GRADE: VIII **MARKS: 100**
SUBJECT: MATHS **TIME: 3 HRS**

Section A

This section comprises of Multiple choice question (MCQs) (1 x 30 = 30)

1. 8% of 625 is _____
   a. Rs.50 b. Rs75 c. Rs 80 d. Rs 100

2. The ratio 4 : 25 converted to percentage is:
   a. 8% b. 4% c. 16% d.25%

3. Convert the fraction $\frac{1}{8}$ into a percentage
   a. 8% b. 12.5% c. 16% d.25%

4. Amount = _____ + Interest
   a. Principle b. Cost price c. Rate d. Time

5. 25% of 60 students of a class likes to play football. How many students does not like to play football?
   a. 45 b. 15 c. 25 d. 50

6. The ratio of speed of cycle 12 km per hour to the speed of scooter 36 km per hour is
   a. 1 : 2 b. 1 : 3 c. 1 : 4 d. None

7. Amount when money is calculated using compound interest is _____
   a. P + I b. $\frac{PRT}{100}$ c. $P\left(1 + \frac{R}{100}\right)^n$ d. P − I

8. Which of the following is the value of 'm' in $9^m \div 9^{-3} = 9^5$?
   a. − 3 b. − 2 c. 3 d. 2

9. 700000000 is equal to
   a. 7×10^8 b. 7×10^7 c. 7×10^6 d. 7×10^9

10. In 10^2 the exponent is
    a. 10 b. 2 c. 1 d. 0

11. 10^{-1} is equal to
    a. 10 b. 1 c. $\frac{1}{10}$ d. $-\frac{1}{10}$

12. If 100 students took 20 days to clean a garden. How many days it will take to clean the garden if 25 more students are added?
    a. 10 b. 12 c. 16 d. 18

13. Which of the following is case of direct variation;
    a. If the length of radius is increased the circumference will be increased
    b. If number of students is a hostel are increased then the fixed food provision will last for less days
    c. For fixed duration, more the periods, lesser will be the duration of one period
    d. In case of a cylindrical vessel, lesser the diameter more is the level of water in it.

14. The perimeter of a square and its side is in
    a. Directly proportional b. Inversely proportional c. Both a and b d. None

15. If x and y are directly proportional, then which of the following is correct?
    a. x+y=constant b. x-y=constant c.xy=constant d.$\frac{x}{y}$ = constant

16. Volume of cuboid having length 5.1 m, breadth 2 m and height 2 m.
    a. 19.4 m² b 20.4 m² c 21.2 m² d 24.4 m²

17. The area of the quadrilateral is

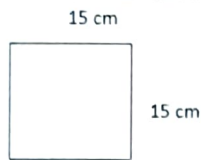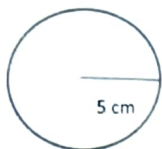   a. 8 cm² b. 12 cm² c. 6 cm² d. 3 cm²

18. Amount of region occupied by a solid is called its _____.
    a. Surface area   b. Volume   c. Area   d. Perimeter

19. Half the products of its diagonals gives the area of
    a. Rhombus   b. Parallelogram   c. Triangle   d. Trapezium

20. Calculate the area of the given figure.

15 cm

15 cm

a. 150cm²   b.125cm²   c. 225cm²   d. 100cm²

21. What is the area of the given circle? ($\pi = 3.14$)

5 cm

a. 78.5cm²   b. 78cm²   c. 76.5cm²   d. 77cm²

22. The factorised form of $3x - 24$ is _____
    a. $3x \times 24$ b. $3(x - 8)$ c. $24(x - 3)$ d. $3(x - 12)$

23. The factorisation of $12a^2b + 15ab^2$ gives:
    a. $3ab(4ab+5)$ b. $3ab(4a+5b)$ c. $3a(4a+5b)$ d. $3b(4a + 5b)$

24. The common factor of a^3b^2 and a^4b is:
    a. a^4b^2 b. a^4b c. a^3b^2 d. a^3b

25. The factors of xyz are:
    a. x   b. y   c. z   d. All of the above

26. $(a + b)(a - b) =$ _____
    a. $(a^2 - b^2)$ b. $(a + b)^2$ c. $(a - b)^2$ d. None

27. Which point lies only on y-axis?
    a. (0 ,0)   b. (2,0)   c. (0, 2)   d. (2,-2)

28. The points $(-3, 2)$ and $(2, -3)$ represent:
    a. Different points   b. Same point   c. The origin   d. None of these.

29. The point (0,0) lies at:
    a. x-axis   b. y-axis   c. origin   d. None of the above

30. A graph which is a whole unbroken line is called a:
    a. Linear graph   b. Pie-chart   c. Histograph   d. Bar-graph

Section B

This section comprises of Very Short answers   (2 x 10 = 20)

31. A shopkeeper buys 80 articles for ₹ 2,400 and sells them for a profit of 16%. Find the profit made by him.

32. Find the value of $(4^0 + 4^{-1}) \times 2^2$

33. Simplify and express in exponential form [a] $3^7 \times 3^{-2}$ [b] $(5^2)^{-3}$

34. A car travels 432km on 48lts of petrol. How far would it travel on 20 litres of petrol?

35. Shalu cycles to her school at an average speed of 12 km/hr. it takes 20 minutes to reach the school. If she wants to reach her school in 15 minutes, what should be her average speed?

36. Find the side of a cube whose lateral surface area is 900 cm².

37. The area of a rhombus is 16 cm² and the length of one of its diagonal is 4 cm. Calculate the length of other diagonal.

38. Find the common factors of $6x^3y$ and $18x^2y^3$

39. Solve $7x^2y^2z^2 \div 14xyz$

40. A courier-person cycles from a town to a neighbouring suburban area to deliver a parcel to a merchant. His distance from the town at different times is shown by the following graph.
    a. How much time did the person take for the travel?
    b. How far is the place of the merchant from the town?
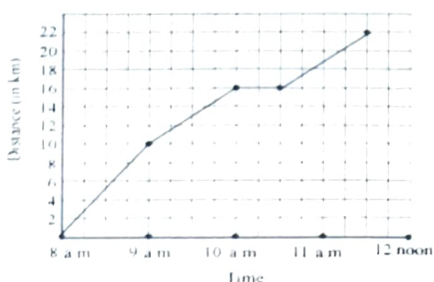
Section C

This section comprises of Short answers   (3 x 6 = 18)

41. An article was purchased for ₹ 1239 including GST of 18%. Find the price of thearticle before GST was added?

42. Fill in the blanks:
    a. The multiplicative inverse of $(3)^{-2}$ is _____
    b. $9^7 \times 3^{-2} =$ _____
    c. 0.0000067 in exponent form _____
    d. $5^0 =$ _____
    e. $(a^m)^n =$ _____
    f. $(-1)^{100} =$ _____

43. If 15 workers can finish a task in 42 hours, calculate the number of workers required to complete the same task in 30 hours.

44. Mrs. Kaushik has a square plot with the measurement as shown in the figure. She wants to construct a house in the middle of the plot. A garden is developed aroundthe house. Find the total cost of developing a garden around the house at the rate of ₹55 per m².
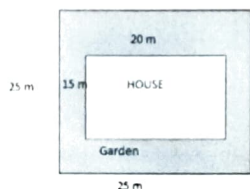
45. Find and correct the error if Substituting x = − 3 in
    a. $x^2 + 5x + 4$ gives $(-3)^2 + 5(-3) + 4 = 9 + 2 + 4 = 15$
    b. $x^2 - 5x + 4$ gives $(-3)^2 - 5(-3) + 4 = 9 - 15 + 4 = -2$

46. The quantity of petrol and its price are given. Plot a line graph. Is this graph a straight line or a curved line?

Liters of petrol	12	24	36	48	60	72
Cost of petrol used	200	400	600	800	1000	1200

Section D

This section comprises of Long answers   (5 x 4 = 20)

47. Arif took a loan of ₹ 80,000 from a bank. If the rate of interest is 10% per annum,find the amounts he would be paying after $1\frac{1}{2}$ years if the interest is compounded annually.

48. The dimensions of a room are 16 x 14 x 10 metres. There are 4 windows of 1.3m x 1.4m and 2 doors of 2m x 1m. what will be the cost of white washing the walls and painting the doors and windows, if the rate of white washing is Rs 5 per m^2 and rate of painting is Rs 8 per m^2.

49. Divide the given polynomial by the given monomial using both the methods
$8(x^3y^2z^2 + x^2y^3z^2 + x^2y^2z^3) \div 4x^2y^2z^2$

50. The runs scored by two teams A and B in first 10 overs are given below:

Overs	I	II	III	IV	V	VI	VII	VIII	IX	X
Team A	2	1	8	9	4	5	6	10	6	2
Team B	5	6	2	10	5	6	3	4	8	10

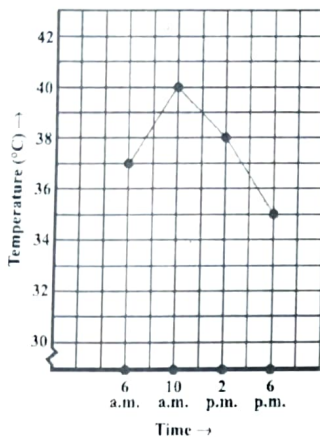Draw a graph depicting the data, making the graphs on the same axes in each case

Section E

This section comprises of case study   (4 x 3 = 12)

51. Observe the given graph and answer the questions

a. What time temperature was maximum?
b. What is the temperature at 6 AM?
c. What time the temperature was minimum?
d. What is the temperature difference between time 6:00 AM and 6:00 PM?

52. Pranav bought a wrist watch for Rs. 2200 and sold it to Baichung for Rs. 1980.
a. Did Pranav face profit or loss?
b. Find the amount of profit or loss.
c. What is the profit % or loss %?

53. An aquarium is in the form of a cuboid whose external measures are 80cm x 30cm x 40cm.
a. Find the area of base.
b. Find the area of side face.
c. Find the area of back face.
d. Find the total area