SET-A

SUMMATIVE ASSESSMENT – II (2015-2016)
MATHEMATICS
Class – IX

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

General Instructions :

(i) All questions are **compulsory**.

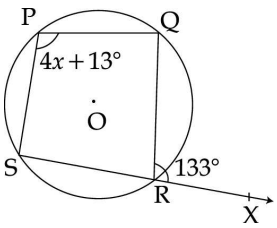
(ii) The question paper consists of **31** questions divided into five **sections A, B, C, D** and **E**. **Section-A** comprises of **4** questions of **1 mark** each, **Section-B** comprises of **6** questions of **2 marks** each, **Section-C** comprises of **8** questions of **3 marks** each and **Section-D** comprises of **10** questions of **4 marks** each. **Section E comprises of two questions of 3 marks each and 1 question of 4 marks from Open Text theme.**

(iii) There is no overall choice.

(iv) Use of calculator is not permitted.

SECTION-A

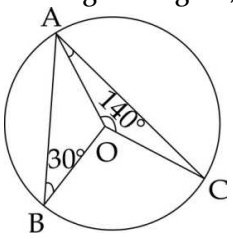
Question numbers **1** to **4** carry **one** mark each.

1	O is the centre of the circle that passes through P,Q,R, and S, as shown in the figure. SR is produced to X. If $\angle QRX = 133°$, find x. 	1
2	The radius and the lateral surface area of right circular cone are 8 cm and 220 cm^2 respectively. Find its slant height.	1
3	The points scored by a basketball team in a series of matches are as follows : 17, 7, 10, 25, 5, 10, 18, 10, 24. Find the mean.	1
4	In a history test given to 15 students the following marks (out of 75) are recorded : 41, 39, 48, 52, 46, 62, 54, 40, 66, 52, 70, 40, 42, 52, 60. Prepare a continuous grouped frequency distribution table with class size 5.	1

SECTION-B

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

5 In the given figure, if O is the centre of the circle, $\angle OBA = 30°$ and $\angle COA = 140°$, find $\angle BOC$. 2



6 Using ruler and compass, construct an angle of 150°. 2

7 Two angles of a quadrilateral are 45° and 85°. The other two angles are in the ratio 15 : 8. Find the remaining two angles of the quadrilateral. 2

8 If the volume of cuboid is 440 cm^3 and the area of base is 88 cm^2, find the height of the cuboid. 2

9 A die is thrown 600 times and the frequencies for the outcomes 1, 2, 3, 4, 5 and 6 are given in the following table : 2

Outcome	1	2	3	4	5	6
Frequency	60	90	175	68	50	157

Find the probability that in the next throw of dice.
(i) even number will come
(ii) odd number will come

10 Three coins are tossed simultaneously 250 times with the following frequencies of different outcomes : 2

Number of tails	0	1	2	3
Frequency	45	65	52	88

Compute the probability of getting :
(i) At most 2 heads
(ii) All heads

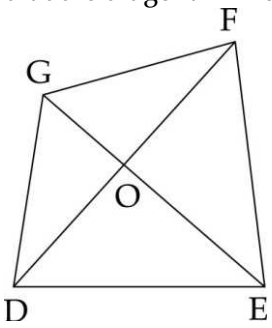
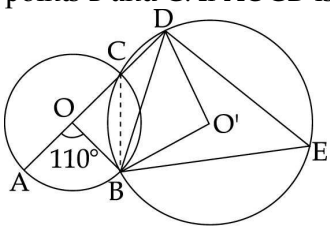
SECTION-C

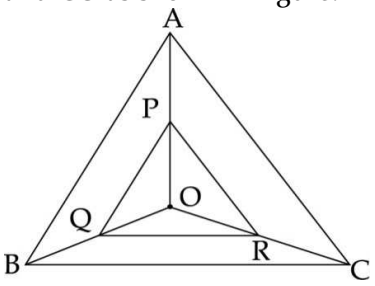
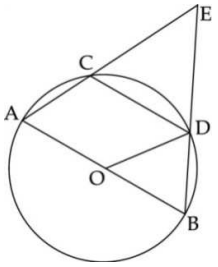
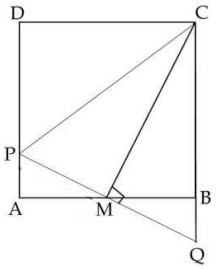
Question numbers **11** to **18** carry **three** marks each.

11 Find the mean and median of first 10 composite numbers. 3

12 Draw a histogram of the following data : 3

Marks	Number of Students
0 - 10	12

		10 - 20 | 18 20 - 30 | 10 30 - 40 | 15 40 - 50 | 7 50 - 60 | 4	
	13	DEFG is a quadrilateral such that diagonal DF divides it into two parts of equal areas. Prove that the diagonal DF bisects GE.  	3
	14	In the given figure, O and O' are centres of two circles and the circles intersect each other at points B and C. If AOCD is a straight line and $\angle AOB = 110°$, find $\angle BED$ and $\angle BOD$.  	3
	15	Draw a line segment PQ = 8.4 cm. Divide it into four equal parts, using ruler and compass.	3
	16	ΔXYZ is right angled at Y. P and Q are mid-points of sides XY and XZ respectively. If XY = 9 cm and PQ = 6 cm, then find the length of XZ.	3
	17	Prove that equal chords of a circle substend equal angles at the centre.	3
	18	The diameter of garden roller is 1.4 m and it is 2 m long. How much area will it cover in 15 revolutions ($\pi = \frac{22}{7}$)	3
		SECTION-D	
		Question numbers **19** to **28** carry **four** marks each.	
	19	Draw a histogram and frequency polygon to represent the following data : Class Interval | 10-15 | 15-20 | 20-25 | 25-30 | 30-35 Frequency | 4 | 7 | 8 | 10 | 6	4

	20	ABC is an equilateral triangle with perimeter 30 cm. P, Q and R are mid-points of AO, BO and CO as shown in figure. Find ar(ΔPQR).  	4
	21	In the given figure, O is the centre of the circle, AB is a diameter and CD is a chord equal to the radius of the circle. AC and BD when produced intersect at E. Prove that $\angle AEB = 60°$.  	4
	22	Construct a triangle PQR whose perimeter is 10.5 cm and measure of the base angles are 60° and 45°.	4
	23	ABCD is a square. M is the mid−point of AB and CM⊥PQ as shown in the figure. Show that CP = CQ.  	4
	24	The patients in a hospital are given soup daily in a cylindrical bowl of diameter 7 cm. On a particular day, the girls of NCC decided to cook the soup for the patients. If they fill the bowl with soup to a height of 6 cm, then how much soup (in litres) is to be cooked for 200 patients ? Which value is depicted by the girls ?	4
	25	A cuboidal tank is 6 m long, 5 m wide and 4.5 m deep. How many litres of water it can hold ? Also, find its lateral surface area.	4
	26	A room is 30 m long, 24 m broad and 18 m high. Find : (a) length of longest rod that can be placed in the room. (b) its total surface area. (c) its volume.	4

	27	A pen stand is cylindrical in shape with the base radius 3.5 cm and height 10.5 cm. How much cardboard will be required to make 25 such pen stands ? Also find volume of 1 pen stand	4
	28	A survey of 2000 people of different age groups was conducted to find out their preference in watching different types of movies : Type I →Family Type II →Comedy and Family Type III →Romantic, Comedy and Family Type IV →Action, Romantic, Comedy and Family Find the probability that a person chosen at random is : (a) in 18-29 years of age and likes type II movies (b) above 50 years of age and likes all types of movies in 30-50 years and likes type I movies.	4

Age Group	Type I	Type II	Type III	Type IV	All
18-29	440	160	110	61	35
30-50	505	125	60	22	18
Above 50	360	45	35	15	9

SECTION-E
(Open Text)
(* Please ensure that open text of the given theme is supplied with this question paper.)
Theme : Childhood Obesity in India

29	Taking the height as 200 cm, form a linear equation in 2 variables by taking BMI as x and weight as y kgs. Also calculate BMI if the person's weight is 45 kgs.	3
30	To burn calories after eating junk food, a person chooses to jog and dance. Jogging for 30 minutes burn 300 calories and dancing for 30 minutes burn 150 calories. Taking j minutes taken to jog and d minutes taken for dance, write a linear equation for the same if he wants to burn 650 calFind two solutions in integers.	3
31	It is stated that "Children from age 1 grow taller and heavier till they reach adoloscence at a whopping rate of 2 kg every year for weight and 3 inches for height. Assuming weight as variable 'w' and height as 'h' and 'y' as age in years establish a linear relationship between following when weight at age 1 is 6 kg and height is 30 inch. Write these equations in standard form and give values of a, b and c (a) y and w (b) y and h	4

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