**Duration: 2 Hours**                                                          **Total Marks: 60**

Instructions: 1) Figures to the right indicate maximum marks.
2) All questions are compulsory
3) Non- scientific calculator is allowed

Q1. a) Explain Percentage bar diagram. Draw percentage bar diagram for each family in the following data:

(6 marks)

| Family | Food | Cloth | Rent | Misc. |
|--------|------|-------|------|-------|
| A1 | 25 | 130 | 120 | 25 |
| A2 | 20 | 100 | 130 | 50 |

b) Explain multiple bar diagram. Also, draw multiple bar diagram for each class inthe following data:

(6 marks)

| Marks / Class | 2nd | 1st | Distinction |
|---------------|-----|-----|-------------|
| V – VIII | 35 | 21 | 10 |
| IX – X | 25 | 38 | 15 |
| XI - XII | 31 | 41 | 8 |

**OR**

Q. 1. x) Explain subdivided bar diagram. Also, draw subdivided bar diagram for each year in the following data:

(6 marks)

| No. of / In year | Men | Women | Children |
|------------------|-----|-------|----------|
| 1966 | 45 | 35 | 20 |
| 1971 | 44 | 34 | 22 |
| 1976 | 48 | 36 | 16 |
| 1977 | 50 | 40 | 10 |

y) Draw pie diagram for the following data:

(6 marks)

| Items | Expenditure |
|-------|-------------|
| Food | 240 |
| Clothing | 66 |
| Rent | 125 |
| Fuel | 57 |
| Education | 42 |
| Miscellaneous | 190 |

Q2. a) The sum of four numbers in A.P. is 32 and the sum of their square is 276. Find the numbers.

(6 marks)

b) In G.P. sum of 4 terms is 200 and sum of $1^{st}$ and last term is 140. Find the 4 numbers.

(6 marks)

**OR**

x) The sum of 3 numbers in G.P. is 42 and product is 178. Find the numbers. (6 marks)

y) Divide 20 in 4 parts which are in A.P. such that the ratio of product of $2^{nd}$ and $3^{rd}$ term to the $1^{st}$ and $4^{th}$ term is 3:2. Find the numbers. (6 marks)

Q3. a) Sum of n terms of A.P. series 7, 11, 15,……. Is 297. Find n, $S_{20}$ and $t_{20}$. (6 marks)

b) Using formula method, solve the quadratic equation: $\frac{1}{x-4} - \frac{1}{x-7} = \frac{11}{30}$ (6 marks)

OR

x) i) Insert 5 numbers between 8 and 26 such that resulting series is in A.P. (3 marks)

ii) Insert 2 numbers between 1 and 64 such that resulting series is in G.P. (3 marks)

y) Check whether the solution exist or not. If yes, find the solution to it using elimination method:
$2x + 3y = 11$ and $2x - 4y = -24$. (6 marks)

Q4. a) Find the amount of annuity of Rs. 40,000 /- payable at the end of each year for 6 years at 8% p.a.
i) Compounded quarterly    ii) Compounded semi – annually    (6 marks)

b) The simple interest on a certain sum for 1.5 years at 12% p.a. is Rs. 60 less than the simple interest on the same sum for 3 years at 10% p.a. find the sum (6 marks)

OR

x) A sum of money amount to 11910.16 in 1 ½ years at 12% p.a. the interest being compounded semi - annually and annually. Find the difference between the sum. (6 marks)

y) What will the compounded interest on Rs. 1000 per 20 years at rate 5% p.a.? How much would the simple interest on the same principle for the same period? And what is the difference between simple interest amount and compound interest amount? (6 marks)

Q5. a) For the following data draw the histogram and frequency polygon:          (6 marks)

| Wages (in Rs.) | No. workers |
|---|---|
| 40 – 45 | 10 |
| 45 – 50 | 13 |
| 50 – 55 | 18 |
| 55      – 60 | 20 |
| 60 – 65 | 11 |
| 65      - 70 | 8 |

b) Ashu purchase 180 dozens of eggs at Rs. 15.80 per dozen. Out of which 60 eggs are broken in transportation. He sells remaining eggs at Rs. 18 per dozen. If makes profit or loss? Find its percentage.          (6 marks)

**OR**

x) For the following data draw " less than " and " more than " Ogive curve:   (6 marks)

| Class - Interval | Frequency |
|---|---|
| 20 – 30 | 5 |
| 30 – 40 | 10 |
| 40 – 50 | 15 |
| 50 – 60 | 17 |
| 60 – 70 | 20 |
| 70      – 80 | 5 |

y) 3 numbers whose sum is 18 are in the A.P. if 2, 4, 11 are added to them respectively the resulting number are in G.P. find the numbers.          (6 marks)