## Home Revise Education Pvt Ltd

### MATHS - I (Paper - 1)

Time: 2 hours Marks: 40

**Q. 1 (A) Choose the correct alternative & write its letter.** (4)

i) Raju bought 500g pedhe at the rate of ₹ 400 per kg. If 5% GST is charged, then what amount did Raju pay?
A) ₹ 200 B) ₹ 410 C) ₹ 400 D) ₹ 210

ii) Which of the following cannot represent probability?
A) ⅓ B) 1.5 C) 0.7 D) 18%

iii) Which of the following is the value of k, if one root of the quadratic $x^2 + kx - 8 = 0$ is - 4?
A) 0 B) 0 OR 4 C) 2 D) 4

iv) For an A.P, if α =11 and d=1.5, then $t_3$=?
A) 12 B) 15 C) 10 D) 14

**Q1 (B) Solve the following questions.** **(4)**

i) If the rate of GST on paints is 28%,what is the rate of CGST and SGST?
ii) Find the mean $\bar{x}$ ,if $\sum x_i f_i = 100$ and $\sum f_i = 20$.
iii) For quadratic equation $10x^2 + 10x + 1 = 0$,what is the value of $2 + \beta$ ?
iv) What is common difference (d) of the A.P. 5,1,-3,-7----?

**Q2 (A) Complete any two of the following activities.** **(4)**

i) In a class of 48 student, 4 students use spectacles. Complete the following activity to find the probability of a student selected at random, wearing spectacles.
Activity: The total number of students in the class is 4

$\therefore n(s) =$ ☐

Let A be the event that a student uses spectacles

Then n(A) = ☐ $\therefore P(A) = \frac{\square}{\square}$ $\therefore p(A) = \frac{\square}{\square}$

ii) The taxable value of a wrist watch is ₹ 2400. Rate of GST is 18%. Complete the following acitivity to find the price of the wristwatch for the consumer.
Activity: Taxable value of wristwatch = ₹2400

Rate of GST = ☐

$\therefore GST = \frac{\square}{\square} \times \frac{\square}{\square} =$ 432

Amount paid = Taxable value + GST

=₹ ☐ + ₹ 432 = ₹ 2832

Hence, the price of the wristwatch for consumer is ₹2832.

iii) The first term and the common difference of an A.P are 10and 5 respectively. Complete the following activity to find the sum of the first 30 terms of the A.P.

$S_n = \frac{n}{2}$ [ ☐ +( n -1) d ]

$\therefore s_{30} = \frac{30}{2}$ [20 + (30 - 21) x ☐ ]

=15 [20 + ☐ ]

=15 x 165

= ☐

**Q.2 (B) Solve any four of the following sub-question. (8)**

i) Find the values of $D_x$ and $D_Y$ to solve the simultaneous equations 3 $x - 4y$ =8 and

4 $x$ 3 $y = 5by$ cramer's Rule.

ii) Determine the nature of roots for the quadratic equation
$\sqrt{3}x^2 + 2\sqrt{2}x - 2\sqrt{3} = 0$

iii) Mr.mahajan purchased 40shares of fv ₹100and mv ₹ 45. He paid 2% brokerage. Find the total amount he spent.

Iv) Find the mean of data given is following table:

| class | 0-20 | 20 - 40 | 40-60 |
|---|---|---|---|
| Frequency | 6 | 7 | 3 |

**Q3 (A) Complete any one of following activities: ( 3 )**

i) $x = 5$ *is a root of the equation* $k_2$ - 14x - 5 = 0. Complete the following activity to find the value of k. Activity to find the value of k.

Activity : 5 is the root of the equation k$x2 - 14x - 5 = 0$

Substitute $x =$ ☐ in the equation.

$\therefore$ k ☐ $^2$ -14 ☐ -5 = 0

$\therefore$ 25k - 70 - 5 =0

$\therefore$ 25k - ☐ =0

$\therefore$ 25k = ☐

$\therefore$ k = ☐ / ☐ =3

ii) The six faces of a die are marked A B C D E O.
The event M is getting a vowel on the upper face of a die when it is tossed. Complete the following acitivity to find the probability of the event.

S={☐} , $\therefore$ n(s) =☐

M={☐}, $\therefore$ n(M) =☐

P(M) =□/□ =□

**Q3(B) Solve any two of following sub-questions ( 6 )**

$i)\ \frac{1}{3x+y} + \frac{1}{3x-y} = \frac{3}{4}\ ; \frac{1}{2(3x+y)} - \frac{1}{2(3x-y)} = \frac{-1}{8}$ . Solve

ii) Smt. Desai sold shares of face value □100 when the market value was □50 and received □4988.20 she paid brokerage 0.2% and GST on brokerage 18% then how many shares did she sell?

iii) Out of 1900km, vishal travelled some distance by bus and some by aeroplane .Bus travels with average speed 60km/hr and the average speed of aeroplane is 700km/hrs. It takes 50 hours to complete the journey .Find the distance vishal travelled by bus.

iv) Observe the following distribution table and find the median number of mangoes.

| Class (Number of mangoes) | Frequency (Number of trees) | Cumulative Frequency (Less than) |
|---|---|---|
| 50-100 | 33 | 33 |
| 100-150 | 30 | 63 |
| 150-200 | 90 | 153 |
| 200-250 | 80 | 233 |
| 250-300 | 17 | 250 |

**Q.4 Solve any two of the following sub question: ( 8 )**

i) A three-digit number is equal to 17 times the sum of the digits. If the digits are reserved the new number is 198 more than the original number. The sum of the extreme digits is 1less than middle digit. Find the original number.

ii) The following frequency distribution table shows the marks obtained by 100 students.

| Marks | 0-20 | 20-40 | 40-60 | 60-80 | 80-100 |
|---|---|---|---|---|---|
| Number of students | 6 | $x$ | 46 | $x$ | 8 |

Find value of x and draw a histogram.

iii) There are six cards in a box each bearing a number from 0 to 5.Find the probability of the following events. The card drawn shows (I) a prime number. (2) a number less than 5 (3) an even number.

**Q.5 Solve any one of following sub questions. ( 3 )**

i) Construct a word problem on quadratic equation so that one answer will be 15 cage, meters, speed, rupee etc.) Solve the problem you have constructed.

ii) Observe the pie diagram, showing the classification of skilled workers. If the number of workers in agriculture is 2800; answer the following question:

1) What is the total number of skilled workers
2) What is the number of skilled workers in the field of construction?
3) How many skilled worker are there in the production sector?

**********Best of Luck**********