

QUANTITATIVE SKILLS

Duration: 2 Hours

Total Marks: 60

INSTRUCTIONS:

- I. Figures to the right indicate maximum marks
- II. Start each answer on a fresh page.
- III. All questions are compulsory
- IV. Non scientific, non programmable calculator allowed.

1. Attempt the following:

a. Write a short note on classification of data. [2 Marks]

b. Prepare the cumulative frequency tables of

i. Less than type

[4 Marks]

ii. Greater than type, for the following frequency distribution of 100 workers.

Age(in years)	Number of workers
20-25	3
25-30	9
30-35	15
35-40	25
40-45	23
45-50	12
50-55	10
55-60	3

c. The following data shows the relative breakup of monthly expenditure of three families. Represent the data by percentage bar diagram. [6 Marks]

	Grocery	Clothing	House rent	communication	fuel
Family A	35	15	20	20	10
Family B	30	16	22	12	20
Family C	38	18	13	13	18

OR

x. Draw a multiple bar diagram to represent the following information.

[6 Marks]

Items	Family A	Family B
Food	120	150
Clothing	80	150
Rent	40	100
Miscellaneous	160	200

y. Draw histogram for the following distribution.

[6 Marks]

Life in years	0-10	10-20	20-30	30-40	40-50
No. Of refrigerator	6	11	15	8	3

2. **Attempt the following:**

[4x3=12 Marks]

- a. In a GP $T_4=24$ and $T_7=81$. Find the first term and common ratio.
- b. If sum of three numbers in AP is 27 and their product is 648, find the three numbers.
- c. Find :
 - i. The duplicate ratio of 9:14
 - ii. Triplicate ratio of 4:5

OR

- p. For an AP $T_5=31$ and $T_9=59$. Find T_{20} .
- q. Find sum of first 11 terms of the GP given by $1, \frac{-1}{2}, \frac{1}{4}, \frac{-1}{8}, \dots$
- r. Find the ratio compounded of
 - i. Sub duplicate ratio of 9:25 and sub triplicate ratio of 64:27
 - ii. Ratio of 9:16 and triplicate ratio of 2:3.

3. **Attempt the following:**

[4x3=12 Marks]

- a. Solve the following simultaneous linear equation
 $3x + 4y = 10$ and $2x - 2y = 2$
- b. Aftab tells his daughter “ seven years ago, i was 7 times as old as you were then. Also three years from now, i shall be 3 times as old as you will be”. Find their ages.
- c. What sum of money will amount to Rs. 810 in $2\frac{1}{2}$ years at 5% simple interest?

OR

- p. Solve the following quadratic equation
 $\sqrt{2}x^2 + 7x + 5\sqrt{2} = 0$
- q. The coach of a cricket team buys 3 bats and 6 balls for Rs 3900. Later he buys another bat and 3 more balls for 1600. Find the cost of each bat and ball.

- r. Find the compound interest on Rs 2500 for 36 months at 8% p.a compounded quarterly.

4. Attempt the following:

[4x3=12 Marks]

- a. The sum of n terms of a series 2,5,8,... is 950. Find n.
b. Express the following fractions into percentage
i. $\frac{36}{25}$ ii. $\frac{9}{16}$ iii. $\frac{3}{10}$ iv. $\frac{5}{9}$
c. Find the fourth proportional of (i). 3, 5 and 12 (ii). 16, 24 and 8

OR

- p. Find three numbers in GP such that their sum is 21 and product is 216.
q. Find the present value of an annuity of Rs 1500 payable at the end of 6 months for 6 years if the money worth 8% is compounded semi annually.
r. Convert the decimal fraction into percentage
i. 0.732 ii. 0.007 iii. 8.5 iv. 3.68

5. Attempt the following:

[4x3=12 Marks]

- a. If 5 times the fifth term of an AP is 19 times the 19th term of the AP, show that the 24th term is zero.
b. Find the amount of an ordinary annuity of Rs 7800 p.a for 6 years at the rate of interest 10% per period.
c. What is the difference between ratio and proportion?

OR

- p. The first term of an AP is -15 and last term is 105. If the sum of AP is 1710, find the number of terms.
q. Find the present value of an ordinary annuity of Rs 2500 p.a for 4 years allowing compound interest at 10% p.a.
r. Write the difference between simple interest and compound interest.
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