MBA-015 **Roll No.** | | | | | | | | | | |

M. B. A.
(SEM I) ODD SEMESTER EXAMINATION 2015-16
BUSINESS STATISTICS

[Time: 3 hrs.] **[Max. Marks: 100]**
Note- ***Attempt All Questions. All Questions carry equal marks*:-**

1.Attempt any four of the following: **(5x4=20)**

a) "Index numbers are economic barometers." Comment.
b) Discuss merits and demerits of median as a measure of central tendency.
c) Write short note on Poisson distribution.
d) "Statistics is the science of averages." Comment.
e) Differentiate between correlation and regression.
f) Define 'sampling distribution' and 'standard error'.

2 Attempt any two of the following: **(10x2=20)**

a. "Statistics is a body of method for making wise decisions in the face of uncertainty." Comment on the statement bringing out its scope in various fields.

b. Find arithmetic mean and S.D. from the following data. Also find coefficient of variation

Age (less than)	10	20	30	40	50	60	70	80
No. of persons	15	30	50	75	100	110	115	125

c. Find Karl person's coefficient to skewness from the following frequency distribution

Height (in inches)	60-62	63-65	66-68	69-71	72-74
Frequency	5	18	62	27	8

3. Attempt any two of the following: **(10x2=20)**

a. The following tables shows the Arithmetic mean and standard deviation of the Advertising Expenditure (X) and sales of the company (Y) for the year 2001-2002

Statistical Measures	Advertising Expenditure (X) (Rs. Lakhs)	Sales (Y) (Rs, Lakhs)
Arithmetic Mean	20	100
Standard Deviation	3	12
Coefficient of correlation between X and Y =+0.8		
• Find the equations of two lines of regression. • What would be the expected sales of the company if the advertising expenditure is Rs. 32 lakhs.		

b. What is a time series? Discuss the components of time series with suitable examples.

c. Calculate Laspeyrs's and Paasche's price indices for the year 2000 from the following data.

Prove that both the formulae do not satisfy the Time Reversal Test.

Commodity	Price (Rs.)		Quantity (kgs)	
	1999	2000	1999	2000
A	2.0	2.50	3	5
B	2.5	3.00	4	6
C	3.0	2.50	2	3
D	1.0	0.75	1	2

4. Attempt any two of the following: (10x2=20)

a. The personnel department of IBM is doing a study about job satisfaction. A random sample of 375 employees was given a test designed to diagnose the level of job satisfaction. Each employee's salary was also recorded in the table below. Use an appropriate significances test to determine if salary and job satisfaction are independent at 5% level of significance.

Salary verses Job Satisfaction

Satisfaction	Under $50000	$ 50000-$75000	Over $ 75000	Total
High	50	30	20	80
Medium	100	85	30	215
Low	45	20	15	80
Total	175	135	65	375

b. Four machines A, B, C and D are used to produce a certain kind of cotton fabrics. Samples of size 4 with each unit as 100 square metres are selected from the inputs of the machines at random, and the number of flaws is each 100 square metres are counted with the following result.

A	B	C	D
8	6	14	20
9	8	12	22
11	10	18	25
12	4	9	23

Do you think that there is a significant difference in the performance of the four machines?

c. Explain the procedure generally followed in testing of a hypothesis.

5. Attempt any two of the following: (10x2=20)

a. The probability that a graduate student being male is 0.25 and that being female is 0.75. The probability that a male student passes the course is 0.7 and that a female student does it is 0.80. A student selected at random is found to have completed the course. What is the probability that the student is (i) male (ii) female?

b. How many workers have a salary between Rs. 4000 and Rs. 6500, if the arithmetic mean is Rs. 5000, standard deviation is Rs. 1000 and number of worker is 15,000. If the salary of the worker is assumed to follow the normal law?

c. Define Binomial distribution. Point out its chief characteristics and uses.