SUMMATIVE ASSISEMENT – 1, JANUARY - 2022

MATHEMATICS PAPER – 2

(Modal Paper – 1)

Class: 9th **Max. Marks: 40** **Time: 2hr 45 min**

Instructions to students:

1. **There are four sections and 33 questions in this paper.**
2. **Answers should be written in answer sheets.**
3. **There is an internal choice in Section – Iv**
4. **Write all questions visible and legibly.**
5. **15 Minutes are given for reading the question paper and 2hr 30 min given for writing answers.**

Section – 1

Note: 1. Answer all questions

2. Each question carries ½ mark. **20 × ½ = 10 M**

1. How many dimensions a solid has?

   A) 1 B) 2 C) 3 D) 4

2. The word "Geo" means _____

   A) Earth B) Metrein C) Axiom D) both A & B

3. The mid value of the class 10 – 19 is _____

   A) 14 B) 14.5 C) 15 D) 9

4. Choose the correct answer following.

   Statement P: Linear pair angles are adjacent angles.

   Statement Q: Linear pair angles are supplementary.

   A) P true, Q false B) P false, Q true C) Both P, Q are true D) Both P, Q are false

5. For a given score $\overline{x}$ = 12 and $\sum x_i$ = 192. Then 'n' = _____

   A) 12 B) 15.8 C) 16 D) 18

6. The exterior angle of an equilateral triangle is _____

   A) 30^0 B) 60^0 C) 90^0 D) 120^0

7. Which of the following is an example to primary data?

   A) Temperatures of a place during last 10 years.

   B) Mid-day meals records of a school in a month.

   C) Literacy rate of various states in the year 2021

   D) List of absentee students of a day in 9th class.

8. The mean of a, b, c is 9. Then the mean of 2a – 1, 2b – 1, 2c – 1 is _____

   A) 17 B) 18 C) 19 D) 2

9. Match the following

   A. Straight angle ( ) i) 200^0

   B. Reflex angle ( ) ii) 360^0

   C. Complete angle ( ) iii)

   A) A – i, B – ii, C – iii B) A – ii, B – iii, C – i C) A – ii, B – i, C – iii D) A – iii, B – i, C – ii

10. Which pair of the following angles become supplementary angles?

    A) 40^0, 50^0 B) 110^0, 90^0 C) 40^0, 140^0 D) 57^0, 133^0

11. Which of the following is true?

    A) There is a unique line that passes through the given two distinct points.

    B) A line segment can be extended on either side to form a straight line.

    C) We can describe a circle with any centre and radius.

    D) All the above.

12. The author of the book "The Elements" is _____

    A) Euclid B) Pythagoras C) Thales D) Both B & C

13. Mean of the angles in a rectangle is _____

    A) 45^0 B) 90^0 C) 180^0 D) 360^0

14. Median of the first eight prime numbers is _____

    A) 8 B) 9 C) 7 D) 11

15. Assertion: Complementary angle of 35° is 55°.

    Reason: If two angles are complementary, then their sum is 180°.

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

    B) 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.

16. Class interval is equal to _____

    A) Difference of two consecutive upper limits.

    B) Difference of two consecutive lower limits.

    C) Difference of two consecutive mid values. D) All the above

17. If a transversal intersects two parallel lines, then which of the following is false?

    A) Corresponding angles are equal C) Alternative interior angles are equal

    B) Co-interior angles are equal D) None of these

18. Two lines AB and CD intersect at 'O'. If ∠AOC + ∠COB + ∠BOD = 270°, then ∠AOC = _____.

    A) 70^0 B) 80^0 C) 90^0 D) 180^0

19. Range of first 'n' natural numbers is _____

A) $\frac{n+1}{2}$ B) $\frac{n-1}{2}$ C) n + 1 D) n – 1

20. The formula to find mean of ungrouped frequency distribution in deviation method

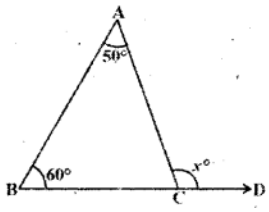
A) $\frac{\sum x}{n}$ B) $A + \frac{\sum fx}{\sum f}$ C) $A + \frac{\sum fd}{\sum f}$ D) $\frac{\sum fx}{\sum f}$

Section – II

Note: 1. Answer all the questions

2. Each question carries 1 mark. **4 × 1 = 4 M**

21. "A and B are supplementary angles" Express this statement in mathematical notation.
22. Find 'x' from the following figure?



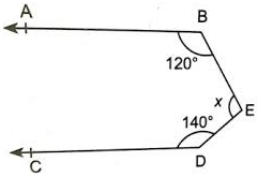
23. What are the building blocks of geometry?
24. Find 'x' if the median of the data $\frac{x}{3}, \frac{x}{5}, \frac{x}{2}, \frac{x}{7}$ and x is 6?

Section – III

Note: 1. Answer all the questions.

2. Each question carries 2 marks. **5 × 2 = 10 M**

25. Write any four Euclid's axioms.
26. If a point Q lies between the points P and R such that PQ = QR, then show that PQ = $\frac{1}{2}$ PR.
27. From following figure if $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$, then find the value of 'x'.



28. Prove, " If a transversal intersects two parallel lines, then the co-interior angles are equal"
29. Find median of the following data.

Height	135	140	147	152	155	160
Boys	2	5	12	10	7	1

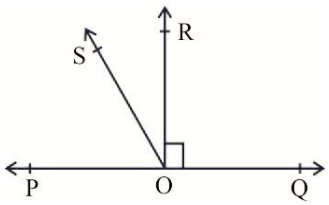
Section – IV

Note: 1. Answer all the questions.

2. Each questions carries 4 marks.

3. There is internal choice for each question. **4 × 4 = 16 M**

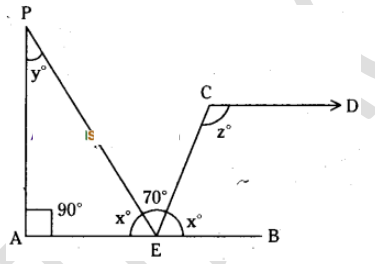
30. In the given figure $\overleftrightarrow{PQ}$ is a line. Ray QR is perpendicular to line PQ. $\overrightarrow{QS}$ is a ray lying between $\overrightarrow{OP}$ and $\overrightarrow{OR}$. Then prove that $\angle ROS = \frac{1}{2}(\angle QOS - \angle POS)$.



OR

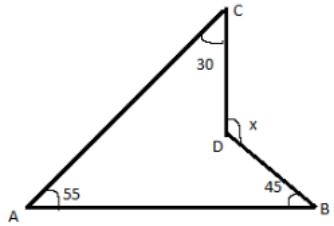
Prove that "The sum of three angles of a triangle is 180^0".

31. In the following figure $\overleftrightarrow{AB} \parallel \overleftrightarrow{CD}$. Find the values of x, y and z?



OR

Using the given information in the following figure, find the value of 'x'.



32. Find the mean of the following data in deviation method?

x	10	12	14	16	18	20	22
f	4	5	8	10	7	4	2

OR

Find mean and mode of the data 6, 12, 14, 7, 8, 14, 16. If an observation 3 is added above data, find the mean and mode of the resultant data. Give reason why the changes in mean and mode are different?

33. In a cinema theatre Rs. 60 tickets 40, Rs. 80 tickets 72, Rs. 100 tickets 78 and Rs. 120 tickets 60 are sold. Prepare a table to the above data and find the mean?

OR

There are four unknown numbers. The mean of first two numbers is 4 and the mean of first three numbers is 9. The mean of all the four numbers is 15. If one of the four numbers is 2, then find the other numbers?