

## CHAPTER - I

### RATIONAL NUMBERS

#### Questions carrying 1 Mark each :-

- Q.1 Is zero a rational number? If yes, give two examples.
- Q.2 What are the identity elements for the addition and multiplication of rational numbers?
- Q.3 Name the property used in the following :-  

$$+\frac{6}{6}+\frac{+6}{6}=1$$
- Q.4 Find the additive inverse of  $\frac{5}{5}$  and  $\frac{-5}{10}$
- Q.5 Write the reciprocal of 0.

#### Questions carrying 2 marks each :-

- Q.6 Using property find the value of  $\frac{2}{7} \times \frac{-2}{2} - \frac{2}{2} \times \frac{2}{2} - \frac{2}{2} \times \frac{2}{7}$
- Q.7 Is 0.5 the multiplicative inverse of  $2\frac{2}{5}$ ? Why or Why not?
- Q.8 Write four rational numbers which are greater than - 31 and less than 4.

#### Questions carrying 3 marks each :-

- Q.9 Represent  $-\frac{6}{6}$ ,  $\frac{6}{6}$  and  $\frac{-6}{11}$  on number line.
- Q.10 Find ten rational numbers between 2 and 3.
- Q.11 Find the value of  $\frac{2}{x} + \frac{2}{y}x$  if  $x = \frac{+2}{2}x$  and  $y = \frac{2}{5}$ .

**Multiple Choice Questions Carrying 1 Mark each :-**

Q.12 Between any two rational numbers, there lie :

- a) two rational number
- b) No rational number
- c) infinite rational numbers
- d) infinite fractions

Q.13 The additive inverse of  $\frac{a}{b}$  is

- a)  $-\frac{b}{a}$     b)  $\frac{b}{a}$     c)  $\frac{a}{b}$     d)  $-\frac{a}{b}$

Q.14 Addition is associative for

- a) Natural numbers
- b) Whole Numbers
- c) Rational Numbers
- d) All of these

Q.15 Rational numbers are not closed under :

- a) Subtraction
- b) Division
- c) Addition
- d) Multiplication

## CHAPTER - 2

### LINEAR EQUATIONS IN ONE VARIABLE

**Questions carrying 1 Mark each :-**

Q.1 By which sign the algebraic expressions are connected to form an equation?

Q.2 Find the solution of  $2x+5=7$ .

**Questions carrying 2 Marks each :**

Q.3 Solve for y :-

$$\frac{y}{xxy} = \frac{2}{5}$$

Q.4 Find the solution of

$$\frac{0}{2} + 5550x5 = 300$$

Q.5 A number is seven times the other number. If their sum is 96, find the numbers.

**Questions carrying 3 marks each:-**

Q.6 If the same number is added to both the numerator and denominator of a fraction

$\frac{x}{5}$ , then the result is  $\frac{1}{4}$ . Find the number.

Q.7 The perimeter of a rectangle is 52cm. If its width is 2cm more than one-third of its length, find the dimensions of the rectangle.

Q.8 The sum of three consecutive multiples of 7 is 777. Find these multiples.

- Q.9 Meena's mother is four times as old as Meena. After five years, her mother will be three times as old as she will be then. What are their present ages?

**Questions carrying 6 marks each :-**

- Q.10 The sum of the digits of a two digit number is 10. If the number formed by reversing the digits is less than the original number by 36, find the number.
- Q.11 A bag contains coins of denomination of Rs. 5 and Rs. 2. The total value of these coins is Rs. 1272. If the number of two rupee coins is 15% of the five rupee coins, find the number of coins of each denomination.

**Multiple choice Questions carrying 1 mark each :-**

- Q.12 In a linear equation, the highest power of the variable is :-
- a) One                                      b) two
- c) Three                                    d) Zero
- Q.13 An equation of the form  $ax + b = c$ , where  $a$ ,  $b$  and  $c$  are numbers,  $a \neq 0$  and  $x$  is the variable; represents a
- a) linear equation
- b) linear equation in one variable
- c) linear equation in two variables
- d) None of these

## CHAPTER - 3

### UNDERSTANDING QUADRILATERALS

#### Questions carrying 1 Mark each :-

- Q.1 What is the sum of the measures of the four angles of a quadrilateral?
- Q.2 If the diagonals of a quadrilateral bisect each other at right angle, the quadrilateral is called .....
- Q.3 The adjacent angles in a parallelogram are.....
- Q.4 State true or false :  
  
A pentagon is a concave polygon.
- Q.5 A regular polygon is both equiangular and.....

#### Questions carrying 2 Marks each :-

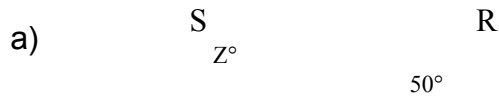
- Q.6 The adjacent sides of a parallelogram are in the ratio 3:7 and its perimeter is 100 cm. Find the sides of the parallelogram.
- Q.7 The angles of a quadrilateral are in the ratio 2:3:4:6. Find the measure of the angles.
- Q.8 Find the number of sides of a regular polygon whose each exterior angle has a measure of  $36^\circ$ .

Q.9 Diagonals AC and BD of a rectangle ABCD intersect each other at point O. If

OA=3cm, Find AC and BD.

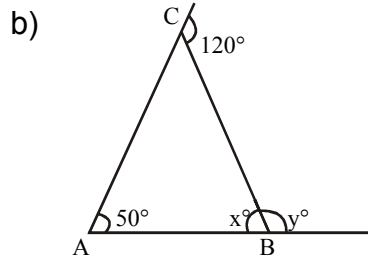
**Questions carrying 3 marks each :**

Q.10 Find the unknown in the following figures :-

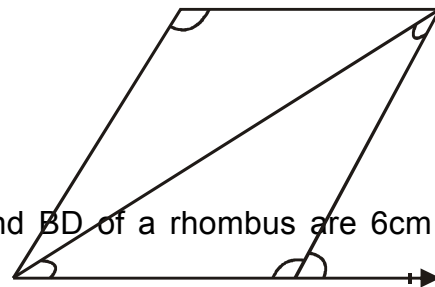


Find angles x, y and z if PQRS

is a || gm.



Find x and y.



Q.11 Lengths of the diagonals AC and BD of a rhombus are 6cm and 8 cm respectively. Find the length of each side of the rhombus.

**Multiple Choice Questions carrying 1 mark each:-**

Q.12 The sum of the exterior angles of any polygon is:

- a)  $180^\circ$       b)  $360^\circ$       c)  $90^\circ$       d)  $60^\circ$

Q.13 Which of the following is a regular polygon:

- a) Isosceles triangle      b) Square

- c) Parallelogram                      d) Rhombus

Q.14 The opposite angles of a..... are equal.

- a) Parallelogram                      b) Rhombus  
c) Trapezium                          d) None of these

## CHAPTER - 4

### PRACTICAL GEOMETRY

#### Questions carrying 1 Mark each :-

- Q.1 Can you construct a parallelogram if the lengths of adjacent sides are known?
- Q.2 How many minimum measurements are required to construct a quadrilateral uniquely?

#### Questions carrying 2 marks each :-

- Q.3 Can you construct the quadrilateral ABCD if  $AB=5\text{cm}$ ,  $BC = 8.5\text{ cm}$ ,  $\angle A = 75^\circ$ ,  $\angle B = 150^\circ$  and  $\angle C = 140^\circ$ . Justify your answer.
- Q.4 Construct a rhombus with side  $4.5\text{cm}$  and diagonal  $8\text{cm}$ .

#### Questions carrying 3 marks each :-

- Q.5 Construct a quadrilateral ABCD in which  $AB=4.5\text{cm}$ ,  $BC = 6.4\text{cm}$ ,  $CD=4.8\text{ cm}$ ,  $DA = 5.6\text{cm}$  and  $AC=7.6\text{ cm}$
- Q.6 Construct a quadrilateral BEST in which  $ES=4.5\text{cm}$ ,  $SB=BT=6.5\text{ cm}$ ,  $ST=6\text{cm}$  and  $ET=7.2\text{ cm}$ .
- Q.7 Construct a quadrilateral PQRS in which  $PQ=5.6\text{cm}$ ,  $QR=5.9\text{ cm}$ ,  $\angle Q = 90^\circ$ ,  $\angle S = 105^\circ$  and  $\angle R = 120^\circ$ .
- Q.8 Construct a quadrilateral ABCD in which  $AB = 4\text{cm}$ ,  $BC = 5\text{cm}$ ,  $CD=6\text{cm}$ ,  $\angle B = 120^\circ$  and  $\angle C = 90^\circ$



**Questions carrying 6 Marks each:-**

Q.9 Construct a trapezium ABCD in which  $AB \parallel CD$ ,  $AB = 8 \text{ cm}$ ,  $BC = 6 \text{ cm}$ ,  
 $CD = 4 \text{ cm}$  and  $\angle B = 60^\circ$

Q.10 Construct a rhombus whose diagonals are of length 8 cm. and 10 cm.

Q.11 Construct a rectangle with adjacent sides of lengths 6 cm. and 4 cm.

**Multiple choice Questions carrying 1 mark each:-**

Q.12 To construct a quadrilateral uniquely, it is necessary to know at least \_\_\_\_\_  
of its parts.

(a) two                      (b) three                      (c) four                      (d) five

Q.13 A rhombus can not be drawn if

- (a) one side and one diagonal are given.
- (b) the lengths of the two diagonals are given.
- (c) the length of one diagonal is given.
- (d) None of these.

## CHAPTER - 5

### Data Handling

#### Questions carrying 1 Mark each :-

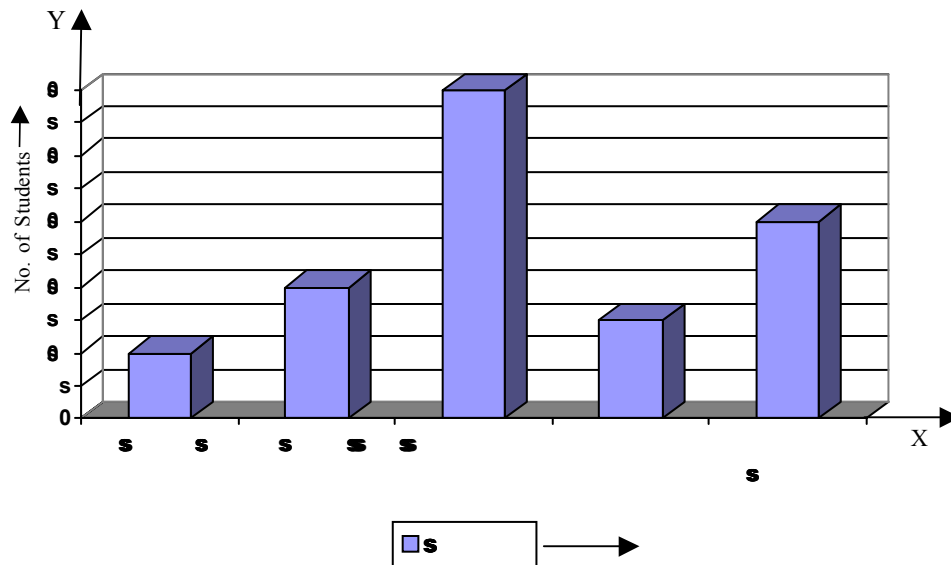
- Q.1 List the number of outcomes when a coin is tossed.
- Q.2 In a bar graph, bars are of equal \_\_\_\_\_ but varying, \_\_\_\_\_.
- Q.3 A pic chart is also called a \_\_\_\_\_.
- Q.4 In a pie chart, the total sum of all central angles must be \_\_\_\_\_.

#### Questions Carrying 2 Mark each:-

- Q.5 The marks obtained in Mathematics by 40 students of a class in an examination are 3, 20, 13, 1, 21, 13, 3, 23, 16, 13, 5, 24, 15, 7, 10, 18, 18, 7, 17, 21, 15, 5, 23, 2, 12, 20, 2, 10, 16, 23, 18, 12, 6, 9, 7, 3, 5, 16, 8 and 8.

Present the data in the form of a grouped frequency distribution, using class intervals of equal size, one of the class intervals being 5-10.

- Q.6 Read the bar graph and answer the following questions:-
- (i) In which subject maximum number of students got distinction?
  - (ii) In which subject, the number of distinctions is minimum?
  - (iii) How many distinctions were obtained by students in a school?
  - (iv) Write subject in order of the performance.



Q.7 Two dice are thrown, find and number of outcomes.

Q.8 There are 2 Red, 3 Blue and 5 Black balls in a bag. A ball is drawn from the bag without looking in to the bag. What is the probability of getting a non-red ball?

**Questions carrying 3 marks each :-**

Q.9 The data on mode fo transport used by students to come to school are as given below:-

Mode of Transport	Bus	Cycle	Train	Car	Scooter
Number of Students	120	180	240	80	100

Find the central angle of each sector.

Q.10 A coin and a die are thrown simultaneously. Find the number of possible outcomes also, name the outcomes.

**Questions carrying 6 marks each:-**

Q.11 Marks secured by a student in various subjects in an examination are:

Subject	Hindi	English	Maths	Soc. Science	Gen. Science
Marks	40	52	80	70	75

Q.12 The following data shows the expenditure of an individual over various items :

Items	Education	Food	Rent	Clothing	Others
Expenditure (in Rs.)	1600	3200	4000	2400	3200

Represent the above data by a pie chart.

Q.13 Draw a histogram for the following data:

Class Interval	10-20	20-30	30-40	40-50	50-60	60-70
Frequency	5	10	7	9	12	13

**Multiple choice Questions carrying 1 mark each:**

Q.14 The sum of all central angles in a pie chart is:

- (a)  $90^\circ$  (b)  $360^\circ$  (c)  $9^\circ$  (d) None of these

Q.15 When a die is thrown, total number of possible outcomes are:

- (a) 2 (b) 36 (c) 6 (d) 9

## CHAPTER - 6

### SQUARES AND SQUARE ROOTS

**Questions carrying 1 Mark each :-**

- Q.1 Is 23453 a perfect square?
- Q.2 What will be the one's digit in  $(23)^2$ ?
- Q.3  $(15)^2 = 225$ . What is the square root of 225?
- Q.4 Without calculating square roots, find the number of digits in the square root of 305809.

**Questions carrying 2 Marks each:-**

- Q.5 Without adding, find the sum :  $1+3+5+7+9$ .
- Q.6 How many numbers lie between squares of 30 and 31?
- Q.7 Find the square root of 144 by using method of repeated subtraction.

**Questions carrying 3 marks each:-**

- Q.8 Using property, find the square of a number ending in 5, the number is  $3^2$ .
- Q.9 Find the smallest number by which 2100 must be multiplied so that the product become a perfect square. Find the square root of the number so obtained.
- Q.10 11025 students are sitting in a lawn in such a way that there are as many students in a row as there are rows in the lawn. Find the number of rows in the lawn.

- Q.11 Find the greatest number of five digits which is a perfect square.
- Q.12 Find the square root of 2 correct up to 2 decimal places.
- Q.13 Find the least number which must be subtracted from 45156 to make it a perfect square.
- Q.14 Find the square root of 39.0625 by division method.

**Multiple choice Questions carrying 1 mark each:-**

- Q.15 If a perfect square is of  $n$ -digits, then its square root will have  $\frac{n}{2}$  digits if
- (a)  $n$  is odd      (2)  $n$  is even
- (c)  $n$  is prime      (4) none of these
- Q.16 The number of zeros in the square of 400 will be
- (a) 2      (b) 1      (c) 3      (d) 4

## CHAPTER - 7

### Cubes and Cube Roots

#### Questions carrying 1 Mark each :-

Q.1 Find the one's digit of  $(9 \quad)^3$ .

Q.2 State true or false:

The cube of a rational number is equal to cube of its numerator divided by the cube of its denominator.

Q.3  $(\quad 9)^3 = \underline{\hspace{2cm}}$ .

#### Questions carrying 2 marks each:-

Q.4 Find the cube of  $(\quad 27)$ .  $1^3$

Q.5 Find the cube root of 117649 by prime factorisation method.

Q.6 Find the smallest number by which 648 may be multiplied so that the product is a perfect cube.

#### Questions carrying 3 marks each:-

Q.7 The volume of a cubical box is 46. 656 . Find the length of the side of the box.

Q.8 Find the cube root of  $2\frac{3}{125}$ .

Q.9 Find the cube root of 0.008.

- Q.10 Find the smallest number by which 3456 must be divided so that the quotient become a perfect cube. Find the cube root of the quotient.

**Questions carrying 6 marks each:-**

Q.11 Evaluate  $\sqrt[3]{\frac{99}{99}} = \frac{2}{9} + \frac{2}{9}$ .

- Q.12 The sides of a cube are doubled. Find the ratio between the volume of the first cube and the new cube.

**Multiple choice Questions carrying 1 mark each:-**

- Q.13 The cube of a negative number is

- (a) always positive (b) always negative  
(c) may be positive or negative (d) none of these.

- Q.14 The unit digit of the cube of 3 is

- (a) 9 (b) 6 (c) 7 (d) 3

- Q.15 The symbol  $\sqrt[3]{\phantom{x}}$  demotes

- (a) cube root (b) cube  
(c) square (d) square root.



## CHAPTER - 8

### Comparing Quantities

#### Questions carrying 1 Mark each :-

- Q.1 Find the ratio of 1 dozen oranges to 28 oranges.
- Q.2 Write the formula to find C.P. when S.P. and gain% are given.
- Q.3 An item marked at Rs. 750 is sold for Rs. 525. Find the discount.
- Q.4 Compound Interest= \_\_\_\_\_ - \_\_\_\_\_.

#### Questions carrying 2 marks each:-

- Q.5 Amit bought a stereo for Rs. 4500 and sold it for Rs. 4230. Find his gain or loss percent.
- Q.6 The marked price of a sofa set is Rs. 3000. It is sold for Rs. 2500. Find the rate of discount.
- Q.7 If 10% VAT is included in the prices, find the original price of a TV bought for Rs. 22000.

#### Questions carrying 3 marks each:-

- Q.8 Find the compound interest of Rs. 5000 for 2 years at the rate of 8 % per annum, when the interest is compounded annually.

Q.9 A TV set was sold for Rs. 9000 after giving successive discount of 20% and 10% respectively. Find the marked price.

Q.10 If the selling price of 10 articles is equal to the cost price of 11 articles, find gain percent.

Q.11 40% of a number is 360. what is 25% of the number?

**Questions carrying 6 marks each:-**

Q.12 After allowing 20% discount to the customer, a dealer still gains 20% . Find the marked price of the electric fan which costs him Rs. 1600.

Q.13 A certain sum invested at 10% per annum compounded semi-annually amounts to Rs. 8820 at the end of one-year. Find the sum.

Q.14 The population of a town is 32000. The growth rate of population is 5 % What will be the population of town after 3 years?

**Questions choice Questions carrying 1 mark each:-**

Q.15 When interest is compounded quarterly, we divide the rate by

- (a) 4      (b) 2      (c) 1      (d) 3

Q.16 4 years 6 months equivalent to how many years?

- (a)  $\frac{3}{2}$  years      (b)  $\frac{3}{2}$  years  
(c) 54 years      (d) none of these.

## CHAPTER - 9

### Algebraic Expressions

**Questions carrying 1 Mark each :-**

Q.1 Identify the terms of the following expression:

$$2x^2y - 2xy^2 + 2x^2y - 18$$

Q.2 Multiply  $-\frac{2}{3}p^2$   $\frac{2}{3}pq$

**Questions carrying 2 marks each:-**

Q.3 Multiply  $5ab$  by  $(a + b)$ .

Q.4 Add

Q.5 Subtract  $2x^2y + 2xy^2 + 4xyz$  from  $3x^2y + 3xy^2 + 2n$ .

Q.6 Find the area of the rectangle whose length is  $(a + b)$  units and breadth is  $(a - b)$  units.

**Questions carrying 3 marks each:-**

Q.7 Simplify :-

$$x^2(2x^2 + 2x) + x^2(x + 2x) + 2x^2(x + 4x)$$

Q.8 Multiply :  $\frac{-x}{-x}x - \frac{x}{x}y + \frac{-x}{-x}x - \frac{x}{x}y +$

Q.9 Use suitable identity to find the product

$$(x + 2y)(x + 2y)$$

Q.10 Find the square of \_\_\_\_\_ using suitable identity.

Q.11 Using identity  $(a + b)^2 = a^2 + 2ab + b^2$ , find the product  $105 \times 107$ .

Q.12 Evaluate \_\_\_\_\_.

Q.13 Simplify  $(5a + 2b)^2 - 35ab$ .

Q.14 Without actual multiplication find the value of  $(3 \quad )^2$ .

**Multiple choice Questions carrying 1 mark each:-**

Q.15  $(2 + 2)^2 =$  \_\_\_\_\_

- (a)  $0^2 + 0^2$  (b)  $(a + b)(a + b)$   
 (c)  $+2ab$  (d) none of these

Q.16 In algebraic expression  $2x^2 + 2y^2 - 2xy + 2yx$  are

- (a) constants (b) like terms  
 (c) unlike terms (d) none of these.

## CHAPTER - 10

### Visualising Solid Shapes

#### Questions carrying 1 Mark each :-

- Q.1 A joker cap looks like a \_\_\_\_\_.
- Q.2 A cuboid is \_\_\_\_\_ dimensional.
- Q.3 The top view of a cup is a pair of \_\_\_\_\_.

#### Questions carrying 2 marks each:

- Q.4 Give Euler's Formula.
- Q.5 Write number of faces, number of vertices and number of edges of a cuboid.
- Q.6 Can a polyhedron have 12 faces, 15 edges and 20 vertices? Explain.

#### Multiple choice Questions carrying 1 mark each:-

- Q.7 The number of faces of a polyhedron if number of vertices are 6 and number of edges are 12 are:-
- (a) 8      (b) 10      (c) 16      (d) 12
- Q.8 The base of a square pyramid is
- (a) Rectangular      (b) square
- (c) Triangular      (d) None of these.

## CHAPTER - 11

### Mensuration

#### Questions carrying 1 Mark each :-

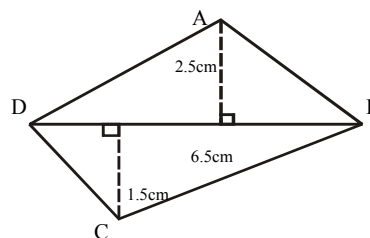
- Q.1 Write the formula to find the area of a parallelogram.
- Q.2 Find the lateral surface area of a cube of edge  $a$  cm.
- Q.3 1 Litre = \_\_\_\_\_  $\text{m}^3$ .

#### Question carrying 2 marks each:-

- Q.4 The parallel sides of a trapezium are 12 m. and 8 m. and the distance between them is 6m. Find the area of the trapezium.
- Q.5 A cuboidal wooden block contains 144 cu cm. of wood. If it is 6 cm. long and 3 cm. wide, find its height.
- Q.6 The height of a cylinder is 15 cm. and curved surface area is  $660 \text{ cm}^2$ . Find the radius of the cylinder.
- Q.7 The total surface area of a cube is  $96 \text{ m}^2$ . Find its volume.
- Q.8 The diagonals of a rhombus are of length 16 cm. and 30 cm. Find its area.

#### Questions carrying 3 marks each:-

- Q.9 Find the area of the quadrilateral shown in figure:



- Q.10 The area of a trapezium is  $900 \text{ m}^2$  and the distance between the parallel sides is  $18 \text{ m}$ . Find the length of the parallel sides if they are in the ratio 3:4.
- Q.11 Three cubes, each of edge  $2 \text{ cm}$ . long are placed together. Find the total surface area of the cuboid so formed.
- Q.12 The rainfall on a certain day was  $12 \text{ cm}$ . How many liters of water fell on  $3$  hectares of land on that day?
- Q.13 The diameter of a road roller,  $1 \text{ m } 40 \text{ cm}$  long is  $80 \text{ cm}$ . If it takes  $600$  revolutions to level a playground, find the cost of levelling the ground at Rs.  $3$  per  $\text{m}^2$ .

**Questions carrying 6 marks each:**

- Q.14 A rectangular sheet of aluminium foil is  $44 \text{ cm}$ . long and  $20 \text{ cm}$ . wide. A cylinder is made out of it, by rolling the foil along width. Find the volume of the cylinder.
- Q.15 The perimeter of the floor of a hall is  $250 \text{ m}$ . If the height is  $4 \text{ m}$ , find the cost of painting the four walls at the rate of Rs.  $12$  per square meter.
- Q.16 BY how many times do the volume and surface area of a cube increase if its edges get doubled.

**Multiple choice Questions carrying 1 marks each:-**

- Q.17 If the edges of a cube are halved, then its volume become:

- (a) 4 times                      (b) 8 times  
 (c)  $\frac{1}{8}$  times                      (d)  $\frac{0}{2}$  times

Q.18 The lateral surface area of a cylinder is

- (a)  $2^2 h$                       (b)  $\pi \pi h$   
 (c)  $2 \times 2 (2) h$                       (d) none of these.



## CHAPTER - 12

### Exponents and Powers

**Questions carrying 1 Mark each :-**

Q.1 Write \_\_\_\_\_ in exponential form.

Q.2 Find the multiplicative inverse of  $2^{-3}$ .

**Questions carrying 2 marks each:-**

Q.3 Expand 253.45 using exponents.

Q.4 Simplify and express the result as positive exponent :-

Q.5 Evaluate  $\left(\frac{2}{3}\right)^{-3} \div \left(\frac{3}{2}\right)^{-2}$   $\frac{(2/3)^{-3}}{(3/2)^{-2}} = \frac{(2/3)^{-3} \times (2/3)^3}{(3/2)^{-2} \times (3/2)^2} = \frac{1}{1} \div \frac{1}{1} = 1$

Q.6 Write 0.00053 in standard form.

Q.7 Express  $611 \times 10^{-6}$  in usual form.

**Questions carrying 3 marks each :-**

Q.8 Solve for x :  $\frac{-3^3}{-3} = \frac{-3^{2x}}{-3}$

Q.9 Simplify :  $\left(\frac{9}{9}\right)^{-9} \div \left(\frac{9}{3}\right)^{-9} - \left(\frac{3}{9}\right)^{-3}$

**Multiple choice Question Carrying 1 mark each :-**

Q.10  $a^0 = \underline{\hspace{2cm}}$ , where  $a \neq 0$

- (a) 0      (b) a      (c) 1      (d) none of these.

Q.11 The reciprocal of \_\_\_\_\_ is \_\_\_\_\_

(a)  $\frac{-b}{-a}$

(b)  $\frac{-b}{-a}$

(c)  $\left(\frac{b}{b}\right)^{-n}$

(d)  $(b)^n$

$\frac{-b}{-b}$

## CHAPTER - 13

### Direct and Inverse Proportions

#### Questions carrying 1 Mark each :-

Q.1 When one quantity is increased, the other quantity is also increased. This proportion is called .....

Q.2 State whether the following is a case of direct or indirect proportion :

“Number of persons needed to do a piece of work and time”.

#### Questions carrying 2 marks each :-

Q.3 If a and b vary inversely, find the value of x :

a	50	25
b	2	x

Q.4 Show that a and b vary directly :-

a	3	6	15
b	10	20	50

#### Questions carrying 3 marks each :-

Q.5 72 books are packed in 4 cartons of the same size. How many cartons are required for 360 books?

- Q.6 If 36 men can complete a work in 24 days, how many extra men be employed so as to complete the work in 18 days?
- Q.7 A garrison of 300 men had provision of food for 50 days. A reinforcement of 200 men arrived. Find the number of days for which the food will last.
- Q.8 12 men can dig 8 meters long trench in a day. How many men should be employed for digging 50 meter long trench of the same type in one day?
- Q.9 In an army camp, there are 320 soliders. They have sufficient food for 80 days. If after 20 days, 20 soliders left the camp, for how many more days will the food last?
- Q.10 A journey by bus takes 45 minutes at  $40\frac{x}{y}$  km/hour. How fast must a car go to undertake the same journey in 25 minutes?

**Multiple Choice Questions carrying 1 mark each**

- Q.11 When two quantities x and y are in direct proportion, then
- a)  $x \propto y$       b)      c)  $x = y$       d)  $x = \frac{x}{y}$
- Q.12 When two quantities x and y are in inverse proportion, then
- a)  $x = \frac{x}{y}$       b)  $x \propto \frac{x}{y}$       c)  $x = y$       d)  $x \propto y$

## CHAPTER - 14

### Factorisation

**Questions carrying 1 mark each :-**

Q.1 Factorise  $x^2 + x$ .

Q.2 Is it correct :  $3(x-4) = 3x - 4$ .

**Questions carrying 2 marks each :-**

Q.3 Factorise  $9a^2 - 16b^2$

Q.4 Factorise  $24x^4 + 18x^3$

Q.5 Factorise  $2a - 32a^5$

Q.6 Divide  $32xy^2 - 16x^2y$  by  $16xy \frac{x+5}{5} = 6x$

Q.7 Evaluate  $(ax + ay + ax) - a$

**Questions carrying 3 marks each :**

Q.8 Factorise  $1 - a^2 - 2ab - b^2$

Q.9 Resolve into factors :  $2x^2 - 3ax - 2a^2$

Q.10 Find the greatest common factor of  $-4a^3b^2, 12a^3b^3c, 16a^5bc$ .

Q.11 Divide  $(4x^2 - 9)$  by  $(2x - 3)$ .

Q.12 Find and correct the error :-

Q.13 Factorise  $(x^4) - (y-z)^4$

**Multiple Choice Questions carrying 1mark each:-**

Q.14 Division is opposite of

- |                   |                  |
|-------------------|------------------|
| a) Subtraction    | b) Addition      |
| c) Multiplication | d) None of these |

## **CHAPTER - 15**

### **Introduction to Graphs**

#### **Questions carrying 1 Mark each :-**

Q.1 For plotting a point on graph sheet, we need \_\_\_\_\_ and \_\_\_\_\_.

Q.2 Write the co-ordinates of origin.

#### **Questions carrying 2 marks each :-**

Q.3 Plot the points A(3,4), B(5,0) on the graph sheet.

Q.4 Plot the points (1,3) (3,1) (7,2) on a graph sheet what figure do you obtain?

#### **Questions carrying 3 marks each :-**

Q.5 In a square, the perimeter is four times the side of the square. Make a table of ordered pairs as (length, perimeter).

#### **Questions carrying 6 marks each :-**

Q.6 A sum of Rs. 1000 is invested at the rate of 5% per annum simple interest. Represent the relation between interest and time. From graph, find the interest payable after 5 years.

#### **Multiple Choice Questions carrying 1 mark each**

Q.7 A line graph displays data

a) in intervals

- b) that changes continuously over periods of time
- c) among categories
- d) as a part of a whole

Q.8 The point (0, 5) lie on

- |                 |               |
|-----------------|---------------|
| a) +ve x - axis | b) -ve x-axis |
| c) +ve y-axis   | d) -ve y-axis |



## CHAPTER - 16

### Playing with Numbers

**Questions carrying 1 mark each :-**

Q.1 Each digit of a number has a \_\_\_\_\_ value.

Q.2 Write 750 in generalised form.

**Questions carrying 2 marks each :**

Q.3 Check the divisibility of 235 by 3.

Q.4 Find the values of a and b in the following :

$$\begin{array}{r} 29 \\ +ba \\ \hline 73 \\ \hline \end{array}$$

Q.5 Write all numbers between 50 and 60 which are divisible by 2.

**Questions carrying 3 marks each :-**

Q.6 Find the value of a, b and c in the following :-

$$\begin{array}{r} a1 \\ \times cb \\ \hline 306 \\ 357x \\ \hline 3876 \\ \hline \end{array}$$

Q.7 The unit's digit of a number is 7. Find the remainder when it is divided by 2,5 and 10.

Q.8 If  $43x0$  is a multiple of 2, where  $x$  is a digit, what might be the values of  $x$ ?

**Multiple Choice Questions carrying 1 mark each :-**

Q.9 In 316, the place value of 1 is

- a)  $1 \times 10$       b)  $1 \times 100$       c)  $1 \times 1$       d)  $1 \times 1000$

Q.10 A number  $N$  is divisible by 9, if the sum of its digits is divisible by

- a) 3      b) 6      c) 9      d) None of these

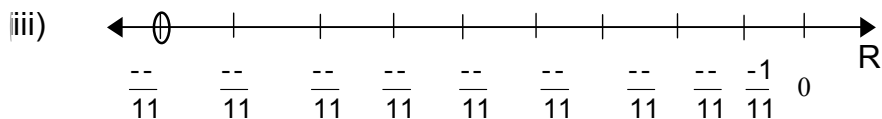
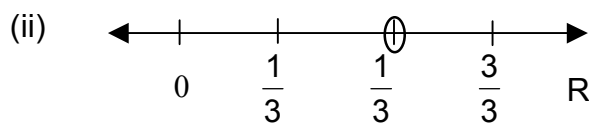
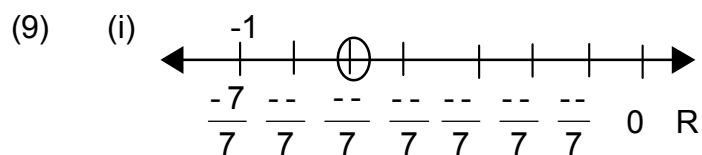
## ANSWERS

### Chapter 1 (Rational Numbers)

(1) Yes;  $\frac{0}{2}, \frac{2}{9}$       (2) 0, 1      (3) Multiplicative Inverse

(4)  $\frac{1}{4}$       (5) Not defined      (6)  $-\frac{9}{35}$

(7) No      (8) -12, -9, 0, 2



(10)  $\frac{1}{45}, \frac{1}{45}, \frac{1}{45}, \frac{1}{45}, \frac{1}{45}, \frac{1}{45}, \frac{1}{45}, \frac{1}{45}, \frac{1}{45}, \frac{1}{45}, \frac{1}{45}, \frac{1}{45}$

(11)  $\frac{1}{6}$       (12) C      (13) d

(14) d      (15) b

### Chapter 2 (Linear Equations in One Variable)

(1) equality (=)      (2) 1      (3)  $\frac{7}{12}$       (4) 100

(5) 84, 12      (6) 3      (7) 18cm x 8 cm

- (8) 252, 259, 266 (9) 10 years, 40years (10) 73  
 (11) Number of Five-Rupee coins = 240, Number of two-rupee coins = 36  
 (12) a (13) b

### Chapter 3 (Understanding Quadrilaterals)

- (1)  $360^\circ$  (2) rhombus (3) supplementary  
 (4) False (5) equilateral (6) 15cm, 35cm  
 (7)  $48^\circ, 72^\circ, 96^\circ, 144^\circ$  (8) 10 (9) 6cm, 6cm  
 (10)  $x = 130^\circ, y = 80^\circ, z = 50^\circ$  (11)  $x = 70^\circ, y = 110^\circ$   
 (12) b (13) b (14) a

### Chapter 4 (Practical Geometry)

- (1) No (2) Five (3) No, angle-sum property  
 (12) d (13) c

### Chapter 5 (Data Handling)

- (1) {H, T} (2) Width, Height (3) Circle graph

(4) $360^\circ$	(5)	Class Interval	0-5	5-10	10-25	15-20	20-25
		(Marks)					
		Frequency	6	10	7	9	8

- (6) (i) Maths (ii) English (iii) 125 (iv) Maths,  
 Computer Science, Physics, Chemistry, English

(7) (1,1), (1,2), (1,3), (1,4), (1,5), (1,6), (2,1), (2,2), (2,3), (2,4), (2,5), (2,6),  
 (3,1), (3,2), (3,3), (3,4), (3,5), (3,6), (4,1), (4,2), (4,3), (4,4), (4,5), (4,6),  
 (5,1), (5,2), (5,3), (5,4), (5,5), (5,6), (6,1), (6,2), (6,3), (6,4), (6,5), (6,6).

(8)  $\frac{2}{5}$  (9)  $60^\circ, 90^\circ, 120^\circ, 40^\circ, 50^\circ$  (14) b  
 (15) c

### Chapter 6 (Squares and Square Roots)

(1) No (2) 1 (3) 15 (4) 3 (5) 25  
 (6) 60 (7) 12 (8) 5625 (9) 21, 210 (10) 105  
 (11) 99856 (12) 1.41 (13) 212 (14) 6.25 (15) b  
 (16) d

### Chapter 7 (Cubes and Cube Roots)

1. 3 (2) True (3) -1331 (4) -19683 (5) 49  
 (6) 9 (7) 3.6m (8)  $1\frac{2}{5}$  (9) 0.2 (10) 50,50  
 (11) 14/9 (12) 1:8 (13) b (14) c (15) a

### Chapter 8 (Comparing Quantities)

(1) 3 : 7 (2)  $\text{Cost} = \frac{6 \times \text{Cost}}{6 + \text{Gain}\%}$  (3) Rs. 225  
 (4) Amount, Principal (5) Loss 6% (6)  $6\frac{6}{6}\%$

- |                |               |                |
|----------------|---------------|----------------|
| (7) Rs. 20,000 | (8) Rs. 832   | (9) Rs. 12,500 |
| (10) 225       | (12) Rs. 2400 | (13) Rs. 8000  |
| (14) 37044     | (15) a        | (16) b         |

### Chapter 9 (Algebraic Expressions and Identities)

- |                                      |   |
|--------------------------------------|---|
| (1) $4pq^2, -3pq, 5pq^2, -18$        | (2) $-\frac{3}{2}p^2q$                                    |
| (3) $10a^2b - 5a^2b^2$               | (4) $-5xy + 10yz$   |
| (5) $-14l^2 + 23lm - 4lm$            | (6) $(a^3+b^3)$ sq. units                                 |
| (7) $x^5y - 2x^3y - 4x^2y + 6x^2y^2$ | (8) $\frac{3}{8}x^2 - \frac{7}{60}xy + 4y^2$              |
| (9) $25x^2 - 4y^2$                   | (10) $\frac{6}{49}x^2 - \frac{9}{63}xy + \frac{5}{81}y^2$ |
| (11) 11235                           | (12) 10   |
| (13) $25a^2 + 49b^2 - 105ab$         | (14) 644809   |
| (15) C                               | (16) b  |

### Chapter 10 (Visualising Solid Shapes)

- |   |           |                        |
|---|-----------|------------------------|
| (1) Cone  | (2) Three | (3) Concentric Circles |
| 4) $F+V-E = 2$ where F stands for number of faces, V for number of vertices,<br>E for number of edges |           |                        |
| (5) 6, 8, 12  | (6) No    |                        |

(7)  $a$

(8)  $b$

### Chapter 11 (Mensuration)

(1) Area of  $\square$  gm = base x height

(2)  $4a^2 \text{ cm}^2$

(3) 1000

(4)  $60\text{m}^2$

(5) 8cm

(6) 7cm

(7)  $64\text{m}^3$

(8)  $240\text{cm}^2$

(9)  $13\text{cm}^2$

(10) 18m, 24m

(11)  $72\text{cm}^2$

(12) 3600000 litres

(13) Rs. 6336

(14)  $3080 \text{ cm}^3$

(15) Rs. 12,000

(16) 8 times, 4 times

(17)  $c$

(18)  $b$

### Chapter 12 (Exponents and Powers)

(1)  $(-3)^4$

(2)  $2^3$

(3)  $2 \times 10^2 + 5 \times 10 + 3 \times 1 + 4 \times 10^{-1} + 5 \times 10^{-2}$

(4)  $-\frac{9}{9}$

(5)  $\frac{5}{18}$

(6)  $5.3 \times 10^{-4}$

(7) 0.00000625

(8)  $x = 0$

(9)  $\frac{3 \text{ 03}}{108}$

(10)  $c$

(11)  $b$

### Chapter 13 (Direct and Inverse Proportions)

(1) direct proportion

(2) Indirect proportion

(3)  $x = 4$

(5) 20 cartons

(6) 12

(7) 30 days

(8) 75 men

(9) 64 days

(10) 72 km/hour

(11)  $a$

(12)  $b$

### Chapter 14 (Factorisation)

(1)  $x(x+1)$

(2) No

(3)  $(3a+4b)(3a-4b)$

(4)  $6x^3(4x+3)$

(5)  $2a(1+4a^2)(1+2a)(1-2a)$

(6)  $2y - x$

(7)  $x+y+z$

(8)  $(1+a+b)(1-a-b)$

(9)  $(2x+a)(x-2a)$

(10)  $4a^3 b$

(11)  $2x+3$

(12)  $\frac{6x+6}{6} = \frac{6x}{6} + \frac{6}{6} = \frac{6x}{6} + 1$

(13)  $(x^2+y-z)(x^2-y+z)$

(14)  $c$



### Chapter 15 (Introduction to Graphs)

- |                                    |             |
|------------------------------------|-------------|
| (1) x - coordinate, y - coordinate | (2) (0,0)   |
| (4) Triangle                       | (6) Rs. 250 |
| (7) b                              | (8) c       |

### Chapter 16 (Playing with Numbers)

- |                    |   |
|--------------------|---|
| (1) Place          | (2) $7 \times 100 + 5 \times 10 + 0 \times 1$ |
| (3) Not divisible  | (4) $a=4, b=4$                                |
| (5) 52, 54, 56, 58 | (6) $a=5, b=6, c=7$                           |
| (7) 1, 2, 7        | (8) 0,1,2,3,4,5,6,7,8,9                       |
| (9) a              | (10) c  |

\*\*\*\*\*