

Internal Assessment Test - I

Sub: **BUSINESS STATISTICS AND ANALYTICS**

Code: **18MBA14**

Date: **06-09-2019**

Duration: 90 mins

Max Marks: 50

Sem: I

Branch: MBA

OBE

Marks CO RBT

**Part A - Answer Any Two Full Questions (20\*02=40 Marks)**

1(a) List the different methods of computation of Correlation [03] CO1 L1

(b) Ten competitors in a beauty contest are ranked by three judges in the following orders: [07] CO3 L4

1 <sup>st</sup>	1	6	5	10	3	2	4	9	7	8
2 <sup>nd</sup>	3	5	8	4	7	10	2	1	6	9
3 <sup>rd</sup>	6	4	9	8	1	2	3	10	5	7

Use the correlation coefficient to determine which pair of judges has the nearest approach to common taste in beauty.

(c) The following data are given regarding expenditure on advertising and sales of a particular firm: [5] CO5 L2

	Advertisement Expenditure (X)	Sales (Rs. In Lakhs ) (Y)
Mean	10	90
S.D.	3	12

Correlation coefficient  $r_{xy} = 0.8$ .

Calculate the regression equation of Y on X and X on Y.

Estimate the advertisement expenditure required to attain a sales target of Rs. 120 lakhs.

(d) Calculate five yearly moving averages of number of students studying in a college from the following figures [5] CO2 L3

Year	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
No. of Students	332	317	357	392	402	405	410	427	405	438

2(a) Differentiate between Correlation and Regression [05] CO1 L1

(b) Find both the regression equations from the following: [05] CO2 L2

X = 60	Y = 40	XY = 1150
X <sup>2</sup> = 4160	Y <sup>2</sup> = 1720	N = 10

(c) Explain briefly the various methods of determining trend in a time series [10] CO2 L3

3(a) Calculate rank correlation for the following. [05] CO3 L3

X	68	64	75	50	64	80	75	40	55	64
Y	62	58	68	45	81	60	68	48	50	70

(b) Calculate the Seasonal index for the following data by using the simple average method. [05] CO3 L3

Year	1 quarter	2 quarter	3 Quarter	4 Quarter
1974	72	68	80	70
1975	76	70	82	74
1976	74	66	84	80
1977	76	74	84	78
1978	78	74	86	82

- (c) Fit a Straight line trend by the method of least squares to the following data [10] CO3 L4  
 .Assuming that the same rate of change continues what would be the predicted earnings for the year 1980?

Year	1981	1982	1983	1984	1985	1986	1987	1988
Earnings	38	40	65	72	69	60	87	95

**Part B - Compulsory (01\*10=10marks)**

- 4 (a) Calculate the 3 yearly moving averages of the data given below. Draw a graph to [05] CO5 L4  
 represent the moving averages .Also predict the sale for 1993

Years	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Sales	3	4	8	6	7	11	9	10	14	12

- 4 (b) Calculate Karl Pearson Correlation coefficient from the following data price and [05] CO5 L4  
 demand of certain commodity.

Price	21	22	23	24	25	26	27	28	29
Demand	20	19	19	17	17	16	16	15	14

Course Outcomes		PO1	PO2	PO3	PO4	PO5
CO1:	To make the students learn about the applications of statistical tools and techniques in decision making.	1a,2a				
CO2:	To emphasize the need for statistics and decision models in solving business problems.		1d,2 b,2c			
CO3:	To enhance the knowledge on descriptive and inferential statistics.	1b,3a,3b,3 c				
CO4:	To familiarize the students with analytical package MS Excel.					
CO5:	To develop analytical skills in students in order to comprehend and practice data analysis at different levels.	4a,4b				

Cognitive level	KEYWORDS
L1	list, define, tell, describe, recite, recall, identify, show, label, tabulate, quote, name, who, when, where, etc.
L2	describe, explain, paraphrase, restate, associate, contrast, summarize, differentiate interpret, discuss
L3	calculate, predict, apply, solve, illustrate, use, demonstrate, determine, model, experiment, show, examine, modify
L4	classify, outline, break down, categorize, analyze, diagram, illustrate, infer, select
L5	grade, test, measure, defend, recommend, convince, select, judge, support, conclude, argue, justify, compare, summarize, evaluate
L6	design, formulate, build, invent, create, compose, generate, derive, modify, develop, integrate

**PO1–Theoretical Knowledge; PO2–Effective Communication Skills; PO3–Leadership Qualities;  
 PO4 –Sustained Research Orientation; PO5 –Self-Sustaining Entrepreneurship**

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