TickMark.Ai

Mumbai

Class: EM - CLASS 9   **Subject:** Mathematics - Part 1 (Algebra)   **Time:** 3 hrs

Date: 15-02-2025   **Paper:** Semester 2   **Marks:** 40

Q1(A) Choose the correct answer and write the alphabet of it in front of the subquestion number : **(4)**

(1) What is the mean proportional of 4 and 25 ?

    a) 6   c) 8

    b) 10   d) 12

(2) To find median, data should be or can be arranged in ....

    a) Ascending order   c) Descending order

    b) Both a and b   d) None

(3) A person has earned his income during the financial year 2017-18. Then his assessment year is ....

    a) 2016 - 17   c) 2018 - 19

    b) 2017 - 18   d) 2015 - 16

(4) $2p = p + \dfrac{4}{9}$

    p = ...

    a) 4   c) 9

    b) $\dfrac{4}{9}$ d) 1

(B) Solve the following subquestions : **(4)**

(1) Express the following percentages as ratios in the reduced form.

    52 : 100

(2) The weight (in kg) of 10 students are given below :

    40, 35, 42, 43, 37, 35, 37, 37, 42, 37

    Find the mode of the data.

(3) Observe the information given below. Check and decide, whether the individuals have to pay income tax.

    Individual : Ms. Mehta

    Age : 44

    Taxable Income (rs.) : Rs. 5,82,000

    Will have to pay income tax or not : ?

(4) For the class interval 20-25, write the lower class limit and the upper class limit.

Q2(A) Complete the following activities and rewrite it (any two) : **(4)**

(1) Alka spends 90% of the money that she receives every month, and saves Rs.120. How much money does she get monthly?

    Alka spends _____ of the money and she save = Rs.120

    10% of the money save = _____

    100% of the money = _____

    So Alka get _____ money monthly.

(2) Solve the following simultaneous equations.

    x + y = 11 ; 2x - 3y = 7

    Solution:

$x + y = 11$ ...(1)

$2x - 3y = 7$ ...(2)

By multiplying eq. (1) by 2

$\therefore$ _____   ...(3)

By subtracting eq. (3) from eq. (2)

$2x - 3y = 7$

$2x + 2y = 22$

\-   \-   \-

_____

$\therefore$ y = ____

By substituting y = 3 in eq. (1)

$x + y = 11$

$\therefore x + 3 = 11$

$\therefore x = 11 - 3$

$\therefore x =$ ____

(3) Convert the following ratios into percentages.

37 : 500

Solution:

$\dfrac{37}{500} \times$ _____

= ____

= ____

(B) Solve the following subquestions (any four) :   **(8)**

(1) Nayana spends 40% of the money that she receives everymonth. and saves Rs. 36,000. How much money does she get monthly?

(2) Find the value of Y in the given rquation when x = 1.

8x + 3y = 11

(3) The mean of 25 observations is 27. If one observation is included. The mean still remains 27. Find the included observation.

(4) The proportion of compounds of nitrogen, phosphorous and potassium in certain fertilizer is 18 : 18 : 10. Here compound of nitrogen is 18%, compound of phosphorous is 18% and that of potassium is 10%. Remaining part is of other substances. Find the weight of each of the above compounds in 20 kg of fertilizer.

(5) By equating coefficients of variables, Solve the following equations.

4x + y = 34 ; x + 4y = 16

Q3(A) Complete the following activity and rewrite it (any one) :   **(3)**

(1) Solve the following sets of simultaneous equations.

2y - x = 0 ; 10x + 15y = 105

Solution:

$2y - x = 0$ ...(1)

$10x + 15y = 105$ ...(2)

By multiplying eq. (1) by 10, we get

_____   ...(3)

By Adding eq. (2) and (3)

$15y + 10x = 105$

$+ 20y - 10x = 0$

$35y = 105$

$\therefore y =$ ____

$\therefore y =$ ____

by substituting y = 3 in eq. (1),

2y - x = 0

_____

6 - x = 0

-x = -6

x =____

∴ x = ____ , y = 3

(2) Mr. Manohar gave 20% part of his income to his elder son and 30% part to his younger son. He gave 10% of the balance as donation to a school. He still had Rs.1,80,000 for himself. What was Mr. Manohar's income?

Supposed, Mr. Manohar's income was = x

He gave 20% to his elder son = _____

He gave 30% to younger son = _____

He donated to school (10%) = $\frac{10}{100}$ x $\frac{50x}{100}$ = $\frac{5x}{100}$

Saving = 1,80,000 we know,

Saving = _____

1,80,000 = _____

1,80,000 = x - $\frac{55x}{100}$

1,80,000 = $\frac{45x}{100}$

1,80,000 = $\frac{9x}{20}$

x = _____

x = _____

Total Income of mr.manohar is Rs. 4,50,000.

(B) Solve the following subquestions (any two) :   **(6)**

(1) Mr. Shekhar spends 60% of his income. From the balance he donates Rs. 300 to an orphanage. He is then left with Rs. 3,200. What is his income?

(2) 48 apples are picked up at random from a basket. Their weight (in grams) are recorded as follows:

120, 125, 110, 115, 128, 130, 150, 145, 132, 128, 135, 129, 152, 145, 140, 143,
130, 122, 128, 135, 140, 145, 153, 155, 140, 142, 143, 145, 135, 130, 135, 128,
150, 152, 138, 142, 126, 138, 140, 145, 152, 125, 115, 158, 155, 138, 144, 150.

Prepare a grouped frequency distribution table, taking suitable class intervals.

(3) Three numbers are in continued proportion, whose mean proportional is 12 and the sum of the remaining two numbers is 26, then find these numbers.

(4) The transport by ship from the ports are shown :

Ports	Vishakhapattanam	Chennai	Mumbai	Kandla
Approx. transport	16	18	20	15
Actual transport i. 1994 - 95 ii. 1993- 94	18 18	19.5 18.5	20.2 20	17 15

Q4) Solve the following subquestions (any two) :   **(8)**

(1) Sum of the ages of mother and son is 45 years, If son's age is subtracted from twice of mothers age then we get answer 54. Find the ages of mother's and son.

(2) Mr. Mhatre is 50 years old. His gross total income is Rs. 12,00,000. He has invested in the following amounts in different schemes.

(1) Insurance premium : Rs. 90,000

(2) Investment in provident fund : Rs. 25,000

(3) Investment in PPF : Rs. 15,000

(4) National Savings Certificate : Rs. 20,000

Find out the permissible deductions, taxable income, and the income tax payable.

(3) The following table shows the number of buses and trucks in nearest lakh units. Draw a percentage bar diagram. (Approximate the percentage to the nearest integer.)

Year	Number of trucks	Number of buses
2005-2006	47	9
2007-2008	56	13
2008-2009	60	16
2009-2010	63	18

Q5) Solve the following subquestions (any one) : **(3)**

(1) In a 'tree plantation' project of a certain school, there are 45 students of 'Harit Sena'. The record of saplings planted by each student is given below :

3, 5, 7, 6, 4 , 3, 5, 4, 3, 5, 4, 7, 5, 3, 6, 6, 5, 3, 4, 5, 7, 3,

5, 6, 4, 4, 3, 5, 6, 6, 4, 3, 5, 7, 3, 4, 5, 7, 6, 4, 3, 5, 4, 4, 7

Prepare a grouped frequency distribution table.

(2) Sameera spent 90% of her income and donated 3% for socially useful causes. If she left with Rs.1750 at the end of the month, what was her actual income?

All the Best