

**Note : Attempt all questions in good hand writing. Marks are indicated against question.**

**Q.1. Choose the correct answer :**

5×1=5

(a) Find the multiplicative inverse of  $-\frac{9}{7}$  :

- (i)  $\frac{9}{7}$       (ii)  $\frac{7}{9}$       (iii)  $-\frac{7}{9}$       (iv) 0

(b)  $\left(\frac{2}{3}\right)^{-5}$  is equal to :

- (i)  $\left(-\frac{2}{5}\right)^5$       (ii)  $\left(\frac{3}{2}\right)^5$       (iii)  $\frac{2}{3 \times 5}$       (iv)  $\frac{2 \times (-5)}{3}$

(c) The square root of  $\frac{13}{36}$  is :

- (i)  $\frac{\sqrt{3}}{6}$       (ii)  $\frac{\sqrt{5}}{6}$       (iii)  $\frac{\sqrt{13}}{6}$       (iv)  $\frac{\sqrt{14}}{6}$

(d) The equivalent of  $a^2 - 2ab + b^2$  is

- (i)  $(a + b)^2$       (ii)  $(a - b)^2$       (iii)  $a^2 b^2$       (iv)  $a^2 - b^2$

(e) Find cube root of 64 :

- (i) 4      (ii) 8      (iii) 2      (iv) 16

**Q.2. Fill in the blanks :**

5×1=5

(a)  $A = P \left(1 + \frac{\dots}{100}\right)^n$       (b)  $\left(-\frac{7}{13}\right) \times \dots = \left(-\frac{7}{13}\right)$

(c) Zero has ..... reciprocal.

(d) An algebraic expression has two unlike term is called .....

(e)  $a^m + a^n = \dots$

**Q.3. Tick true or false in the bracket:**

5×1=5

(a) Negative numbers do not have square root. (T/F)

(b) If ends in a zero its cube ends in three zero. (T/F)

(c)  $\text{Discount \%} = \frac{\text{MP}}{\text{Discount}} \times 100$  (T/F)

(d) If 12% of  $x$  is 60 then the value of  $x$  is 400. (T/F)

(e)  $(-6/7)^0 = 0$  (T/F)

Q.4. All questions are compulsory :

5×2=10

(a) The product of two rational numbers is  $-\frac{28}{81}$ . If one of them is  $\frac{14}{27}$ .

ABA

(b) Find the value of the letters in the given pattern

$$\begin{array}{r} +1B2 \\ \hline \end{array}$$

(c) Subtract  $2x^2 + 3y + 4$  from  $14x^2 - 6y - 5$

(d) Twice a number when added to itself gives 25. Find the number.

(e) Factorize:  $(y^3 - 81y)$

Q.5. All questions are compulsory :

5×2=10

(a) A car is travelling at a speed 70 km/h. What should be the distance travelled by the car in 24 minutes?

(b) Solve the following equation:  $\frac{x}{3} + 2 = \frac{y}{3}$

(c) Evaluate using the identities  $96^2 - 4^2$

(d) If 45% of the workers of a factory are female and the number of male workers is 396. Find the total number of workers in the factory.

(e) Find two rational numbers between  $-\frac{1}{5}$  and  $\frac{1}{2}$ .

Q.6. All questions are compulsory :

5×3=15

(a) Find the square root of number 9801 by long division method.

(b) If  $\left(x + \frac{1}{x}\right)^2 = 81$ , find the value of  $x^2 + \frac{1}{x^2}$ .

(c) Find the difference between the compound interest and the simple interest for ₹ 8,000 for 3 years at the rate of 10% p.a.

(d) Solve the following equation:  $\frac{x-5}{2} - \frac{x-3}{5} = \frac{1}{2}$

(e) Find the value of  $m$ :  $\left(\frac{2}{7}\right)^{17} \div \left(\frac{2}{7}\right) = \left(\frac{2}{7}\right)^{2m+1}$