ZKW3A83

SUMMATIVE ASSESSMENT – II, 2016-17
MATHEMATICS
IX / Class – IX

Time Allowed : 3 hours **Maximum Marks: 90**

General Instructions:

1. All questions are **compulsory**.
2. The question paper consists of **31** questions divided into four sections **A, B, C** and **D**. **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.
3. There is no overall choice in this question paper.
4. Use of calculator is not permitted.

SECTION-A

Question numbers **1** to **4** carry one mark each.

1 Is $(2, \frac{1}{2})$ a solution of linear equation, $x = 4y$? Justify. 1

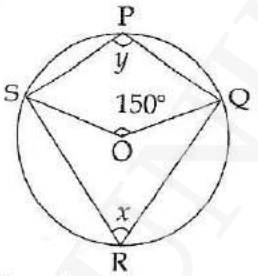
2 Write the equation $3y = 5$ as a linear equation in two variables. 1

3 Construct an angle of measure 135° (using ruler and compasses only). 1

4 If the sum of the edges of a cube is 24 cm, then find its surface area. 1

SECTION-B

Question numbers **5** to **10** carry two marks each.

5 

In the figure, O is centre of the circle passing through P, Q, R and S. If $\angle SOQ = 150°$, find the values of x and y. 2

6 An equilateral triangle of area $4\sqrt{3}$ cm^2 shares same base with a square. What is the area of square? Find the ratio of area of triangle to that of square. 2

7 Construct an angle of 90° at the initial point of the given ray. 2

8 The diameters of two cones are equal. If their slant heights are in the ratio 7: 4, find the ratio of their curved surface area. 2

9 In an experiment, a coin is tossed 600 times. If the tail turns up 380 times, find the experimental probability of getting : 2
(a) a head
(b) a tail

10 Following are the actual weights of 10 boxes of dry fruits distributed on the occasion of Diwali; 2
4 kg 798 g, 4.795 kg, 4.805 kg, 4.810 kg, 4.825 kg. 4.801 kg, 4.798 kg, 4.800 kg, 4.800 kg and 4.817 kg.
A box is chosen at random. Find the probability that :
(a) its weight is more than 4 kg 800 g
(b) its weight is 4.800 kg or less than it.

SECTION-C

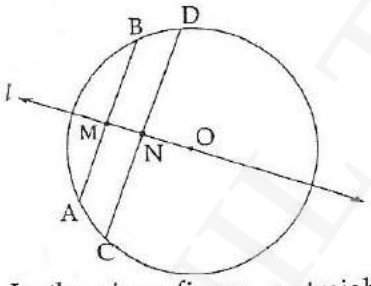
Question numbers **11** to **20** carry three marks each.

11 A has x apples and B has y. If A gives his 10 apples to B, then number of apples left with A will be twice of apples, B will be having then. Write this information as a linear equation in two variables and draw its graph. 3

12 Draw the graphs of $x = 2$ and $y = 5$ in the same cartesian plane and identify the figure formed by these graphs with X and Y axis 3

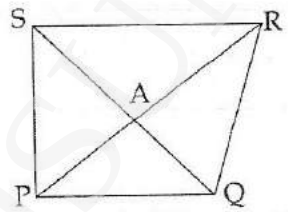
13 Draw a line segment PQ of length 8 cm. Draw $\frac{1}{4}$ PQ, using compass and ruler. 3

14 3



In the given figure, a straight line l passing through the centre O of the circle bisects the chords AB and CD. Prove that AB || CD.

15 3



Diagonals PR and QS of quadrilateral PQRS intersect each other at A. Show that ar $(\Delta PSA) \times$ ar (ΔQAR) = ar $(\Delta PAQ) \times$ ar (ΔSAR).

16 Hemispherical dome of stupa needs to be painted. The circumference of the base of dome is 17.6 m. How much will it cost to paint the dome, if it is given that the rate of painting is ₹100 3

per square metre.

17 The blood groups of 30 students of class IX are recorded as follows : 3
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?

18 Find the mean and median of first 12 odd composite numbers. 3

SECTION-D

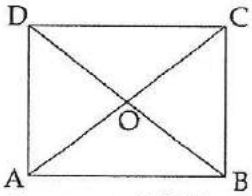
Question numbers 21 to 31 carry four marks each.

19 Draw the graphs of the following equations on the same graph sheet : 4
$x=0, y=0, x+y=5$. Also, find the area enclosed between these lines.

20 Let cost of a pen and a pencil be ₹ x and ₹ y respectively. A girl pays ₹16 for 2 pens and 3 pencils. Write the given data in the form of a linear equation in two variables. Also, represent it graphically. 4

21 Prove that the angle subtended by an arc of a circle at the centre is double the angle subtended by it at any point on the remaining part of the circle. 4

22 ABCD is a square whose diagonals intersect at O. Calculate ar(AOB) : ar(ABCD). 4



23 Construct ΔXYZ in which $\angle X=110°$, $XY=4.2$ cm, $XZ+YZ=9.2$ cm. 4

24 In order to promote sports in a village, Gram Panchayat of that village allocated some barren land to make a playground. In order to utilise the land for playing, a cylindrical roller of diameter 7 m and length 14 m was used to level it. If it takes 1500 revolutions to level the playground (rolling once), find : 4
(a) the area of the playground in hectares.
(b) the values exhibited by the gram panchayat.

25 A cube and cuboid have the same volume. The dimensions of the cuboid are in the ratio of 4
1 : 2 : 4. If the difference between the cost of polishing the cuboid and the cube at the rate of ₹ 5 per m^2 is ₹80, find the edge of the cube.

26 It costs ₹ 3300 to paint the inner curved surface of a 10 m deep well. If the cost of painting is 4
at the rate of ₹ 30 per m^2, find :
(a) inner curved surface area.
(b) diameter of the well.
(c) capacity of the well.

27 For selection of "under 14 team for swimming", a competition is organized in a school. 100 4

students are selected and the details are as under :

Age Group (in years)	Number of girls	Number of boys
10 – 11	12	18
11 – 12	18	12
12 – 13	10	11
13 - 14	10	9

(a) Find the probability of selecting a girl with age 11 years or more.

(b) Find the probability of selecting a boy under 14 years but more than or equal to 12 years.

(c) Find the probability of selecting a student in 12 years or more age group.

(d) Find the probability of selecting a student under 12 years of age.

28 Represent the following data by means of histogram and frequency polygon. 4

Weekly Wages (in thousand rupees)	10-15	15-20	20-25	25-30	30-40	40-60	60-80
No. of employees	7	9	8	5	12	12	8

Open Text)

Theme: Solving Mystery of messed up fields.

29 In Ram's field ABCD, if $\angle ABD = 30°$, then determine $\angle DBC$ and $\angle ADB$. 3

30 Prove that diagonals of Dorjee's field are perpendicular to each other. 3

31 In Jeevan's field ABCD, let AB is parallel to DC and E is mid-point AD, such that the segment EF is parallel to side DC, then prove that BF = FC and EF = $\frac{1}{2}$ (AB+DC) 4

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