

**BRAINWARE UNIVERSITY**

Course – BBA

Business Statistics (BBAC 204)

(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 Questions)

1. Choose the correct answer from the given alternatives:**10x1=10**

- i) A list of 5 pulse rates is: 70, 64, 80, 74, 92. What is the median for this list?
a) 74 b) 76 c) 77 d) 80
- ii) Which one of these statistics is unaffected by outliers?
a) Mean b) Interquartile range c) Range d) Standard Deviation
- iii) A Card is selected from a pack of 52 cards. Find the probability that it is a red king.
a) 2/13 b) 1/13 c) 5/13 d) 8/13
- iv) Quartiles, median, percentiles and deciles are measures of central tendency classified as
a) paired average b) deviation averages c) positioned averages d) central averages
- v) arithmetic mean is 12 and number of observations are 20 then sum of all values is
a) 8 b) 32 c) 240 d) 1.667
- vi) In quartiles, central tendency median to be measured must lie in
a) first quartile b) second quartile c) third quartile d) four quartile
- vii) A coefficient of correlation is computed to be -0.05 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 and but negative
d) Correlation coefficient cannot have this value
- viii) If the Pearson correlation co-efficient R is equal to 1 then:
a) There is no relationship between the two variables.
b) There is a positive relationship between the two variables.
c) There is a perfect positive relationship between the two variables.
d) There is a negative relationship between the two variables.
- ix) The strength (degree) of the correlation between a set of independent variables X and a dependent variable Y is measured by
a) Coefficient of Correlation b) Coefficient of Determination
c) Standard error of estimate d) All of the above

- x) A coefficient of correlation is computed to be -0.05 means that
- The relationship between two variables is weak
 - The relationship between two variables is strong and positive
 - The relationship between two variables is strong and but negative
 - Correlation coefficient cannot have this value

Group – B

(Short Answer Type Question)

3 x 5 = 15

Answer any three questions

2. From the following data calculate the 4-yearly moving average and determine the trend values.

Year	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967
Value	50	36.5	43	44.5	38.9	38.1	32.6	41.7	41.1	33.8

3. Find out the missing frequencies of the following data, given that AM is 67.45 inches.

Height	60-62	63-65	66-68	69-71	72-74	Total
No. of students	5	18	X	Y	8	100

4. From some financial statistics it is found that the monthly average Electricity Charges was Rs 2460 and SD is Rs 120. The monthly average of Direct Wages was Rs 42,000 and SD Rs 1,200. State which is the more variable with proper reasons.

5. Determine the Correlation Coefficient between x and y and state the relation between them:

x	5	7	9	11	13	15
y	1.7	2.4	2.8	3.4	3.7	4.4

6. State whether the correlation will be positive or negative in the following cases:
- Age and Income
 - Speed of an automobile and the distance required to stop the car after applying breaks.
 - Sale of woollen garments and day temperature.
 - Sale of cold drinks and day-temperature
 - Shoe size and intelligence.

Group – C

(Long Answer Type Question)

3 x 15 = 45

Answer any three questions

7. a) 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?
- b) 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?

- c) Two cards are drawn from a full pack of 52 cards. Find the probability that
- both are red cards.
 - one is heart and the other is diamond.

[5+5+5]

8. a) In the following table are recorded data showing the test scores made by 10 salesman on an intelligence test and their weekly sales:

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

Calculate Spearman's rank correlation coefficient between intelligence and efficiency in salesmanship.

- b) Calculate the price index number using Fisher's formula for the following data:

COMMODITY	1973		1984	
	PRICE	QUANTITY	PRICE	QUANTITY
A	6	70	8	120
B	8	90	10	100
C	12	140	16	280

[7+8]

9. a) What are the components of Time Series? Explain with suitable examples.
 b) What is Index Number? Write the uses of it.
 c) Write the properties of Binomial Distribution.

[5+5+5]

10. a) Calculate Semi-interquartile range from the following frequency distribution:

Weight (kg)	6-9	10-13	14-17	18-21
Frequency	2	10	5	3

- b) If there are two variables in the observations prove that $AM \cdot HM = GM^2$
 c) 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.

[6+3+6]

11. a) What are the components of Time Series? Explain with suitable examples.
 b) What is Index Number? Write the uses of it.
 c) Write the properties of Binomial Distribution.

[5+5+5]