

Code: 14E00105

MBA I Semester Supplementary Examinations June/July 2017

BUSINESS STATISTICS

(For students admitted in 2014, 2015 & 2016 only)

Time: 3 hours

Max. Marks: 60

PART - A

(Answer the following: (05 X 10 = 50 Marks))

- 1 Define and explain arithmetic mean and weighted mean. Describe their application in the managerial decision making process.

OR

- 2 Compute sample standard deviation, sample variance and coefficient of variation for the following series:

45 67 117 180 23 29 89 12 200 280

- 3 What do you mean by correlation coefficient? Explain the procedure for computing correlation coefficient using Karl Pearson's method.

OR

- 4 A company is introducing a job evaluation scheme in which all jobs are graded by points for skill, responsibility, and so on. Monthly pay scales (Rs. in 1000's) are then drawn up according to the number of points allocated and other factors such as experience and local conditions. The company has applied this scheme to 9 jobs:

Job	A	B	C	D	E	F	G	H	I
Points	5	25	7	19	10	12	15	28	16
Pay (Rs.)	3.0	5.0	3.25	6.5	5.5	5.6	6.0	7.2	6.1

- (i) Find the least squares regression line for linking pay scales to points.
(ii) Estimate the monthly pay for a job graded by 20 points.

- 5 Distinguish the following:

- (a) Simple event and joint event.
(b) Mutually exclusive events and collectively exhaustive events.
(c) Normal probability distribution and exponential probability distribution.

OR

- 6 ABC is a leading consumer electronics company in India. It has a variety of products such as colour televisions, washing machines, mixers, fax machines, photo copiers etc. The company is in the process of launching a new brand of washing machine and a new brand of fax machines. It conducted a survey to analyze the actual situation in the market and found that 20% of all Indian households have a washing machine and 60% have a fax machine. Suppose 80% of Indian households having a washing machine also have a fax machine. If an Indian household is selected randomly:

- (i) What is the probability that a household has a washing machine and a fax machine?
(ii) What is the probability that a household has a washing machine or a fax machine?
(iii) What is the probability that a household has neither a washing machine nor a fax machine?

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- 7 (a) What do you understand by hypothesis testing?
 (b) What are the steps in hypothesis testing? Explain.

OR

- 8 An automobile manufacturing company wants to launch a new fuel efficient car. For conducting pre-production research, the company has taken random samples from two cities: Nagpur and Nasik. The amount spent on purchasing fuel (in thousand rupees) by 8 families in Nagpur and 10 families in Nasik are given below:

Families→	1	2	3	4	5	6	7	8	9	10
Amount spent on fuel by families in Nagpur	5	6	4	5	6	5	4	5	-	-
Amount spent on fuel by families in Nasik	3	4	3	2	3	4	1	2	3	4

Let $\alpha = 0.05$, use the F test to determine whether there is a significant difference in the variance of the amount spent on the purchase of fuel by families in two different cities.

- 9 Under what circumstances should you use the χ^2 test to determine whether there is a difference between the proportions of two independent populations? Elaborate.

OR

- 10 Using the following contingency table:
 (i) Compute expected frequency for each cell.
 (ii) Compute χ^2 STAT. Is it significance at $\alpha = 0.05$.

	A	B	Total
1	20	30	50
2	30	20	50
Total	50	50	100

SECTION – B

(Compulsory Question)

01 X 10 = 10 Marks

- 11 A corporation owns several companies. The strategic planner for the corporation believes that the amount of money spent on advertising be a predictor of total sales up to some extent. As an aid in long-term planning, he gathers the following sales and advertising information from several of the companies for 2015 (in Rs. crores).

Advertising (in Rs. crores)	Sales (in Rs. crores)
12.5	148
3.7	55
21.6	338
60.0	994
37.6	541
6.1	89
16.8	126
41.2	379

Develop the equation of the simple regression line to predict sales from advertising expenditures using these data.
