ATOMIC ENERGY EDUCATION SOCIETY
Class: VIII
Sample paper- Mathematics

SECTION A

Choose the correct option and write.

1. If 20% of x = 40, then x is
   a) 20 b) 40 c) 120 d) 200

2. Which of the following is not equal to $\frac{-8}{27}$?
   a) $\left(\frac{2}{3}\right)^{-3}$ b) $-\left(\frac{2}{3}\right)^{3}$ c) $\left(\frac{-2}{3}\right)^{3}$ d) $\left(\frac{-2}{3}\right) \times \left(\frac{-2}{3}\right) \times \left(\frac{-2}{3}\right)$

3. The graph used to compare parts of a whole is
   a) line graph b) bar graph c) pie graph d) histogram

4. Radius of a cylinder is x cm and its height is $2x$ cm. Its volume is
   a) $\pi x^2 cm^3$ b) $2\pi x^3$ cm^3 c) $3\pi x^3$ cm^3 d) $4\pi x^3$ cm^3

5. The solid which is not a polyhedron is
   a) pyramid b) prism c) cuboid d) cylinder

6. If two quantities x and y vary inversely, then
   $a) \left(\frac{x}{y}\right)$ remains constant b) $x \times y$ remains constant
   c) $x + y$ remains constant d) $x - y$ remains constant

7. The difference between the compound interest compounded annually and the simple interest on Rs 625 at 10% per annum for 1 year is
   a) Rs10 b) Rs 100 c) Rs 15 d) 0

8. x and y are direct proportion. When x is 8 and y is 12, then _____ is not a possible pair of corresponding values of x and y.
   a) 10 and 15 b) 2 and 3 c) 6 and 9 d) 15 and 20

9. In a trapezium, sum of two parallel sides is 20 cm and distance between them is 5 cm. Its area is
   a) 100 cm^2 b) 50 cm^2 c) 25cm^2 d) 200cm^2

10. The value of $(-x)^{50} \times x^{-14} \times 1$ is
    a) 0 b) x^{36} c) x^{64} d) $-x^{36}$

11. Twice the number is 100% increase in the number. If we take half the number, the decrease in percent is
a) 25 b) 20 c) 50 d) 10

12. Two cubes of edge 5 cm are joined end to end. The surface area of the resulting cuboid is
a) 125 cm^2 b) 240 cm^2 c) 250 cm^2 d) 500 cm^2

13. The expression, 0.0006 + 0.0084 in the standard form is
a) 9×10^{-3} b) 9×10^{-4} c) 9×10^{-2} d) 1.44×10^{-2}

14. The degree of the polynomial $4x^3 - 6x + 3x^2 - 7$ is
a) 0 b) 1 c) 2 d) 3

15. The x-coordinate of any point on the y-axis is
a) 1 b) –1 c) 0 d) none of these

SECTION B

Answer the following questions.

16. Is there an error in this statement $4(x - 5) = 4x - 5$? If yes, then find the error and write the correct the statement.

17. A shop gives 20% discount on an article marked at Rs 120. What is the sale price?

18. A loaded truck travels 14 km in 25 minutes. If the speed remains the same, how far can it travel in 5 hours?

19. Subtract $4a - 7ab + 3b + 12$ from $12a - 9ab + 5b - 3$.

20. Simplify $(-2)^{-3} \times (-2)^{-4} \times (-2)^{-2}$ and express in exponential form.

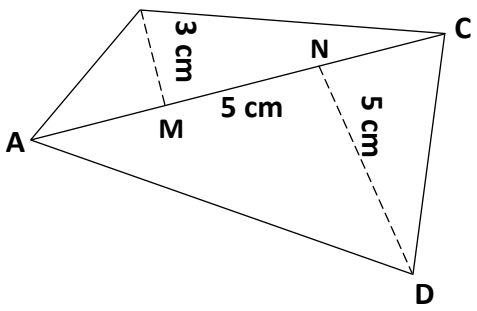
21. Can a polyhedron have 10 faces, 20 edges and 15 vertices? Justify the answer.

22. Obtain the product: $(4p^2 + 5p + 7) \times 3p$.

23. A farmer has enough food to feed 20 animals in his cattle for 6 days. How long would the food last, if there were 10 more animals in his cattle?

24. Find the height of a cuboid whose base area is $180cm^2$ and volume is $900cm^3$.

25. Find the area of quadrilateral ABCD in which BM and DN are perpendiculars to AC.



26. Find the value of m for which $5^m \div 5^{-3} = 5^5$.

SECTION C

Answer the following questions.

27. Plot the points A (4, 0), B (4, 2), C (4, 6), D (4, 2.5) on a graph sheet. Verify if they lie on a line.

28. Add $p(q - p)$, $q(q - r)$ and $r(r - p)$

29. Compare the size of a red blood cell which is 0.000007 m to that of a plant cell which is 0.0000119*m*..

30. A man got a 10% increase in his salary. If his new salary is Rs 1,54,000, find his original salary.

31. The lateral surface area of a hollow cylinder is 4224 cm^2. It is cut along its height and formed a rectangular sheet of width 33 cm. Find the perimeter of rectangular sheet.

32. Simplify: $10y\,(6y + 21) \div 5(2y + 7)$

33. Subtract $3l(l - 4m + 5n)$ from $4l\,(10n + 3m + 2l)$

34. Two persons could fit a new window in a house in 3 days.
    i) One of the persons fell ill before the work started. How long would it take now?
    ii) How many persons would be needed to fit the window in one day?

35. Simplify: $\frac{25 \times t^{-4}}{5^{-3} \times 10 \times t^{-8}}$ $(t \neq 0)$

36. If 8% VAT is included in the sale price. Find the original price of a TV bought for Rs 13,500.

37. Dhatri invested Rs12000 at an interest rate of 10% per annum compounded half yearly. What amount would she get after 1 year?

SECTION D

Answer the following questions.

38. A shopkeeper bought two TV sets at Rs 10000 each. He sold one at a profit of 10% and the other at a loss of 10%. Find whether he made an overall profit or loss.

39. Using the identities, evaluate the following:
a) $61^2 - 39^2$ b) 9.7×9.8

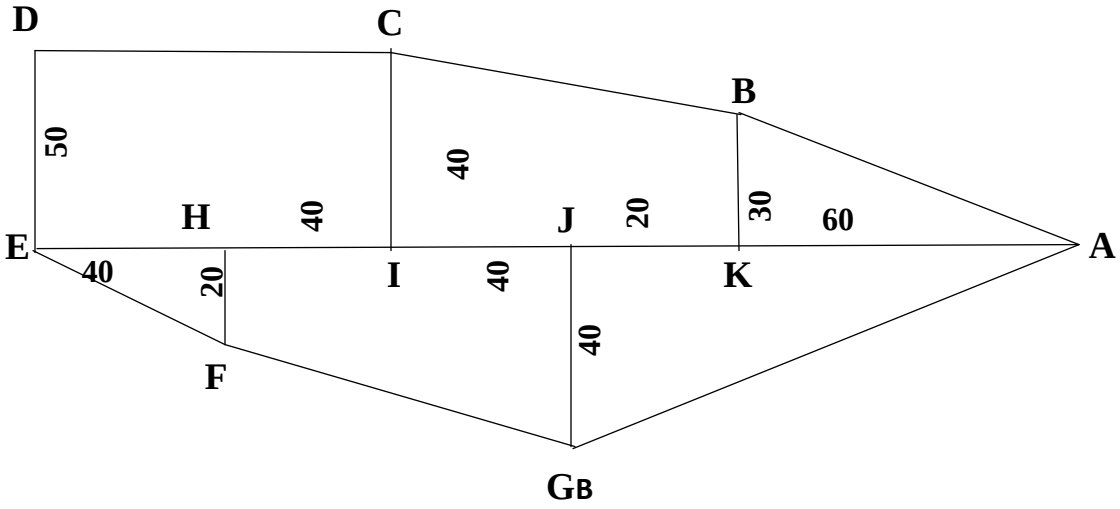
40. Draw a graph for the following table of values.

Time	**6:00 a.m.**	**7:00 a.m.**	**8:00 a.m.**	**9:00 a.m.**
Distance (in km)	40	80	120	160

Using the graph, answer the question given below:
What was the time when the car had covered a distance of 100 km since the start?

41. a) Factorise: ($m^2 - 14m - 32$). Now divide it by ($m + 2$).
b) Factorise : ($5p^2 - 25p + 20$).

42. Find the area of the following field. All dimensions are in metres (m).



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