Chapter 3 System of linear equation in two variable

UNIT TEST

Duration: 1 hour **Marks: 30**

SECTION A

Each carry 1 mark

1. If a pair of linear equations is consistent, then the lines will be:

a) parallel b) always coincident c) intersecting or coincident d) always intersecting

2. The values of x and y in $\frac{4}{x} + 5y = 7$ and $\frac{3}{x} + 4y = 5$ are

a) $\frac{1}{2}, 1$ b) $\frac{1}{3}, -1$ c) $\frac{1}{3}, 2$ d) $\frac{5}{2}, 3$

3. Two numbers are in the ratio 5:6. If 8 is subtracted from each of the numbers, the ratio becomes 4:5, then the numbers are

a) 25 and 30 b) 40 and 48 c) 30 and 36 d) 45 and 54

4. Assertion: Mukesh has some goats and hens in his shed. Upon counting, Mukesh found that the total number of legs is 112 and the total number of heads is 40. Then the number of hens in shed are 34.

Reason: The linear equations used in assertion are $4x + 2y = 112$ and $x + y = 40$.

(a) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

(b) Both Assertion (A) and Reason (R) are true but Reason (R) is not the correct explanation of Assertion (A).

(c) Assertion (A) is true but Reason (R) is false.

(d) Assertion (A) is false but Reason (R) is true.

SECTION B

Each carry 2 marks

5. There are 10 paise and 25 paise coins in a purse. If there are 60 coins whose value is ₹8.25, find the number of coins of each kind.

6. Solve: $99x + 101y = 499$; $101x + 99y = 501$. Use method of Elimination.

7. Find the value of k for which the system of equations $3x + y = 1$, $(2k – 1)x + (k – 1)y = (2k + 1)$ has no solution (inconsistent).

SECTION C

Each carry 3 marks

8. The denominator of a fraction is 4 more than twice the numerator. When both the numerator and denominator are decreased by 6, then the denominator becomes 12 times the numerator. Determine the fraction.

9. A two-digit number is obtained by either multiplying the sum of its digits by 8 and adding 1 or by multiplying the difference of digits by 13 and adding 2. Find the number. How many such numbers exist?

SECTION D

Each carry 5 marks

10. A train covered a certain distance at a uniform speed. If the train would have been 10 km/h faster, it would have taken 2 hours less than the schedule time. And, if the train were slower by 10 km/hr, it would have taken 3 hours more than the schedule time. Find the distance covered by the train.

11. Five times the age of a man is twelve times the age of his son. 5 years ago, the ratio of their ages was 11:4. Find their present ages.

SECTION E

12. One day Mahima visited a shopping mall with her mother. There, she observed different stores, such as Shoe store, Clothes store, Fruit store etc.

Price List of Shoe Store	
Types of Shoes	Price (₹)
Casual	500
Formal	350
Sports	750

Price List of Cloth Store	
Types of Clothes	Price (₹)
T-Shirt	300
Trouser	600
Blazer	2000

Price List of Fruit Store	
Fruits	Price (₹)
Apple	70 per kg
Orange	40 per kg
Guava	30 per kg

i) Mahima's mother purchased x trousers and y kg oranges for ₹1400. She also purchased x pairs of sport shoes and y kg apple for ₹1850. Write the equations relates x and y? [1 mark]

(Or)

Mahima bought a Blazer and gave eleven notes in denominations of ₹200 and ₹100. Which pair of equations can be used to find the number of ₹200 notes as x and the number of ₹100 notes as y? [1 mark]

ii) Mahima's mother bought 5 kg fruit in which there are oranges and guavas. She paid ₹160. Find the weight of oranges and guavas. [2 marks]

iii) Write the condition of linear equations $a_1x + b_1y + c_1 = 0$ and $a_2x + b_2y + c_2 = 0$ has unique solution. [1 mark]

UNIT TEST

1. c) intersecting or coincident

2. b) $\frac{1}{3}, -1$

3. b) 40 and 48

4. (d) Assertion (A) is false but Reason (R) is true

5. Number of 10 paise coins is 45 and number of 25 paise coins is 15.

6. x = 3; y = 2.

7. k = 2

8. $\frac{7}{18}$

9. 41

10. 600 km.

11. 60 years, 25 years

12. i) 600x + 40y = 1400 and 750x + 70y = 1850
(Or) x + y = 11 and 200x + 100y = 2000
ii) 1 kg and 4 kg
iii) (b)