadrilateral are in the ratio 3:5:9:13. Find all the angles of the quadrilateral.
- 8 P & Q are any two points lying on the sides of DC & AD respectively of a parallelogram ABCD. Show that ar $(\Delta APB) = ar (\Delta BQC)$.



9 The record of a weather station shows that out of the past 250 consecutive days, its weather forecast were correct 175 times. What is the probability that on a given day

(a) it was correct? (b) it was not correct?

10 Find the mean of first 10 natural numbers.

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SECTION-C (3 marks each)

- If a line intersects two concentric circles at A,B,C,D respectively then prove AB=CD. 11
- Draw graphs for x = 5 and y = -3. And locate their common intersecting point on graph 12 sheet.
- 13 Prove that equal chords of a circle subtend equal angle at the centre.
- The floor of a rectangular hall has a perimeter of 250 m. If the cost of painting its four walls 14 at the rate of Rs 10 per m^2 is Rs 15000. Find the height of the wall.
- Construct a right angled triangle whose base is 4 cm and the sum of other two sides is 8 cm. 15
- Fifty seeds were selected at random from each of 5bags of seeds, & were kept under 16 standardised conditions favorable to germinate. After 20days the number of seeds which had germination in each collection were counted & recorded as follows:

Bag	1	2	3	4	5
No. of seeds geminated	40	48	42	39	41

What is the probability of the germination of:

- More than 40 seeds in a bag? (a)
- (b) 40 seeds in a bag?
- At least 40 seeds in a bag? (c)
- Write $\sqrt{7}$ y = 2x as a linear equation of the form ax+by+c=0. Also write the values 17 corresponding to a,b,c. Does the graph of this linear equation pass through origin? Give your answer in "yes" or "no"?
- Write any three solutions for the equation x+2y=6. 18
- The diameter of a roller is 84cm & its length is 120cm. It takes 500 complete revolutions to 19 move once over to level a playground. Find the area of playground in m^2 .
- 20 A right angled \triangle ABC with sides 5cm,12cm,13 cm is revolved about the side 12cm. Find the volume of the solid so obtained.

SECTION-D (4 marks each)

- Draw the graph of linear equation $F = \frac{9}{5}C + 32$ using Celsius for x-axis and Fahrenheit for 21 y-axis. If the temperature is 30° C, what is the temperature in Fahrenheit?
- If two non parallel sides of a trapezium are equal then prove that it is cyclic. 22
- If a right circular cylinder just encloses a sphere of radius r. Find the ratio of their Curved 23 Surface Areas (CSAs) and Total Surface Areas (TSAs).
- 100 surnames were randomly picked up from a local telephone directory and a frequency 24 distribution of the numbers of letters in the English alphabets in the surnames was found as followed :

Number of alphabets :	1-4	4-6	6-8	8-12	12-20
Number of surnames:	6	30	44	16	4

Draw a histogram to depict the given information.

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- ABCD is a trapezium in which AB || DC. From E the midpoint of AD a line segment parallel 25 to AB and DC is drawn to meet diagonal BD and side BC at G and F respectively. Prove that F is the mid-point of BC.
- 26 Two parallel lines l & m are intersected by a transversal p. Show that the quadrilateral, formed by the bisectors of interior angles, is a rectangle.

27 ABCD is a cyclic quadrilateral in which AB is a diameter of the circle passing through A, B, C & D. If $\angle ADC = 130^\circ$, find ∠BAC.







- 28 State and prove the Mid-point Theorem.
- 29 Construct a triangle PQR whose perimeter is equal to 14cm, $\angle P = 45^{\circ} \& \angle Q = 60^{\circ}$.
- 30 A hemispherical tank is made up of an iron-sheet 1cm thick. If the inner radius is 1m, then find the volume of the iron used to make the tank in m^3 .
- 31 The blood groups of 30 persons in a blood donation camp are recorded as follows:

A, B, O, O, AB, O, A, O, B, A, O, B, A, O, O, A, AB, O, A, A, O, O, AB, B, A, O, B, A, B, O

Represent this data in the form of a frequency distribution table? Which is the most common, and which is the rarest, blood group among these students?

What value is depicted by the act of these people?

SECTION – E

(Open text of the given theme is supplied with this question paper)

Theme-II (Adventure Camp) 32

- Name the Principal and coordinating teacher of the school. a)
- From teachers, students, Brigadier & Brigadier's team a person is chosen at random. b) Find the probability that the selected person is
 - (i) a student
 - (ii) a member of Brigadier's team.
- Manager served drink in cylindrical glasses and hemispherical cups. Find the ratio of c) their curved surface area.
- d) For making all the tents, find the length of the canvas required if its width is 1.5 m.

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(2+3+2+3)

(3/3)