



विद्या सर्वार्थ साधिका

ANANDALAYA
ANNUAL EXAMINATION
Class: VIII

Subject: Mathematics
Date : 09-03-2024

M.M: 80
Time: 3 Hours.

General Instructions:

- i) This question paper has 4 sections, A, B, C and D.
- ii) Section A has 12 MCQs carrying 1 mark each.
- iii) Section B has 8 questions carrying 2 marks each.
- iv) Section C has 8 questions carrying 3 marks each.
- v) 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.
- vi) All questions are compulsory. However, an internal choice for 3 questions of 2 marks; 3 questions of 3 marks and 2 questions of 4 marks have been provided.

SECTION-A

1. For which figure all the angles are equal? (1)
(A) Rectangle (B) Kite
(C) Trapezium (D) Rhombus
2. Find the product of $6xy$ and $-3x^2y^3$. (1)
(A) $-18x^3y^4$ (B) $18x^3y^4$ (C) $-18x^2y^3$ (D) $-9x^3y^4$
3. x and y vary directly. When $x = 3$ then $y = 36$. What will be the value of y when $x = 6$? (1)
A) 12 B) 72 C) 84 D) 78
4. Select the false statement from the following: (1)
(A) A square is a rectangle that has equal adjacent sides.
(B) A square is a rhombus whose one angle is a right angle.
(C) The diagonals of a square bisect each other at right angles.
(D) The diagonals of a square do not divide the whole square into four equal parts.
5. To find the product of 69×71 , we find _____ (1)
(A) $70^2 - 1^2$ (B) $69^2 - 1^2$
(C) $70^2 + 1^2$ (D) $(70 + 1)^2$
6. What is the square root of 196? (1)
(A) 13 (B) 14 (C) 16 (D) 18
7. Which of the following expressions is not a binomial? (1)
(A) $2x - 7y$
(B) $0.5x^2 - 0.02xy$
(C) $y^3 - y^4$
(D) $-5x^2yz$
8. Find the area of the rectangle whose length is $9b$ cm and the breadth is $6b$ cm. (1)
(A) $45b^2$ (B) $15b^2$ (C) $54b^2$ (D) $54b$
9. Find the common factors of the expressions $6x^2y$ and $10xy^2$. (1)
(A) $3xy$ (B) $2x^2y$ (C) $2xy$ (D) $2xy^2$

10. Write an expression for the area of a square if its side is $(3x - 2)$ units. (1)
 (A) $(3x - 2)^2$ (B) $(3x - 2)(3x + 2)$
 (C) $(3x + 2)^2$ (D) $(3x - 2)$
11. Assertion (A): If three angles of a quadrilateral are 130° , 70° and 60° , then the fourth angle will be 100° . (1)
 Reason (R) : The sum of all angles of a quadrilateral is 360° .
 (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
12. Assertion (A): 248 is a perfect square. (1)
 Reason (R) : A number ending with 2, 3, 7 and 8 is a perfect square.
 (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) Both A and R are false

SECTION-B

13. Find the Pythagorean triplet whose smallest member is 12. (2)
14. Find the square root of 11025. (2)
- OR**
- Find the least number by which 768 be multiplied so that the product becomes a perfect square number.
15. The sum of two numbers is 11 and their difference is 5. Find the numbers. (2)
- OR**
- The sides of a triangle are in the ratio of $2 : 3 : 4$. If the perimeter of the triangle is 13.5cm, find the sides of the triangle.
16. The cost of a TV set at a showroom was ₹63500. The GST charged was 8%. Find the bill amount. (2)
- OR**
- The marked price of an article is ₹ 850 and the retailer gives a discount of 6% on that article. Find the selling price of the article.
17. Simplify $2x^2(xy - 4) + 3y(x + 2)$ and find its value for $x = -1$ and $y = 5$. (2)
18. Find the value of m: (2)
 $(-3)^{2m+1} \times (-3)^3 = (-3)^{12}$
19. Ravi walks at a uniform rate of 5 km/hr. What distance would he cover in 2 hours 24 minutes? (2)
20. If 14 workers can build a wall in 45 hours, how many workers will be required to do the same work in 35 hours? (2)

SECTION-C

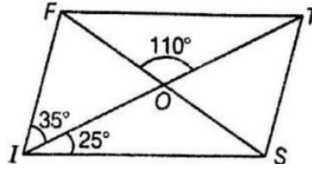
21. Solve the equation: (3)

$$\frac{5(1 - x) + 3(1 + x)}{1 - 2x} = 8$$

OR

$$3x - 4(2x - 5) = 2(x - 1) + \frac{5}{2}$$

22. In a parallelogram FIST, find $\angle SFT$, $\angle OST$ and $\angle STO$. (3)



OR

A playground in the town is in the form of a kite. The perimeter is 106 m. If one of its sides is 23m, what are the lengths of other three sides?

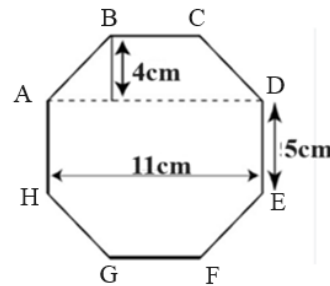
23. The simple interest on a sum of money for 3 years at 5% per annum is ₹6750. What will be the compound interest on the same sum at the same rate for the same period compounded annually? (3)

OR

Saira borrowed a certain sum of money at the rate of 15% p.a. If she paid at the end of two years ₹1290 as interest compounded annually, find the sum borrowed.

24. The outer surface of a wooden box of dimensions 75 cm \times 60 cm \times 40 cm has to be painted. If the cost of painting 100cm² is ₹15, find the total cost of painting the box. (3)

25. The top surface of a table is in the shape of a regular octagon as shown in the adjoining figure. Find the area of the octagon. (3)



26. Simplify and write the answer as a rational number. (3)

a) $\left\{ \left(\frac{1}{4}\right)^{-2} - \left(\frac{1}{3}\right)^{-3} \right\} \div 2^{-3}$ b) $\left(\frac{4}{9}\right)^{-5} \times \left(\frac{3}{4}\right)^{-6}$

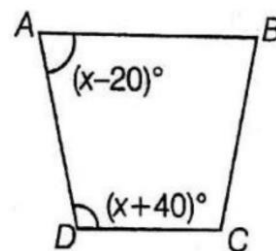
27. Neena has enough money to buy 6kg of apples at the rate of ₹125 per kg. How much quantity of apples can she buy with the same amount of money, if the price of apples is increased by ₹25 per kg? (3)

28. Factorise the given expressions: (3)

- a) $4p^2 + 2q^2 + p^2q^2 + 8$
 b) $x^2 - 12x + 36$
 c) $16x^2 - 25$

SECTION-D

29. a) Find the value of x in the trapezium ABCD as shown in the figure. (4)
 b) Find the measure of each angle of a regular heptagon.



OR

29. If the diagonals of a rhombus are 10 cm and 24 cm, find the length of the side of the rhombus.

30. a) The population of a town was 176400 in the year 2019. It increases at the rate of 5% per annum. What would be its population in the year 2021? (4)
b) Find the amount on ₹8000 for 2 years compounded annually at the rate of 10% p.a.

OR

30. Santosh invested ₹ 50,000 in a fixed deposit paying interest of 10% p.a. Find the amount he will get after 3 years if the interest is compounded annually. Also find the interest of 3rd year.
31. Find the product of: (4)
a) $(3x^2 + 7y^2)(x^2 - xy + y^2)$
b) $\left(\frac{4x}{5} + 3y\right)\left(\frac{4x}{5} - 11y\right)$
32. Express the result of the following with positive exponent: (4)
a) $(-3)^4 \times (-3)^{-12}$
b) $5^5 \div 5^{-6}$
c) $\left(\frac{2}{5}\right)^{-3}$
d) $(2^{-1} + 3^{-1} + 4^{-1})^0$
33. Divide: (4)
a) $x^2 + 11x + 30$ by $x + 6$
b) $(x^4 - 16)$ by $(x + 2)$
34. Rajmohan decided to make a vessel to provide water to the birds. He used a flexible plastic rectangular sheet 44 cm \times 15 cm. He rolled it along its length and joined the two opposite ends using a tape. He took a square sheet 15 cm \times 15 cm and cut out a circle just equal to the base of the cylinder from it. (4)
a) What is the radius of the base of the cylinder?
b) What is the area of the base of the cylinder?
c) Find the volume of water that can be filled into the vessel?
- OR**
- c) Find the curved surface area of the cylinder?
35. Zeenat is from Anand and she has joined an engineering college in Surat and thus joined a hostel. In the hostel she found that one third of the total number of girls and four more take only vegetarian food, one fourth of the total number of girls and three more take only non-vegetarian food. The other 103 girls take both vegetarian and non-vegetarian food. (4)
a) Write the algebraic expression for the number of vegetarian girls.
b) Write the algebraic expression for the number of non-vegetarian girls.
c) Find the total number of girls.