NINTH CLASS MODEL PAPER (AP)

SUMMATIVE ASSESSMENT – II (2022)

MATHEMATICS PAPER – II (English Version)

Time: 2 Hrs. 45 Mins. **PART - A and B** **Max.Marks: 40**

Instructions:

1) **15 minutes of time is allotted for reading the question paper.**
2) **Answer All the questions.**
3) **Answer for questions under PART - A should be written in a separate answer booklet.**
4) **The question paper consists of 4 sections and 33 questions.**

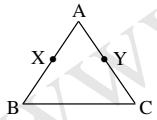
Time: 2 Hrs. **PART – A** **Marks: 30**

SECTION – I

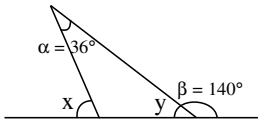
Note: i) Answer All questions. **$4 \times 1 = 4$**

ii) Each question carries 1 mark

1. In the figure given below, we have BX = $\frac{1}{2}$ AB, BY = $\frac{1}{2}$ BC and AB = BC. Show that BX = BY.



2. Find the values of x and y in the figure.



3. Find the median of the data 37, 63, 26, 45, 94, 87, 54, 77.

4. Find the volume of a sphere whose diameter is 3.5 m.

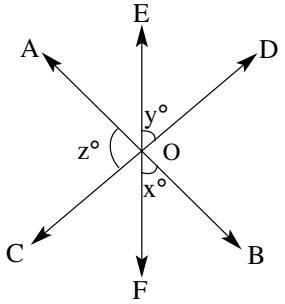
SECTION – II

Note: i) Answer All questions. **$5 \times 2 = 10$**

ii) Each question carries 2 marks.

5. Draw an equilateral triangle whose sides are 4.5 cm each.

6. In the given figure three lines AB, CD and EF intersecting at 'O'. Find the values of x, y and z it is being given that x : y : z = 2 : 3 : 5.



7. There are four unknown numbers. The mean of the first two numbers is 5 and the mean of the first three is 10. The mean of all four numbers is 20. If one of four numbers is 4, find the other numbers.

8. The radius and height of a cone are in the ratio 3 : 4. If its volume is 301.44 cubic cm, what is its radius? What is its slant height?

9. Each edge of a cube is increased by 50% then show that the percentage increase in surface area is 125%.

SECTION – III

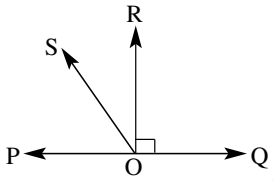
Note: i) Answer All questions. **4 × 4 = 16**

ii) Each question carries 4 marks.

iii) Each question has an internal choice.

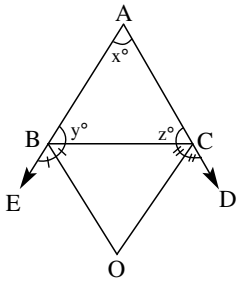
10. **a)** In the given figure $\overrightarrow{PQ}$ is a line. Ray $\overrightarrow{OR} \perp \overrightarrow{PQ}$. $\overrightarrow{OS}$ is another ray lying between rays $\overrightarrow{OP}$ and $\overrightarrow{OR}$.

Prove that $\angle ROS = \frac{1}{2}(\angle QOS - \angle POS)$



(OR)

b) In the adjacent figure, the sides AB and AC of ΔABC are produced to points E and D respectively. If bisectors BO and CO of ∠CBE and ∠BCD respectively meet point O, then prove that $\angle BOC = 90° - \frac{1}{2}\angle BAC$.



11. **a)** Circular discs 5 mm thickness are placed one above the other to form a cylinder of curved surface area 462 sq.cm. Find the number of discs, if the radius is 3.5 cm.

(OR)

b) If the mean of the following distribution is 7.2, find the value of 'k'.

x_i	2	4	6	8	10	12
f_i	4	7	10	16	k	3

12. **a)** A tent is cylindrical to a height of 4.8 m and conical above it. The radius of the base is 4.5 m and total height of the tent is 10.8 m. Find the convas required for the tent in square metres.

(OR)

b) The distances (in km) covered by 24 cars in 2 hours are given below.

125, 140, 128, 108, 96, 149, 136, 112, 84, 123, 130, 120, 103, 89, 65, 103, 145, 97, 102, 87, 67, 78, 98, 126. Represent them as a cumulative frequency table using 60 as the lower limit of the first group and all the classes having the class size of 15.

13. **a)** Construct ΔABC with AB = 5.8 cm, ∠B = 60° and BC + CA = 8.4 cm.

(OR)

b) Construct a segment of a circle on a chord of length 5 cm containing the angle 45°.

Time: 30 Minutes **PART – B** **Marks: 10**

Instructions: 1) Answer All the questions. **$20 \times \frac{1}{2} = 10$**

2) Each question carries $\frac{1}{2}$ mark.

3) Each question has four options. Write the capital letter (A/B/C/D) indicating the answer in the given brackets.

4) Marks are not awarded for over writing answers.

SECTION – IV

14. Match the following ( )

Group A		**Group B**
i) To draw a straight line from any point to any point	( )	a) Axiom
ii) Every even number greater than 4 can be written as sum of two primes	( )	b) Theorem
iii) Sum of the interior angles of a triangle is 180°	( )	c) Conjecture

A) i-a, ii-c, iii-b B) i-b, ii-c, iii-a C) i-a, ii-b, iii-c D) i-b, ii-a, iii-c

15. The author of the book 'The Elements' is ( )

A) Pythagoras B) Thales C) Euclid D) Plato

16. Which of the following is an un-defined term? ( )

A) Point B) Angle C) Circle D) Triangle

17. 'The whole is greater than the part' is Euclid's axiom ( )

A) 1 B) 4 C) 5 D) 3

18. Assertion: Two adjacent angles always form a linear pair. ( )

Reason: In a linear pair of angles two non-common arms are opposite rays.

A) Both assertion and reason are true and reason is the correct explanation of assertion.

B) Both assertion and reason are true but reason is not the correct explanation of assertion.

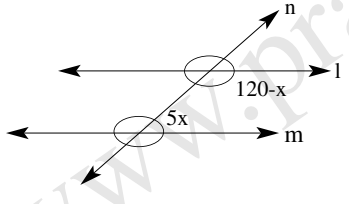
C) Assertion is true but reason is false.

D) Assertion is false but reason is true.

19. An angle is 18° less than its complementary angle. The measure of this angle is ..... ( )

A) 36° B) 48° C) 83° D) 81°

20. The value of 'x' from the adjoining figure, if l // m. ( )



A) 20° B) 30° C) 10° D) 15°

21. If the supplement of an angle is three times its complement, then the angle is ( )

A) 35° B) 40° C) 45° D) 50°

22. In the class intervals 10 – 20, 20 – 30, 30 – 40, . . . 30 is taken in ..... class. ( )

A) 30 – 40 B) 20 – 30 C) 10 – 20 D) Both A and B

23. Find the range of the data 81, 72, 90, 90, 86, 85, 92, 70, 71, 83, 89, 95, 85, 79, 62. ( )

A) 45 B) 86 C) 33 D) 71

24. The mid value of a class interval is 42. If the class size is 10, then the upper and lower limits of the class are ( )

A) 47 and 37 B) 37 and 47 C) 37.5 and 47.5 D) 47.5 and 37.5

25. The mean of five observations x, x + 4, x + 8, x + 12 and x + 16 is 15, then the value of 'x' is ( )

A) 5 B) 6 C) 7 D) 8

26. The length of the longest rod that can be fitted in a cubical vessel of edge 10 cm long is ( )

A) $10\sqrt{2}$ cm B) 10 cm C) $10\sqrt{3}$ cm D) 20 cm

27. In a cylinder if radius is doubled and height is halved, then curved surface area will be ( )

A) halved B) doubled C) same D) four times

28. The ratio of the volume of a right circular cylinder and right circular cone of the same base and height is ( )

A) 1 : 3 B) 3 : 1 C) 4 : 3 D) 3 : 4

29. Total surface area of a hemi sphere whose radius is 'r' cm is ..... sq.cm. ( )

A) πr^2 B) $2\pi r^2$ C) $3\pi r^2$ D) $4\pi r^2$

30. Which of the following angles can be constructed by using ruler and compass only? ( )

A) 20° B) 72° C) 130° D) 105°

31. The sum of all four angles of a quadrilateral is equal to ( )

A) 180° B) 90° C) 360° D) 270°

32. **Statement 1:** In a trapezium one pair of opposite sides are parallel and remaining two sides are equal.

Statement 2: In a rhombus diagonals perpendicularly bisect each other. ( )

A) Statement 1 true and statement 2 false.

B) Statement 1 false and statement 2 true.

C) Both statements are true.

D) Both statements are false.

33. Lines which are parallel to the same line are ..... to each other. ( )

A) parallel B) perpendicular C) coincide D) intersect

ANSWERS

PART – B

14-A; 15-C; 16-A; 17-C; 18-D; 19-A; 20-D; 21-C; 22-A; 23-C; 24-A; 25-C; 26-A; 27-C; 28-B; 29-C; 30-D; 31-C; 32-B; 33-A.

Writer: TSVS.Suryanarayana Murthy