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Sub Code: MAM 203

Roll No.

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# MAM

## (SEM-II) THEORY EXAMINATION 2017-18
## BUSINESS STATISTICS

***Time: 3 Hours*** ***Total Marks: 100***

**Note:** Attempt all Sections. If require any missing data; then choose suitably.

### SECTION A

**1. Attempt *all* questions in brief. 2 x 10 = 20**

a. Define Statistics.

b. What is I.Q.R.?

c. What is S.D.?

d. What is Correlation?

e. What is Regression analysis?

f. Define spearmen's Rank Correlation

g. What is L.P.P.?

h. What is the concept of duality?

i. What is T.P.?

j. What is A.P.?

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### SECTION B

**2. Attempt any *three* of the following: 10 x 3 = 30**

a. What is meant by measures of central tendency? Discuss the various measures of central tendency.

b. Calculate the mean, median and mode from the frequency distribution given below :

| Class : | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 |
|---|---|---|---|---|---|---|
| Frequency : | 5 | 15 | 28 | 24 | 17 | 10 |

c. Calculate the coefficient of correlation between birth rate and death rate from the following data:

| **Birth Rate** | 24 | 26 | 32 | 33 | 35 | 30 |
|---|---|---|---|---|---|---|
| **Death Rate** | 15 | 20 | 22 | 24 | 27 | 24 |

d. Solve the following problem by Simplex method :

Max. $Z = 2x_1 + 4x_2$

s.t. $2x_1 + 3x_2 \leq 48$

$x_1 + 3x_2 \leq 42$

e. Describe North-West Corner Rule to obtain an initial feasible solution for a transportation problem.

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## SECTION C

**3. Attempt any *one* part of the following: 10 x 1 = 10**

(a) Calculate Modal value :-

| Class : | 0-5 | 5-10 | 10-15 | 15-20 | 20-25 | 25-30 |
|---|---|---|---|---|---|---|
| Frequency : | 10 | 25 | 50 | 7 | 13 | 5 |

(b) Discuss the various importance and limitations of statistics.

**4. Attempt any *one* part of the following: 10 x 1 = 10**

(a) Discuss the limitations of Regression and Correlation analysis

(b) From the following data obtain two regression lines :-

| x : | 6 | 2 | 10 | 4 | 8 |
|---|---|---|---|---|---|
| y : | 9 | 11 | 5 | 8 | 7 |

**5. Attempt any *one* part of the following: 10 x 1 = 10**

(a) Max. $z = 40x + 35y$

s.t. $2x + 3y \leq 60$

$4x + 3y \leq 96$

$4x + 3.5y \leq 105$

and $x, y \geq 0$

(b) Discuss about the usage and applications of L.P.P. in business decision making.

**6. Attempt any *one* part of the following: 10 x 1 = 10**

(a) Obtain an initial B.F.S. to the following transportation problem using V.A.M.

| | | To | | | |
|---|---|---|---|---|---|
| | | W1 | W2 | W3 | Supply |
| From | F1 | 2 | 7 | 4 | 5 |
| | F2 | 3 | 3 | 1 | 8 |
| | F3 | 5 | 4 | 7 | 7 |
| | F4 | 1 | 6 | 2 | 14 |
| | Demand | 7 | 9 | 18 | 34 |

(b) Discuss Hungarian Method.

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**7. Attempt any *one* part of the following:**

**10 x 1 = 10**

(a) Solve the following minimal assignment problem :

Machine

| | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| A | 1 | 3 | 2 | 3 | 6 |
| B | 2 | 4 | 3 | 1 | 5 |
| C | 5 | 6 | 3 | 4 | 6 |
| D | 3 | 1 | 4 | 2 | 2 |
| E | 1 | 5 | 6 | 5 | 4 |

(b) A group of eight students get the following percentage of marks in statistics and Accountancy. Calculate rank difference coefficient of correlation :-

| Roll No. : | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Statistics: | 50 | 50 | 65 | 70 | 75 | 40 | 70 | 80 |
| Accountancy: | 80 | 71 | 60 | 75 | 90 | 82 | 70 | 50 |

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