



ANANDALAYA
ANNUAL EXAMINATION
Class : VIII

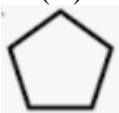
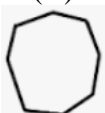
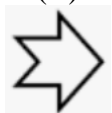
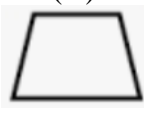
Subject: Mathematics
Date : 03-03-2025

M.M: 80
Time: 3 Hours

General Instructions:

- (1) This question paper has 4 sections, A, B, C and D.
- (2) Section A has 12 MCQs carrying 1 mark each.
- (3) Section B has 8 questions carrying 2 marks each.
- (4) Section C has 8 questions carrying 3 marks each.
- (5) Section D has 7 questions carrying 4 marks each. However, there are 2 case study based questions carrying 4 marks with subparts of values of 1, 1 and 2 mark each respectively.
- (6) All questions are compulsory. However, an internal choice of 3 questions of 2 marks; 3 questions of 3 marks and 2 questions of 4 marks has been provided.

SECTION-A

1. How many diagonals does a pentagon have? (1)
(A) 5 (B) 6 (C) 7 (D) 10
2. Which of the following figures is a concave polygon? (1)
(A)  (B)  (C)  (D) 
3. Sam buys a toy for ₹ 75 and sells it for ₹ 100. His gain percent is _____. (1)
(A) 25% (B) $33\frac{1}{3}\%$ (C) 20% (D) $37\frac{1}{2}\%$
4. If $a\%$ is the discount percent on a marked price x , then the discount is _____. (1)
(A) $\frac{x}{a} \times 100$ (B) $\frac{a}{x} \times 100$ (C) $\frac{a}{100} \times x$ (D) $\frac{100}{xa}$
5. The volume of a cube whose one edge is $5x$ is _____. (1)
(A) $125x^3$ (B) $25x^3$ (C) $15x^3$ (D) $30x^3$
6. The product of $4p$, $-2q^3$ and $-3pq$ is _____. (1)
(A) $24p^2q^4$ (B) $24pq^4$ (C) $-24p^2q^4$ (D) $24p^2q^3$
7. Find the value of $\left(\frac{2}{3}\right)^0$. (1)
(A) $\frac{3}{2}$ (B) $\frac{2}{3}$ (C) 1 (D) 0
8. 0.0006 in standard form is _____. (1)
(A) 6×10^{-3} (B) 6×10^{-4} (C) 6×10^3 (D) 6×10^4
9. Both u and v are directly proportional to each other. If one of the possible pair of values of u and v is 10 and 15, which of the following is not possible pair of corresponding values of u and v ? (1)
(A) 2 and 3 (B) 8 and 12 (C) 14 and 21 (D) 15 and 20

10. Find the common factors of the expressions $9ab^2c$, $12a^2bc$ and $15abc^2$ (1)
 (A) $3, a, b$ and c (B) $3, a^2, b$ and c (C) $3, a, b^2$ and c (D) $9, a, b$ and c

In Q.11 and Q.12 a statement of Assertion (A) is followed by a statement of Reason(R). Choose the correct answer out of the following options.

- (A) Both A and R are true and R is the correct explanation of A
 (B) Both A and R are true but R is not the correct explanation of A
 (C) A is true but R is false
 (D) A is false but R is true
11. (A) – It is possible to have a regular polygon each of whose exterior angle is 25° . (1)
 (R) – The number of sides of any regular polygon is given by dividing 360° by the measure of each exterior angle.
12. (A) – The volume of a cylinder, whose radius r is equal to its height is πr^3 . (1)
 (R) – The volume of a cylinder is calculated by base area multiplied by height.

SECTION-B

13. $\frac{1}{4}x + \frac{1}{6}x = x - 7$. (2)
14. Find the number of sides of a regular polygon whose interior angle measure 140° each. (2)
15. Asif bought an air cooler for ₹ 5400 including GST of 8%. Find the original price of the air cooler. (2)
16. (A) Subtract $4p^2 + 5q^2 - 6r^2 + 7$ from $3p^2 - 4q^2 - 5r^2 - 6$. (2)
OR
 (B) Find the product of $3x^2 + 5x - 9$ and $3x - 5$.
17. Two parallel sides of a trapezium are of lengths 27 cm and 19 cm respectively and the distance between them is 14 cm. Find the area of the trapezium. (2)
18. The lengths of the diagonals of a rhombus are 6 cm and 8 cm. Find its area and perimeter. (2)
19. (A) Find the value of p for which $\left(\frac{5}{3}\right)^{-4} \times \left(\frac{5}{3}\right)^{-5} = \left(\frac{5}{3}\right)^{3p}$. (2)
OR
 (B) Find the value of $(3^0 + 2^0) \times 5^1$.
20. (A) Factorise the expression $x^4 - (y + z)^4$. (2)
OR
 (B) The area of a rectangle is $36x^2 - 49y^2$. If the breadth is $(6x + 7y)$, find the length of the rectangle.

SECTION-C

21. Solve: $\frac{6x+7}{3x+2} = \frac{4x+5}{2x+3}$ (3)
22. (A) Present age of Sudhir's father is twice the present age of Sudhir. After 7 years, the sum of their ages would be 59 years. Find their present age. (3)
OR
 (B) If the sum of two numbers is 30 and their ratio is 2:3, then find the numbers.

23. Factorise the following expressions: (3)
- $x^2 - 25$
 - $x^2 + 10x + 25$
 - $x^2 - 7x + 12$

24. A certain sum of money amounts to ₹72900 in 2 years at 8% per annum compound interest compounded annually. Find the original sum of money. (3)

25. Find the product of the following using suitable properties: (3)
- $(2x - 3y)(2x - 3y)$
 - $(7x + 11y)(7x - 11y)$
 - $(2p + 3)(2p + 5)$

26. (A) A cube of side 5 cm is cut into as many 1 cm cubes as possible. What is the ratio of the surface area of the original cube to that of the sum of the surface areas of all the smaller cubes? (3)

OR

- (B) The radius and height of a cylinder is in the ratio 3:2 and its volume is $19,404 \text{ cm}^3$. Find the radius and height of the cylinder.

27. Simplify and evaluate: $\frac{49 \times m^{-7}}{7^4 \times 10 \times m^{-12}}$ (3)

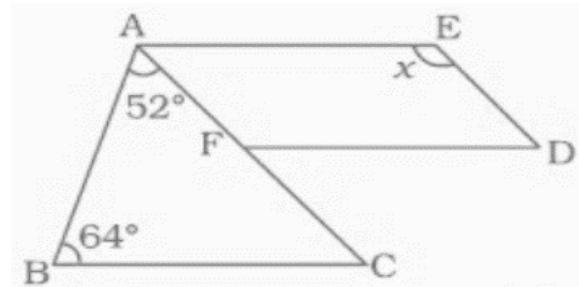
28. (A) A vertical pole 5 m 60 cm high casts a shadow of 3 m 20 cm long. At the same time of the day, find the length of the shadow cast by another pole 10 m 50 cm high. (3)

OR

- (B) In a military camp, 240 soldiers have food provisions for 20 days. How long will this provision last if 60 more soldiers come to the camp?

SECTION-D

29. (A) (i) In the following figure, $FD \parallel BC \parallel AE$ and $AC \parallel ED$. Find the value of x . (4)



- (ii) ABCD is a parallelogram. Point P and Q are taken on the sides AB and AD respectively and the parallelogram PRQA is formed. If $\angle C = 45^\circ$, find $\angle R$.

OR

- (B) (i) PQRS is a rectangle. Its diagonals meet at O. If $PO = (5x - 6)$ and $QO = (3x + 4)$, find the value of x .
- (ii) If the diagonals of a rhombus are of length 24 cm and 18 cm. Find the perimeter of the rhombus.

30. The population of a town was 176400 in the year 2022. It increases at the rate of 5% per annum. What would be its population in the year 2024? (4)

OR

The simple interest on a sum of money for 2 years at 8% per annum is ₹ 2400. What will be compound interest on that sum at the same rate and for the same period?

31. Two cuboidal boxes of dimensions $40\text{ cm} \times 28\text{ cm} \times 45\text{ cm}$ and $50\text{ cm} \times 50\text{ cm} \times 20\text{ cm}$ are to be constructed using metal sheets. Which box requires larger amount of material? (4)
32. Divide: (4)
- (i) $(x^2 + 9x + 14) \div (x + 2)$
- (ii) $13p^2q^3r^5(2p - 4q)(q - 3r)(r - 5p) \div 39pqr^3(p - 2q)$
33. Simplify: $3x(4x^2 - 2x + 8) - 11$ and find its value when $x = -\frac{3}{2}$. (4)
34. Gema kaka has a rectangular field. The length exceeds its breadth by 9m. After two years he purchases some more land adjacent to his field in such a way that the length and breadth are increased by 3m. He finds that the area of the new field is 84 m^2 more than that of the original field. (4)
- (i) Write the algebraic expression for the area of the original field.
- (ii) Write the algebraic equation for the area of the new field.
- (iii) Write the expression for the perimeter of the new field.

OR

(iii) Find the area of the new field.

35. Campus and welfare committee of Mahatma Gandhi College is planning to develop a grey shade for painting the entire college building. For this purpose, various shades are tried by mixing containers of grey paint and white paint, which is shown in the figure given below. One container has one litre of paint and the building requires 105 litres for painting. They require 18 men to complete the work in 20 days. (4)



- (i) Observing the picture carefully write which is the lightest and the darkest grey shade among all.
- (ii) Compare Mixture A and Mixture B, which has the darker shade of grey?
- (iii) If 105 litres of paint is required then, how many containers of each type is required to paint the building by the lightest shade of grey?

OR

- (iii) The college decides to complete the painting in 15 days. How many more men do they have to employ so that they complete the work in the desired time?