



DAV samastipur

GHEUD4I

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

Time allowed : 3 hours

Maximum Marks : 90

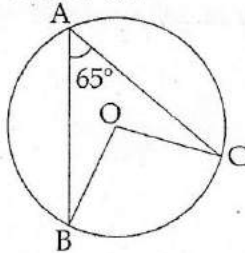
General Instructions :

- (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 In the figure, a circle with centre O is given. Find the reflex angle BOC if $\angle BAC = 65^\circ$. 1

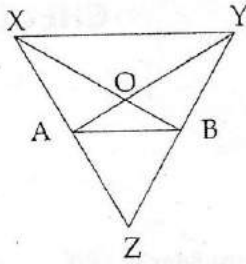


- 2 Write the edge of cube in terms of its volume. 1
- 3 Mean of 10 observation is 12. If each observation is increased by 3, find the new mean. 1
- 4 In a history test given to 15 students the following marks (out of 75) are recorded :
41, 39, 48, 52, 46, 62, 54, 40, 66, 52, 70, 40, 42, 52, 60.
Prepare a continuous grouped frequency distribution table with class size 5. 1

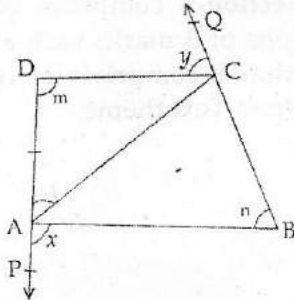
SECTION-B

Question numbers 5 to 10 carry two marks each.

- 5 In $\triangle XYZ$, A and B are points on sides XZ and YZ respectively. YA and YB intersect at O. If $AB \parallel XY$, then show that $\text{ar}(\triangle AOX) = \text{ar}(\triangle BOY)$ 2



- 6 Construct an angle of 135° at the initial point of a given ray, using compass and ruler. 2
- 7 Two sides DA and BC of a quadrilateral ABCD are produced as shown in the given figure. Show that : $m+n=x+y$. 2



- 8 The curved surface area of a right circular cylinder of height 14 cm is 88 cm^2 . Find the volume of the cylinder. 2
- 9 To know the opinion of the students about the subject physics, a survey of 200 students was conducted. The data recorded is as following : 2

Opinion	Number of students
Like	125
Dislike	51
Cannot say	24

Find the probability that a student chosen at random :

- (i) Likes physics
- (ii) Cannot say
- 10 A farmhouse has a parking space of 20 cars. 5 cars with number plate 'DL', 6 cars with number plate 'HR' and 4 cars with number plate 'UP' are parked inside. Find the probability that the first car to exit the farmhouse is having the number plate starting with 'HR'. 2

SECTION-C

Question numbers 11 to 18 carry three marks each.

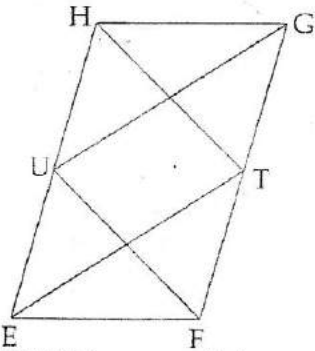
- 11 Median of 144, 145, 147, 148, p, 150, 152, 155, 160 is 149, find p. Also find Mean. 3

- 12 The number of floors in different buildings in a city are as follows : 3

Building	A	B	C	D
Floors	25	19	15	21

Draw a Bar Graph to represent the data.

- 13 3

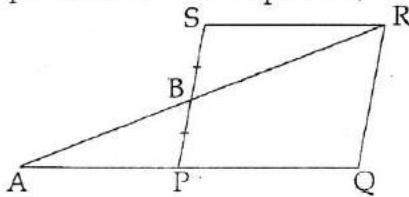


EFGH is a parallelogram and U and T are points on sides EH and GF respectively. If ar (ΔEHT) 516 cm^2 , find ar (ΔGUF).

- 14 If a pair of opposite sides of a cyclic quadrilateral is equal. Prove that its diagonals are also equal. 3

- 15 Draw a line segment $PQ=12 \text{ cm}$ and by ruler and compasses, obtain a point R on it such that $RQ=3 \text{ cm}$. Write steps of construction. 3

- 16 In the figure, PQRS is a parallelogram and B is the mid-point of side PS. If QP and RB are produced to meet at point A, then prove that $AQ=2PQ$. 3



- 17 Construct a rhombus whose each side measures 5 cm and one of its angles is of 60° . 3

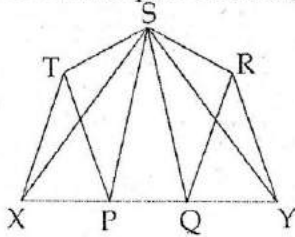
- 18 Small spherical balls, each of diameter 0.6 cm, are formed by melting a solid sphere of radius 3 cm. Find the number of balls thus obtained. 3

SECTION-D

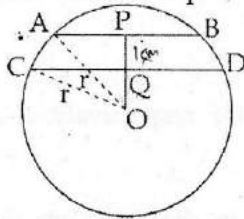
Question numbers 19 to 28 carry four marks each.

- 19 A team of 8 persons participates in a shooting competitions. The best marksman scored 85 points. If he had scored 92 points, the average score for the team would have been 87. Find the total number of points scored by the team. 4

- 20 In the figure, PQRST is a pentagon. TX is drawn parallel to SP which meets PQ produced at X. RY drawn parallel to SQ meets PQ produced at Y. Show that $\text{ar}(PQRST) = \text{ar}(\triangle SXY)$. 4

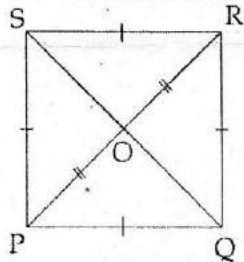


- 21 In the given figure, O is the centre of a circle of radius r cm, OP and OQ are perpendicular to AB and CD respectively and $PQ=1$ cm. If $AB \parallel CD$, $AB=6$ cm and $CD=8$ cm, determine r . 4



- 22 Construct $\triangle ABC$ in which $\angle B=150^\circ$, $BC=5$ cm and $AB+AC=7.3$ cm. 4

- 23 In the given figure, a point O is taken inside an equilateral quadrilateral PQRS such that $OP=OR$. Show that Q, O and S lie on the same straight line. 4



- 24 An icecream vendor had to purchase bowls for serving icecream to the customers at the rate of Rs.20 per bowl. He had two choices-first a hemispherical bowl of diameter 10.5 cm and second a cylindrical bowl with diameter 10.5 cm and height of 5.25 cm. The vendor purchased the cylindrical bowl instead of hemispherical. 4

- (a) What is the difference in volume of the two types of bowl ?
 (b) What value is depicted in this question ? (Use $\pi = \frac{22}{7}$)

- 25 A river 3.5 m deep and 28 m wide is flowing at the rate of 2.4 km per hour. How many litres of water will flow into the sea in 10 minutes ? 4

- 26 A hollow cylinder of uniform thickness is formed from a solid iron sphere of radius 6 cm. If external radius of the base of the cylinder is 5 cm and its height is 32 cm, find the thickness of the cylinder. 4

- 27 If the radius of a cylinder is increased by 20% and its height decreased by 10%, then what is the percentage change in its volume ? 4

27. If the radius of a cylinder is increased by 20% and its height decreased by 10%, then what is the percentage change in its volume? 4
28. A company selected 2400 families at random and surveyed them to determine a relationship between income level and the number of vehicles in a home. The information gathered is listed in the table below: 4

Monthly income (in Rs.)	Vehicles per family			
	0	1	2	Above 2
Less than 7000	10	160	35	0
7000 -10000	0	305	37	2
10000 -13000	1	535	39	1
13000 -16000	2	469	29	25
16000 or more	1	579	82	88

If a family is chosen at random, find the probability that the family is:

- (i) earning Rs. 10000 - 13000 per month and owning exactly 1 vehicle
- (ii) owning not more than one vehicle.
- (iii) earning more than Rs. 16000 and owning 2 or more than 2 vehicles.
- (iv) not having any vehicle



SECTION-E (Open Text)

(An open text of the given theme is supplied with this question paper.)
Theme : Childhood Obesity in India

29. If x is no. of glasses of 200 ml of cola and y is its calorific value in cal then fill in the table : 3
- | | | | | |
|-----|-----|-------|-------|-------|
| x | 2 | 5 | _____ | 1 |
| y | 220 | _____ | 770 | _____ |
30. Renu is slightly overweight. She wants to burn 150 calories in a day. She decides to help her mother in house hold chores and running in park for the same. She plans to spend x minutes helping her mother and y minutes jogging. 3
- (a) Frame a linear equation in two variables for the above situation.
 - (b) Plot a graph for the above and check whether the line representing the equation passes through origin.
31. A person takes 2000 calories in a party, he eats ' x ' pastries and ' y ' samosa. Write a linear equation for the same and draw the graph. 4

-o0o0o0o-