



BRAINWARE UNIVERSITY

Course –BBA / BCOM

Business Statistics (BBA204 / BBAC204 / BCM203 / BCMC203)

(Semester – 2)

Time allotted: 3 Hours

Full Marks: 70

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group –A

(Multiple Choice Type Question)

10 x 1 = 10

1. *Choose the correct alternative from the following*
 - (i) If mean is 11 and median is 13 then value of mode is
 - a. 15
 - b. 13
 - c. 11
 - d. 17
 - (ii) Increase in the number of patients in the hospital due to heat stroke is:
 - a. Secular trend
 - b. Irregular variation
 - c. Seasonal variation
 - d. Cyclical variation
 - (iii) The variance of a sample of 169 observations equals 576. The standard deviation of the sample equals
 - a. 13
 - b. 24
 - c. 56
 - d. 60
 - (iv) What is the probability of getting 2 heads if two coins are tossed?
 - a. 1
 - b. $\frac{1}{2}$
 - c. 2
 - d. $\frac{1}{4}$
 - (v) A coefficient of correlation is computed to be -0.98 means that
 - a. The relationship between two variables is weak
 - b. The relationship between two variables is strong and positive
 - c. The relationship between two variables is strong but negative
 - d. Correlation coefficient cannot have this value

- (vi) A time series consists of
 - a. short term variations
 - b. long term variations
 - c. irregular
 - d. all of the above
- (vii) The relation between AM, GM and HM for 2 observations is:
 - e. $AM*GM=(HM)^2$
 - f. $GM*HM=(AM)^2$
 - g. $AM*HM=(GM)^2$
 - h. None of the above
- (viii) A list of 5 pulse rates is: 70, 64, 80, 74, and 92. What is the median for this list?
 - a. 92
 - b. 74
 - c. 80
 - d. 70
- (ix) If the scatter diagram is drawn the scatter points lie on a straight line then it indicate
 - a. Skewness
 - b. Perfect Correlation
 - c. No correlation
 - d. None of the above
- (x) If X and Y are independent to each other, the coefficient of correlation is
 - a. 1
 - b. -1
 - c. 0
 - d. ∞

Group – B

(Short Answer Type Questions)

3 x 5 = 15

Answer any *three* from the following

- 2. The average marks obtained in an examination by two groups of students was found to be 75 and 85 respectively. Determine the ratio of students in the two groups, if the average mark for all students was 80. [5]
- 3. Construct *Fisher's ideal index number* for the following data: [5]

Commodity	1960		1980	
	Price	Quantity	Price	Quantity
A	8	6	12	5
B	10	5	11	6
C	7	8	8	5

4. A batch contains 10 articles of which 4 are defective. If 3 articles are chosen at random, what is the probability that none of them is defective? [5]

5. A bag contains 8 white and 6 black balls. If 5 balls are drawn at random, what is the probability that 3 are white and 2 black? [5]

6. From the following data calculate the 3-yearly moving average and determine the trend values. [5]

Group – C

(Long Answer Type Questions)

3 x 15 = 45

Answer any *three* from the following

7. (a) Calculate *Quartile Deviation* from the following frequency distribution

Weight	6-9	10-13	14-17	18-21	22-25	26-29	30-33
Frequency	2	10	5	3	5	8	4

[7]

- (b) Find *the missing frequencies* in the following frequency distribution if the mean is 50.25 and the total no of students in the class is 80.

Marks (%)	25	35	45	55	65	75	85
No of students	7	23	X	15	10	Y	5

[8]

8. (a) In the following table are recorded data showing the test scores made by 10 salesmen on an intelligence test and their weekly sales. Calculate *Spearman's rank correlation coefficient* between intelligence and efficiency in salesmanship.

Salesman	1	2	3	4	5	6	7	8	9	10
Test Score	50	70	55	60	80	85	90	92	64	72
Sales	25	60	45	50	55	20	75	30	48	62

[7]

- (b) Fit a *straight line trend* from the following data and estimate the value for the year 2011.

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009
Value	10	12	15	10	14	17	15	14	15

[8]

9. (a) A market trader sells ball point pens in his stall. He sells the pens for different fixed price, Rs x in different 6 weeks. He notes the number of pens, y that he sells in each of these 6 weeks. The results are shown in the following table. Calculate the *equation of regression line of y on x* . Also calculate the value of y when $x = 40$.

x	10	15	20	25	30	35
y	68	60	55	48	38	32

[8]

- (b) With *what characteristic component of time series* should each of the following be associated?
- Fire loss in a factory
 - General increase in sale of TV sets
 - An era of prosperity
 - The rainfall that occurred in Kolkata for 4 days in January, 1981.
 - Increase in garment sales in October
 - Decrease of death rate due to the advancement of medical science
 - Daily closing stock prices

[7]

10. (a) Two dice are thrown simultaneously and the points on the dice are multiplied together. Find the *probability* that the product is 12.

[7]

- (b) A bag contains 6 white and 4 black balls. One ball is drawn. What is the *probability* that it is black?

[4]

- (c) Five men in a company of 20 are graduates. If 3 men are picked out of the 20 at random, what is the *probability* that they are all graduates? What is the probability of at least one graduate?

[4]

11. (a) What is Index Number? What are the types of Index Number? Write the uses of it.

[2+4+2]

- (b) What is Binomial Distribution? Write the properties of Binomial Distribution.

[2+5]