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SARDAR PATEL UNIVERSITY
FYBBA(II SEM) (FT) (CBCS)EXAMINATION

Saturday, 22 February 2014
2.30 - 4.30 pm
UM02CBBF04 - Business Statistics

TOTAL MARKS: 60

NOTE: Graph paper will be provided on request.

Q1 A Define statistics and write its limitations. [4]

B Construct a frequency distribution by taking the first class as 5 – 10 for the following: [5]

19	16	22	09	22	12	39	19	14	23
06	24	16	18	07	17	20	25	28	18
10	24	20	21	10	09	18	28	24	20
14	23	25	34	22	05	33	23	26	29
13	36	11	26	11	37	30	13	08	15

C Calculate the mean, median and mode for the following data: [6]

Class :	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
frequencies :	6	5	8	15	7	6

OR

Q1 A Discuss in brief scopes of Statistics. [4]

B Find the missing frequencies for the given data of 200 days when mean is 1. 46 : [5]

Number of Accidents:	0	1	2	3	4	5
Number of days:	46	?	?	25	10	5

C Calculate the mean deviation about mean & coefficient of variation for the following: [6]

x :	0	1	2	3	4	5	6	7
f :	6	5	8	15	7	6	5	4

Q2 A Define linear programming problem and discuss limitations of linear programming. [4]

B A company is manufacturing two different types of products X and Y. Each product [5] has to be processed on two machines M1 and M2. Product X requires 2 hours on machines M1 and 1 hour on machines M2, product Y requires 1 hour on machine M1 and 2 hours machine M2. The available capacity of machine M1 is 104 hours and that of machine M2 is 76 hours. The profit per unit for product X is Rs. 6 and that for product Y Rs.11. Formulate the given problem as an lpp.

C   Solve the following LPP graphically: [6]

Max Z = 3x + 5y

Subject to   5x + 4y ≤ 200

3x + 5y ≤ 150

5x + 4y ≥ 100

8x + 4y ≥ 80

x , y ≥ 0

OR

Q2   A   Discuss various scopes of OR.   [4]

B   Two products A and B are to be manufactured by a firm. Each of these products   [5]
required processing on two machines M1 and M2. Product A required 4 hrs on
machine M1 and 5 hrs on machine M2. Product B required 5 hrs on machine M1 and
2 hrs on machine M2. The available capacity per month is 100 hrs and 80 hrs for
machine M1 and M2. The Profits per unit is Rs.10 and Rs.5 on product A and B
respectively. Formulate the given problem as an lpp.

C   Solve the following LPP graphically: [6]

Min Z = x + y

Subject to   5x + 10y ≤ 50

x + y ≥ 2

y ≤ 4

x , y ≥ 0

Q3   A   Discuss transportation problem with its general mathematical formation.   [6]

B   Determine the initial basic feasible solution to the give TP by   [9]
(1) North-West Corner Method and (2)Matrix-Minima Method:

	D1	D2	D3	D4	D5	SUPPLY
O1	4	5	7	9	10	20
O2	3	1	2	6	9	30
O3	8	12	15	30	4	17
O4	3	2	10	13	17	13
DEMAND	40	8	7	19	6	

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Q3 A Discuss Hungarian's method to solve assignment problem. [6]

B Solve the following assignment problem to maximize the profit: [9]

Jobs

Men	J1	J2	J3	J4	J5
M1	5	11	10	12	4
M2	2	4	6	3	5
M3	3	12	5	14	6
M4	6	14	4	11	7
M5	7	9	8	12	5

Q4 A What is time series? Discuss analysis of time series. [5]

B Calculate trend values and STF for the following by taking a four yearly moving [5]
averages by moving average method:
Year: 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994

Profit: 230 214 222 248 238 228 272 256 264 284 268 288 296 280

C Calculate the seasonal indices for the following by simple average method: [5]

Year	Monsoon	Winter	Summer
1997	370	410	330
1998	380	390	360
1999	400	410	330
2000	335	467	405

OR

Q4 A Discuss seasonal variation in detail. [5]

B Calculate trend values and STF for the following by taking a five yearly moving [5]
averages by moving average method:
Year: 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994

Profit: 230 214 222 248 238 228 272 256 264 284 268 288 296 280

C Calculate the seasonal indices for the following by simple average method: [5]

Year	Q1	Q2	Q3	Q4
1997	37	41	33	35
1998	37	39	36	36
1999	40	41	33	31
2000	33	44	40	40
2001	25	36	45	50