ANNUAL EXAMINATION – 2024 | **A** |

Class: 8   **MATHEMATICS**

Time :2.30 Hrs.   **Marks: 100**

PART- I

15 x 1 = 15

1. $\frac{-5}{3}$ is a rational number which lies between _____.
   (a) 0 and -5   (b) -1 and 0   (c) -1 and -2   (d) -4 and -5

2. The number of digits in the square root of 123454321 is _____.
   (a) 4   (b) 5   (c) 6   (d) 7

3. Which is not correct?
   (a) $\left(\frac{-1}{4}\right)^2 = 4^{-2}$ (b) $\left(\frac{-1}{4}\right)^2 = \left(\frac{1}{2}\right)^4$ (c) $\left(\frac{-1}{4}\right)^2 = 16^{-1}$ (d) $\left(\frac{1}{4}\right)^2 = 16^{-1}$

4. The perimeter of a semicircle is _____.
   (a) πr^2 units   (b) $2\pi r$ units   (c) $(\pi+2)r$ units   (d) $\left(\frac{\pi}{2}+2\right)r$ units

5. A cuboid has _____ edges.
   (a) 6   (b) 8   (c) 12   (d) 2

6. If the area of a square is $36x^4y^2$, then its side is _____.
   (a) $6x^4y^2$ (b) $6x^2y^2$ (c) $6x^2y$ (d) $-6x^2y$

7. Factors of $4 - m^2$ are
   (a) (2+m) (2+m)   (b) (2-m) (2-m)   (c) (2+m) (2-m)   (d) (4+m) (2-m)

8. 15% of 25% of 10000 = _____.
   (a) 375   (b) 400   (c) 425   (d) 475

9. The number of conversion periods in a year, if the interest on a principal is compounded every two months is _____.
   (a) 2   (b) 4   (c) 6   (d) 12

10. If Δ ABC ~ Δ PQR in with $\angle A = 53°$ and $\angle Q = 77°$, then $\angle R$ is _____.
    (a) 50°   (b) 60°   (c) 70°   (d) 80°

11. The hypotenuse of a right angled triangle of sides 12 cm and 16 cm is _____.
    (a) 28 cm   (b) 20 cm   (c) 24 cm   (d) 21 cm

12. Data is a collection of _____.
    (a) numbers   (b) words   (c) measurements   (d) all the three

13. Inclusive series is a _____ series.
    (a) continuous   (b) discontinuous   (c) both   (d) none of these

14. How many outcomes can you get when you toss three coins once?
    (a) 6   (b) 8   (c) 3   (d) 2

15. Every 3rd number of the Fibonacci sequence is a multiple of _____.
    (a) 2   (b) 3   (c) 5   (d) 8

Part - II   **5 x 1 = 5**

Note: **(i) Answer all the 5 questions in this section.**
           (ii) Fill in the blanks by writing the correct answer.

16.   The number of perfect square numbers between 300 and 500 is _____.

17.   The longest chord of a circle is _____.

18.   The value of m in the equation 8m = 56 is _____.

19.   Loss or gain percentage is always calculated on the _____.

20.   If a class size is 10 and range is 80, then the number of classes are _____.

Part - III   **5 x 1 = 5**

Note: **(i) Answer all the 5 questions in this section.**
           (ii) Read the following statements and answer whether they are true or false.

21.   A square number will not have odd numbers of zeros at the end.

22. $7ab^3 \div 14ab = 2b^2$

23.   Depreciation value is calculated by the formula, $P\left(1 - \frac{r}{100}\right)^n$.

24.   The incentre is equidistant from all the vertices of a triangle.

25.   Comparison of parts of a whole may be done by a pie chart.

Part - IV   **5 x 1 = 5**

Note: **(i) Answer all the 5 questions in this section.**
           (ii) Read the following questions and match them with the correct answer.

26. $4^{-3} \times 5^{-3}$ -   1

27.   Area of a quadrant of a circle   -.   ½ × d_1 × d_2 sq. units

28. $(2x + 3)(2x - 3)$ - $(20)^{-3}$

29.   Area of rhombus   -   ¼ πr^2 sq. units

30.   HCF of two co-prime numbers   - $4x^2 - 9$

Part - V   **10 x 2 = 20**

Note: **(i) Answer any 10 questions.**

31.   Find the sum: $-4\frac{2}{3} + 7\frac{5}{12}$

32.   Find the number in standard form for the following expansion:

      $5 \times 10^3 + 5 \times 10^1 + 5 \times 10^{-1} + 5 \times 10^{-3}$

33.   A circle of radius 120 m is divided into 8 equal sectors. Find the length of the arc of each of the sectors.

34.   Multiply: $(10x - 7y + 5z)$ by $6xyz$.

35. Find the value of 998^2 by using $(a-b)^2$ identity.

36. Factorise: $m^2 + m - 72$

37. The price of a raincoat was slashed from ₹1060 to ₹901 by a shopkeeper in the rainy season to boost the sales. Find the rate of discount given by him.

38. The value of a motor cycle 2 years ago was ₹70000. It depreciates at the rate of 4% p.a. Find its present value.

39. Find the value of X.
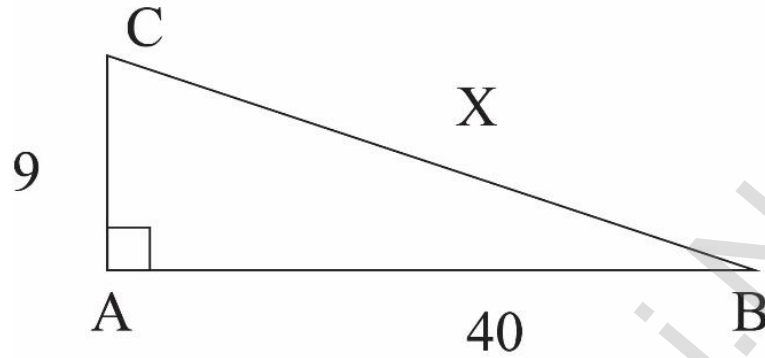
40. Define – Centroid.

41. Using repeated subtraction method, find the HCF of the following: 42 and 70

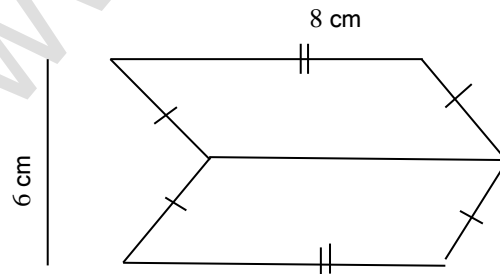42. Frame Additive cipher table **(key = 4)**.

Part - VI   **6 x 5 = 30**

Note: **(i) Answer any 6 questions.**

43. Verify the distributive property $a \times (b + c) = (a \times b) + (a \times c)$ for the rational numbers $a = -\frac{1}{2}$, $b = \frac{2}{3}$ and $c = -\frac{5}{6}$

44. Find the square root by long division method: 17956.

45. Find the area of the combined figure given, which is got by joining of two parallelograms.

46. Expand: $(2x + 5)^3$

47. If 6 container lorries can transport 135 tonnes of goods in 5 days, how many more lorries are required to transport 180 tonnes of goods in 4 days?

48. In the figure, find AR
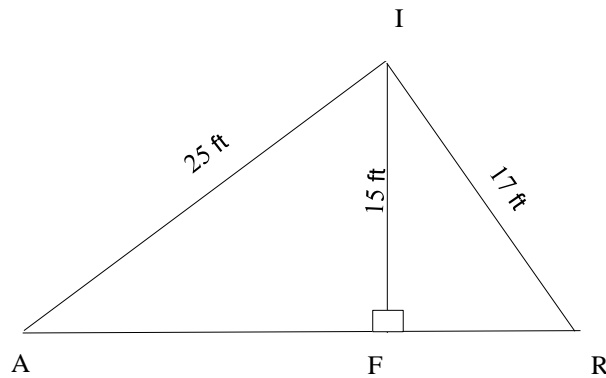
49. Monthly expenditure of Kumaran's family is given below. Draw a suitable Pie chart.

Particulars	Food	Education	Rent	Transport	Miscellaneous
Expenses (in %)	50%	20%	15%	5%	10%

50. Using repeated division method, find the HCF of 184, 230 and 276.

51. A total of 90 currency rates consisting only of ₹5 and ₹10 denominations, amount to ₹500. Find the number of notes in each denomination.

52. A principal becomes ₹2028 in 2 years at 4% p.a. compound interest. Find the principal.

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Part - VII   **2 x 10 = 20**

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Note: **(i) Two alternative questions are given for each question in this section.**
          (ii) Choose one question from the two alternatives in each question and answer the both questions .

53. Graph the equation $y = x + 1$.

<div align="center">(or)</div>

The following is the distribution of time spent in the library by students in a school.

Time spent (in minutes)	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60	60 – 70	70 – 80	80 – 90
Number of students	25	40	33	28	30	20	16	8

Draw a frequency polygon using histogram.

54. Construct a quadrilateral MATH with MA = 4 cm, AT = 3.6 cm, TH = 4.5 cm,
     MH = 5 cm and ∠A = 85°. Also find its area.

<div align="center">(or)</div>

Construct a rectangle HAND with HA = 7 cm and AN = 4cm and also find its area.