



ANANDALAYA
ANNUAL EXAMINATION
Class : VIII

Subject: Mathematics
Date : 01-03-2023

M.M : 80
Time : 3 hours

General Instructions:

- i) All questions are compulsory.
- ii) This question paper contains 39 questions.
- iii) Questions 1 – 16 in Section A are multiple choice type questions carrying 1 mark each.
- iv) Questions 17– 26 in Section B are short-answer type questions carrying 2 marks each.
- v) Questions 27 – 34 in Section C are short -answer type questions carrying 3 marks each.
- vi) Questions 35 – 39 in Section D are long-answer type questions carrying 4 marks.

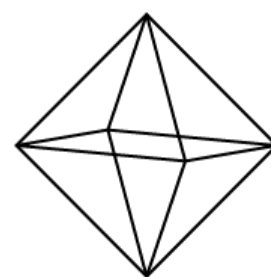
SECTION-A

1. Find the reciprocal of: $\frac{3}{7} \times \frac{-5}{13}$ (1)
2. If numerator of a rational number is $(-5) \times 2$ and denominator is $(12 - 5)$, write down the rational number. (1)
3. Solve: $5x - \frac{2}{3} = \frac{1}{6}$ (1)
4. Sahil got 438 marks out of 600 in the first assessment. Find his marks in percentage. (1)
5. Find the number of sides of a regular polygon whose each exterior angle has a measure of 24° . (1)
6. A school has 220 working days. Ravi's attendance is 85%. How many days did he remain absent? (1)
7. Find the product of: $4m^2n^2, -2m^3n^2, -3m^2n^3$. (1)
8. Each group of a grouped frequency distribution is called its (1)
A) class-unit B) class mark C) class-interval D) range
9. The value of $[(2961)^0]^{-2}$ (1)
A) 1 B) 2961 C) -2 D) $\frac{1}{(2961)^2}$
10. The area of a trapezium is 198 sq. cm and distance between its parallel sides is 12 cm. The sum of the parallel sides is _____ (1)
A) 32 cm B) 33 cm C) 36 cm D) 42 cm
11. If $2^{x+5} = 4^{x-1}$, then x is equal to _____. (1)
A) 6 B) 7 C) 4 D) $\frac{3}{2}$
12. a and b vary inversely to each other and $a = 6$ and $b = 8$. If $a = 4$, then $b =$ _____. (1)
A) 10 B) 12 C) 3 D) 16
13. The greatest common factor of $9x^2y, 27xy^2, 45x^2y^2$ is _____. (1)
A) $3x^2y$ B) $9x^2y$ C) $9y^2x$ D) $9xy$
14. If 16 kg of rice cost ` 1120, the cost of 19 kg rice will be _____. (1)
A) ` 1440 B) ` 1340 C) ` 1330 D) ` 1230

15. The number of faces of a square pyramid is _____. (1)
 A) 4 B) 5 C) 6 D) none of these
16. A polyhedron has 30 edges and 12 faces. Find the number of vertices. (1)

SECTION-B

17. Two opposite angles of a parallelogram are $(5x - 2)^\circ$ and $(40 - x)^\circ$. Find the value of x . (2)
18. The sum of two rational numbers is $\frac{-6}{11}$. If one of the numbers is $\frac{-64}{77}$. Find the other. (2)
19. What sum of money will amount to ` 1764 when deposited for 2 years at 5% per annum compounded annually? (2)
20. a) Add: $mn(2m - n)$ and $mn(3n - 2m)$ (2)
 b) Subtract: $x(x^2 + 3x)$ from $3x^2(x - 5)$
21. Look at the figure, Write the name of the figure and find the number of faces, vertices and edges. (2)



22. What is the probability that a number selected from the numbers 1, 2, 3,, 20 is a prime number, when each of the given number is equally likely to be selected? (2)
23. Three cubes of sides 7 cm each are joined end to end. Find the surface area of resulting cuboid. (2)
24. Factorise: $4p^2 - 28pq + 49q^2 - 36$. (2)
25. If the weight of 65 tea-packets of the same size be 26 kg what is the weight of 25 such packets? (2)
26. a) Write multiplicative inverse of $3^2 \times \frac{1}{2^3}$. (2)
 b) The size of a red blood cell is 0.000007 m and size of the plant cell is 0.00001275 m. What is the ratio of their sizes?

SECTION-C

27. Sohan purchased two fans for ` 1500 each. He sold one at a loss of 5% and another at a profit of 10%. Find the total profit or loss. (3)
28. A road roller takes 500 complete revolutions to move once over to level a road. Find the area of the road, if the diameter of the road roller is 98cm and its length is 80 cm. (3)
29. a) The diagonals of a rhombus are 16 cm and 12 cm. Find the length of the side of the rhombus. (3)
 b) The ratio of two sides of a parallelogram is 3 : 5 and its perimeter is 96 cm. Find the sides of the parallelogram.
30. If x varies directly as y . (3)
 a) Write an equation which relates x and y .
 b) Find the constant of proportion (k), when x is 6 and y is 18.

c) Find x , when y is 33.

31. The weights (in kg) of 47 persons are given in the following grouped frequency distribution table: (3)

Weight (in kg)	45 – 50	50 – 55	55 – 60	60 – 65	65 – 70	70 – 75	75 – 80
No. of persons	4	11	10	5	4	6	7

- a) What is the class size of 45 – 50?
b) What is the upper limit of 65 – 70 ?
c) Which class interval has the highest frequency?
d) The observation 55 kg will belong to which class interval?
e) How many persons belong to the highest weight group?
f) How many persons have the weight above 60 kg ?

32. Simplify: a) $\frac{(6a-5b)^2-(6a+5b)^2}{ab}$ b) $(4x + 5y)(4x - 5y) - (3x + 2y)(3x - 2y)$ (3)

33. Simplify: $\frac{x^2-x-6}{x^2-9}$ (3)

34. Solve: a) $\frac{x-4}{7} - x = \frac{5-x}{3} + 1$ b) $\frac{x}{3} + \frac{2x}{3} + \frac{x}{4} = 10$ (3)

SECTION-D

35. Factorise: (4)
- a) $4x^2 - 12x + 9$ b) $25x^2 - 81y^2$
c) $2x^2 + 12x + 18$ d) $10x^3y + 25x^2y^2$

36. a) One number is 5 more than another number. Also 6 times the smaller number is equal to five times the larger number. Find the two numbers. (4)

b) A fraction is such that the numerator is 2 less than the denominator. If you add 3 to the numerator and 5 to the denominator, the resulting fraction is equivalent to the fraction $\frac{3}{5}$. Find the fraction.

37. Find the product using identities: (4)
- a) $(x + 3)(x - 3)(x^2 + 9)$ b) $(z^2 + 3)(z^2 - 7)$

38. a) A solid piece of metal in the form of a cuboid of dimensions $24\text{ cm} \times 18\text{ cm} \times 4\text{ cm}$ is melted down and recasted into a cube. Find the lateral surface area of the new cube formed. (4)

b) The total surface area of a cube is 1176 sq. cm . Find its volume.

39. Simplify: a) $\frac{12^4 \times 9^3 \times 4}{6^3 \times 8^2 \times 27}$ b) $\left(\frac{1}{4}\right)^{-3} + \left(\frac{1}{2}\right)^{-2} + \left(\frac{1}{5}\right)^{-1}$ (4)