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SARDAR PATEL UNIVERSITY
FY BBA (II SEM.) (IB) (CBCS) EXAMINATION
Saturday, 2nd April 2016
02:30 pm to 04:30 pm
UM02CBBB06: Business Statistics

Total Marks: 60

Note: Graph papers should be provided on request.

- Q1 A Distinguish between primary and secondary data. [4]
B The mean marks in statistics of 100 students in a class were 72. The mean of marks of boys was 75, while their number was 70. Find the mean marks of girls in the class. [5]
C From the following information find missing frequencies if given that the mean is 1.46. [6]

| | | | | | | | |
|---|----|---|---|----|----|---|-------|
| x | 0 | 1 | 2 | 3 | 4 | 5 | Total |
| f | 46 | ? | ? | 25 | 10 | 5 | 200 |

OR

- Q1 A Define Statistics and write its scopes. [4]
B From the prices of shares of X and Y given below, state which share is more stable in value. [5]

| | | | | | | | | | | |
|---------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Share A | 55 | 54 | 52 | 53 | 56 | 58 | 52 | 50 | 51 | 49 |
| Share B | 108 | 107 | 105 | 105 | 106 | 107 | 104 | 103 | 104 | 101 |

- C From the following information : [6]
Factory average wages(weekly) SD no. of wage earners
A 34.5 5.0 476
B 28.5 4.5 524
Determine
(1) Which factory A or B pays out larger amount as weekly wages?
(2) What is the average wages of all workers in both factories together?
(3) Find the coefficient of variation for both the factories & interpret it?

- Q2 A What do you mean by LPP? Write its limitations. [4]
B Two products A and B are to be manufactured by a firm. Each of these products required processing on two machines M1 & M2. Product A required 5 hrs on machine M1 & 6 hrs on machine M2. Product B required 7 hrs on machine M1 & 2 hrs on machine M2. The available capacity per month is 120 hrs & 100 hrs for machine M1 & M2 respectively. The Profits per unit is Rs.10 & Rs.5 on product A & B respectively. Formulate the problem as a lpp. [5]
C Solve the following lpp by graphical method [6]
Max $Z = 70x + 100y$
Subject to $3x + 4y \leq 2100$; $4x + 3y \leq 2100$; $x \leq 450$; $y \leq 450$
 $x, y \geq 0$

OR

- Q2 A Define Operation research. State its characteristics. [4]
B Two products P1 & P2 are to be manufactured by a firm. Profits on p1 & p2 are Rs.30 & Rs.20 respectively. The products are to be processed on [5]

two machines first on milling machine & other on surface grinder. The capacities & the time required to produce a unit are as follow:

| | P1 | P2 | Capacity |
|-----------------|---------|--------|--------------------|
| Milling machine | 3 hours | 1 hour | 1500 man hrs/month |
| Surface grinder | 1 hour | 1 hour | 1000 man hrs/month |

Formulate the problem as a lpp.

- C Solve the following lpp by graphical method [6]
 Min $Z = 5000x + 7000y$
 Subject to $10x + 12y \geq 500$; $20x + 12y \geq 600$; $20x + 40y \geq 1400$
 $x, y \geq 0$
- Q3 A Describe the transportation problem with its general form. [6]
 B Solve the TP by (1)North-West Corner and [9]
 (2) Vogel's Approximation Method.

| | D | E | F | G | supply |
|--------|----|----|----|----|--------|
| A | 19 | 30 | 50 | 10 | 50 |
| B | 70 | 30 | 40 | 60 | 90 |
| C | 40 | 8 | 70 | 20 | 60 |
| demand | 50 | 60 | 50 | 40 | 200 |

OR

- Q3 A Discuss the assignment problem with its general form. [6]
 B Solve the following assignment problem. [9]

| Jobs → workers ↓ | I | II | III | IV |
|---------------------|----|----|-----|----|
| A | 0 | 7 | 14 | 21 |
| B | 12 | 17 | 22 | 27 |
| C | 12 | 17 | 22 | 27 |
| D | 18 | 22 | 26 | 30 |

- Q4 A Define time series. Write it's propose of analysis. [6]
 B Determine trend for the following by 3 year moving average method. [9]
 Years: 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000
 Prices: 120 122 124 126 225 224 334 444 333 111 222

OR

- Q4 A Discuss any one component of time series in brief. [6]
 B Find the seasonal variations by simple average method for the following : [9]

| years | Q1 | Q2 | Q3 | Q4 |
|-------|----|----|----|----|
| 1992 | 29 | 23 | 34 | 44 |
| 1993 | 23 | 33 | 45 | 35 |
| 1994 | 34 | 43 | 21 | 23 |
| 1995 | 12 | 13 | 11 | 24 |

$$\bar{X} = \bar{X} = \bar{X}$$