Printed Pages: 7 **RMB-104/RMT-104**

(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 2289538 Roll No. | | | | | | | | | |

MBA/MBATM

Regular Theory Examination (Odd Sem - I), 2016-17

BUSINESS STATISTICS

Time : 3 Hours *Max. Marks : 100*

Note : 1. Answer all questions from Section - A.

2. Answer any three questions from Section - B.

3. Answer all questions from Section - C using internal choice.

SECTION - A

Write Short Notes on following in not more than 50-75 words. **(8×2.5=20)**

1. a) Differentiate between Median & Mode.

b) How Skewness is used to measure the normality of data?

c) What are Quartiles and their use?

d) How to write equation of Least Square Method?

e) What is Regression?

f) What are characteristics of normal distribution?

g) What are type I errors?

h) What is Chi Square Test of Hypothesis testing?

SECTION - B

Write notes on following in not more than 100 to 200 words. Attempt 3 out of 5. **(3×10=30)**

2. What is sampling? Describe various techniques of sampling.

3. Consignments of 50 calculators contain 8 detective calculators. Two calculators are taken at random from the consignment without replacement what is the probability that :

a) Both are defective.

b) Both are not defective.

4. A random variable x has the following probability distribution.

X :	0	1	2	3	4	5
F(x) :	0.20	0.25	0.10	0.15	0.20	0.10

Find the variance.

5. What are time series? Explain the different components of time series. Discuss any two methods of eliminating trend in a time series.

6. What are index numbers? Discuss the usage of the index numbers. Explain different types of index numbers with examples.

SECTION - C

Attempt all 5 questions using internal choice.

(5×10=50)

7. What is meant by hypothesis? What are the different types of hypothesis? How do you verify whether a hypothesis is true or false? Discuss.

OR

a) State the conditions for applying chi-square test.

b) A die is thrown 132 times. The results are as follows:

Number turned up:	1	2	3	4	5	6
Frequency :	76	20	25	14	29	28

Apply the chi-square test to find whether the die is unbiased or not.

8. Explain the procedure involved in fitting Binomial and Poisson distributions.

OR

15,000 students appeared for an examination. The mean marks were 49 and the standard deviation was 6 marks. Assuming the marks to be normally distributed, what proportion of students scored more than 55 marks?

9. The following data relate to the annual cement production of a factory.

Year	Production (in m. tons)
2010	12
2011	10
2012	14
2013	11
2014	13
2015	15
2016	16

Fit a trend line by the method of least squares and estimate the production for the year 2017.

OR

The following table gives the frequency distribution of expenditure on education per family among middle class families in two cities.

Expenditure (in thousand Rs.)	No. of Families	
	City 'A'	City 'B'
3 - 6	28	39

6 - 9	292	284
9 - 12	389	401
12 - 15	212	202
15 - 18	59	48
18 - 21	18	21
21 - 24	2	5

a) Find the standard deviation of the expenditure at both cities.

b) Find out which of the city shows greater variability.

10. Write notes on :

a) Properties of Correlation.

b) Difference between Binomial and Poisson distribution.

OR

Write notes on :

a) Parametric tests of Hypothesis testing.

b) Non-Parametric tests of Hypothesis testing.

11. The heights (in centimeters) and weight (in kilograms) of 10 basketball players on a team are :

Height (X)	186	189	190	192	193	193	198	201	203	205
Weight (Y)	85	85	86	90	87	91	93	103	100	101

Calculate :

a) The regression line of y on x.

b) The coefficient of correlation.

c) The estimated weight of a player who measures 208 cm.

OR

A group of 50 individuals has been surveyed on the number of hours devoted each day to sleeping and watching TV. The responses are summarized in the following table :

No. of sleeping hours (x)	6	7	8	9	10
No. of hours of television (y)	4	3	3	2	1
Absolute frequencies (f_i)	3	16	20	10	1

a) Calculate the correlation coefficient.

b) Determine the equation of the regression line of y on x.

d) If a person sleeps eight hours, how many hours of TV are they expected to.