www.aktuonline.com

Printed pages: 02 **Sub Code: NMBA015**

Paper Id: | 7 | 0 | 3 | 9 | **Roll No.** | | | | | | | | | | |

MBA
(SEM I) THEORY EXAMINATION 2017-18
BUSINESS STATISTICS

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

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x10 = 20

a. What is data? Give two examples of primary and secondary data.
b. For a given series, the mean is found to be 54.5. The median of the same series is 55. Find the mode.
c. Define skewness & Kurtosis.
d. What are Index Numbers and their various types?
e. Find the mean of the first 10 even natural numbers.
f. $r = 0.8$, $\Sigma xy = 60$, $\sigma_y = 2.5$ and $\Sigma x^2 = 90$ where x and y are the deviations from the respective means. Find the number of items.
g. What are Regression Lines? Explain Regression Coefficients.
h. Define Probability. What are Mutually Exclusive Events and Independent Events?
i. If a random variable follows Poisson distribution such that P(x=1) = P(x=2). Find mean & variance.
j. Explain Types of Errors in Hypothesis Testing.

SECTION B

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

a. You are given the following incomplete frequency distribution. It is known that the total frequency is 100 and that the median is 44. Estimate the missing frequencies and find the value of Mode.

Value	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	5	12	-	20	-	10	4

b. For the following data, calculate the price index number of 2016 with 2000 as the base year, using: (a) Laspeyre's Price Index Number, (b) Paasche's Price Index Number, (c) Dorbish and Bowley's Price Index Number, (d) Fisher's Price Index Number

Commodity	2000		2016	
	Price	Quantity	Price	Quantity
A	20	8	40	6
B	50	10	60	5
C	40	15	50	15
D	20	20	20	25

c. Calculate correlation coefficient between exports & imports:-

Exports	42	44	58	55	89	98	66
Imports	56	49	53	58	65	76	58

d. The mean and standard deviation of 50 items were found to be 75 and 10 respectively. At the time of checking, it was found that one item 65 was incorrect. Calculate the mean and standard deviation if the wrong item is omitted.

e. Explain Bayes Theorem with example.

www.aktuonline.com

www.aktuonline.com

SECTION C

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

(a) What are the various definitions of Statistics and its importance? Explain discrete variable and continuous variable with examples.

(b) Calculate Karl Pearson's coefficient of skewness from the following data:

Variable	40-50	50-60	60-70	70-80	80-90	90-100	100-110
Frequency	12	18	34	42	30	16	10

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

(a) What is Time Series Analysis? Explain its various components?

(b) From the following data, compute St. Dev. And Coefficient of Variation:-

Marks	0-10	10-20	20-30	30-40	40-50
No. of Students	6	10	20	9	5

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

(a) There are 4 red and 6 white balls in a bag. Three bags are drawn at random at random one by one with replacement and without replacement. Find out probability in both cases that:- (i) balls are of same color, (ii) balls are of different colors.

(b) You are given the record of daily wages paid to workers in two factories A and B.

Monthly Wages ('000 Rs)		2-3	3-4	4-5	5-6	6-7	7-8	8-9
No. of workers	Factory A	15	30	40	60	30	14	7
	Factory B	25	40	60	35	20	15	5

In which factory, are wages more uniform?

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

(a) Describe the addition and multiplication theorems of probability with example of each.

(b) Find two regression equations for the following data:

X	48	50	53	49	51	55	53	49
Y	36	32	33	38	37	31	35	30

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

(a) What is the major purpose of hypothesis testing? Explain the various steps involved in hypothesis testing.

(b) A public opinion poll surveyed a simple random sample of 1000 voters. Respondents were classified by gender (male or female) and by voting preference (Republican, Democrat, or Independent). Results are shown in the contingency table below.

	Voting Preferences			**Row Total**
	Republican	**Democrat**	**Independent**	
Male	200	150	50	**400**
Female	250	300	50	**600**
Column Total	**450**	**450**	**100**	**1000**

Do the men's voting preferences differ significantly from the women's preferences? (Given the value of χ^2 at 2 degrees of freedom & 5% level of significance = 5.99).

www.aktuonline.com