

**Time: 3 hrs**

**Note: All questions are compulsory.**

**M.M. 80**

**Part A**

**1. Solve the following questions:**

**[16x1=16]**

- (a) Identify the like terms from the following:  
 $18pq^2r, -3a^2c, 11abc, -10pq^2r, 14x, 9a^2c, -5ab^2, 11x$
- (b) How many monomials are there in the following expressions?  
 $8x^7 - 1, 7abc, p - q - r, 8y^2abcx^2, 12pqw, 6y + 5x - 10xy$
- (c) Given any two examples of 2-D figures.
- (d) If a polyhedron has 4 faces and 6 edges, its number of vertices will be \_\_\_\_\_
- (e) What is formula to get the area of a rhombus if the lengths of the diagonals are known?
- (f) If the length, breadth and height of cuboid are 1 units, b units and h units respectively, write down the formula to get the volume of the cuboid.
- (g) What is the base and the exponent in  $(-9)^5$ ?
- (h) Write 0.00000725 kg in standard form.
- (i) If the speed of a vehicle increases, the time taken to cover the same distance \_\_\_\_\_.
- (j) If a machine fills 500 bottles of soft drinks in 45 minutes, it will fill \_\_\_\_\_ number of bottle in 1 hours.  
(less/more)
- (k) How many terms are there in the algebraic expression,  $3xy + 4x^2y - 5xy^2$ ? Write them separately.
- (l) What is the irreducible from of  $5xyz$ ?
- (m) What is it called, the point (0, 0) in Cartesian system?
- (n) Which axis is represented by the vertical line?
- (o) Write 69 in generalised form.
- (p) Write  $100 \times 7 + 19 \times 5 + 3$  in usual form.

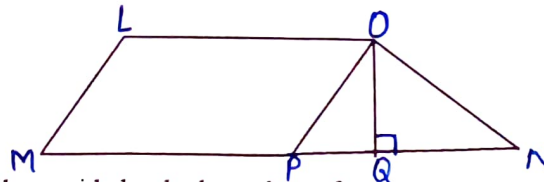
**Part B**

**Case study based questions are compulsory.**

**[16 marks]**

**2. Cast study Based – 1**

- (i) The figure given below LMNO is a trapezium in which  $MN = 32\text{cm}$ ,  $OL = 16\text{cm}$ , and the area of the trapezium is  $288\text{cm}^2$ . Further the trapezium is divided into a parallelogram LMPO and a triangle OPN. Find the height of trapezium.



- (ii) A two metres wide cemented path is made outside by the boundary of a square shaped garden, whose side is 50metres. If the cost of making this path is Rs. 15 per  $\text{m}^2$ , find the total cost of making the path.

**3. Cast study Based – 2**

- (i) The diameter of the Sun (say D) is about 1,39,00,00 km and the diameter of the Earth (say d) is about 12,700,000m. Compare the size of the Sun and the Earth.
- (ii) A steel bottle whose base having 7cm radius and height is 25cm, Find the capacity of the bottle?

**4. Case Study Based – 3**

- (i) Given that  $P - (3x^2 + 5y^2 - xy + 3) = (-4x^2 + 12y^2 - 7xy + 5)$ , find P.

(ii) Find the area of a rectangle whose sides are  $(7s^2 - 2)$  units and  $(s^2 + 4)$  units.

5. **Case Study Based - 4**

- (i) Name a type of prism that has all its faces of same shapes. Also, name a type of pyramid that has all its faces of same shapes.
- (ii) Verify Euler's formula for a cuboid.

**Part C**

[12 marks]

Solve the following questions:

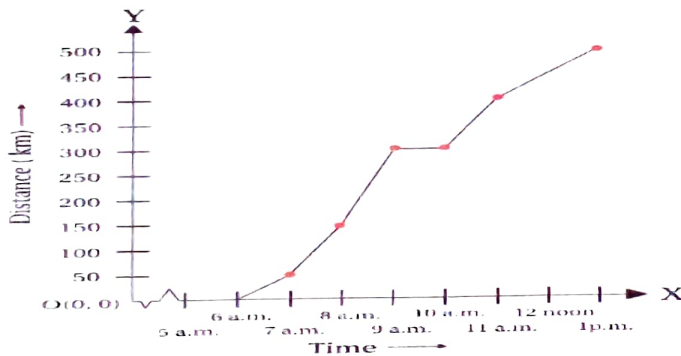
- Subtract the following using column method and alternate method.  
 $5p^2q - 7pq^2 + 11pq - 8p + 6q$  from  $-9p^2q + 14pq^2 - 8pq - 3p - q$
- Using the identity  $(x - a)(x + a) = x^2 - a^2$ , find  $17^2 - 6^2$ .
- A copper wire of length 4cm is to be bent into a square and a circle. Which will have a larger area?
- What is the value of  $x$ ?  
 (a)  $4^5 \times 3^5 = x^5$                                       (b)  $5^3 \times x^3 = 35^3$
- The number 5 must be raised to which power to make it 625? How?
- A loaded truck travels 25km in 40 minutes. How far can it travel in 3 hours with the same speed?

**Part D**

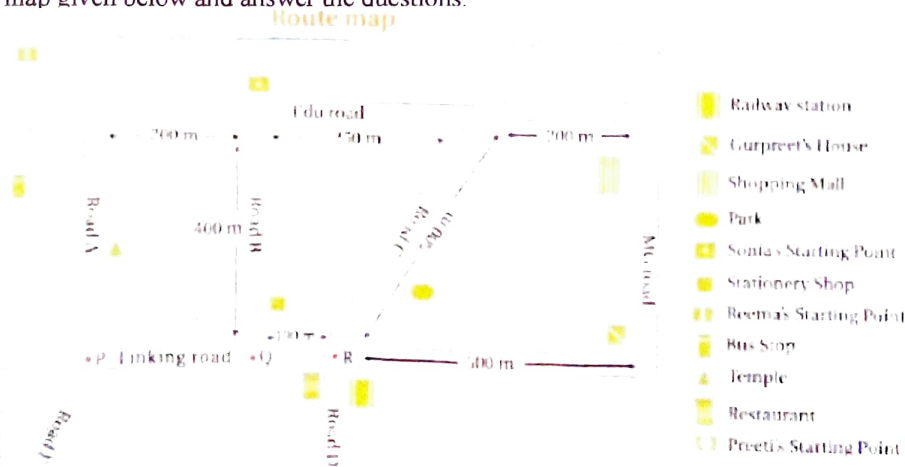
[21 marks]

Solve the following questions:

- Two numbers are such that their sum is 18 and product is 45. Find the sum the square of these two numbers.
- A graph is given below, showing the distance travelled by a tourist bus from one place to another. Study the graph carefully and answer the questions.  
 (a) When did the bus begin its journey?  
 (b) How far did the bus travelled in first two hours?  
 (c) Did the bus stop for some time at any place? If yes then for how long?



- Take two numbers, one is 469 and the other is reverse of 469. Now subtract the smaller from the greater and check whether the difference calculated is divisible by 99 or not.
- Read the map given below and answer the questions.



- (a) Name the intersection point of road C and road D.
- (b) Which is farther east, the 'Shopping mall' or the 'Park'?
- (c) Name the two ways from Reema's starting point 'R' maintaining the equal distance.
16. How many cartons of dimension 70cm  $\times$  22.5cm  $\times$  40cm can be stored in a godown having dimension 7m  $\times$  4.5m  $\times$  2m?
17. 1000 students in a camp had food provision for 20 days. But some students were transferred to another camp and the food lasted for 25 days. How many students were transferred?
18. The scale of a map is given as 1 : 4000000. Two cities are shown 3 cm apart on the map. Find the actual distance between them in kilometres.

### Part E

Solve the following questions:

[15 marks]

19. In a school, 24% are boys in total number of students. If the number of girls is 456, find the total number of students in the school.
20. A bank gives 6% p.a. simple interest on saving deposits. Complete the table given below under the same conditions and draw a graph to illustrate the relationship between the amount deposited and the simple interest earned.

Deposit (Rs)	10,000	20,000	30,000	40,000
Simple Interest (Rs)				

21. (a) Arrange the following in ascending order:

$$8 \times 100 + 8 \times 10 + 8 \times 1, 3 \times 10 + 5 \times 1, 2 \times 100 + 1 \times 10 + 1 \times 1, 7 \times 100 + 4 \times 1$$

- (b) Arrange the reverse of the following numbers in descending order:

$$68, 12, 90, 56, 101, 828, 222$$

- (c) Which of the following numbers are divisible by 4?

$$112, 15, 29, 16, 10$$

- (d) Which of the following numbers are divisible by 5?

$$225, 105890, 12, 5, 19783$$

- (e) Which of the following numbers are divisible by 10?

$$362, 270, 68, 6390, 88$$