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Brainware University
398, Ramkrishnapur Road, Barasat
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BRAINWARE UNIVERSITY

Term End Examination 2023

Programme – BBA-2018/BBA-2019/BBA(HM)-2019/BBA-2020/BBA(HM)-2020/BBA-2021/BBA(HM)-2021/BBA(DM)-2021/BBA-2022/BBA(DM)-2022

Course Name – Statistics for Business Decisions

Course Code - BBAD010404/BBAC102/BBAHMC102/BBADMC102
(Semester I)

Full Marks : 60

Time : 2:30 Hours

[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)

1 x 15=15

1. Choose the correct alternative from the following :

(i) Identify which one of these is NOT a measure of dispersion?

- | | |
|----------|------------------------|
| a) Range | b) Standard Deviation |
| c) Mean | d) Interquartile Range |

(ii) Select which of these important index numbers are regularly used to depict the state of the industrial development of the economy.

- | | |
|--------------------------------|-----------------------------|
| a) Consumer purchasing Index | b) Wholesale goods Index |
| c) Industrial Production Index | d) Indian development index |

(iii) Select the formula that states the probability of P(A or B).

- | | |
|--|-------------------------------|
| a) $P(A) + P(B) - P(A \text{ and } B)$ | b) $P(A \text{ and } B)/P(B)$ |
| c) $P(A) + P(B)$ | d) $P(A).P(B)$ |

(iv) If the correlation coefficient between two variables is a positive value, indicate the sign of the slope of the regression line.

- | | |
|-------------|---------------------|
| a) Positive | b) Negative |
| c) Zero | d) Any of the above |

(v) Identify the limitation(s) of an index number calculated by the simple aggregative method.

- | | |
|--|---|
| a) Equal importance to all items | b) Different items expressed in same unit |
| c) Heavily dependent on the unit in which prices are expressed | d) All of the above |

(vi) Summarize the main objective of Bayes' Theorem

- | | |
|---|--|
| a) Revision of previously calculated probabilities based on new information | b) Finding the probability of joint occurrence of two events |
| c) Calculating the probability of one event if the other doesn't happen | d) Calculate the probability of independent events |

- (vii) Compute the variance from the following data: 2, 3, 4.
a) 0.57 b) 0.67
c) 0.77 d) 0.87
- (viii) If the mean is 64.4 and the variance is 4.84, compute the coefficient of variation.
a) 6.5 b) 7.5
c) 7 d) 8
- (ix) If $x + y = 0$. Compute the Pearson's Correlation Coefficient between x and y .
a) -1 b) 0
c) 1 d) Cannot say from given information
- (x) If Covariance of two variables x and y is -12 and variance of x is 36. Calculate the Regression Coefficient of y on x .
a) $-1/3$ b) 0.33
c) 2 d) -2
- (xi) If $P(B|A) = .5$, $P(A) = .6$ and $P(B) = .4$. Calculate $P(A|B)$.
a) 1.3333333333333333 b) 0.6666666666666666
c) 0.75 d) Cannot be calculated from the information given.
- (xii) When there is a huge difference between base quantities between two periods choose the best Index number among the options.
a) Laspeyer's b) Paasche's
c) Fisher's d) None of the above
- (xiii) Choose the component of time series that represents a regular bump up of sales during festivals every year.
a) Seasonal Component b) Trend Component
c) Cyclical Component d) Irregular Component
- (xiv) If the scatter plot of Y and X looks almost like a perfect straight line, speculate the possible value(s) of the regression coefficient.
a) 1 b) -1
c) a) or b) d) a) only b
- (xv) Speculate the component of time series that best describes a recession.
a) Seasonal Component b) Trend Component
c) Cyclical Component d) Irregular Component

Group-B

(Short Answer Type Questions)

3 x 5=15

2. Discuss pie-chart? Contrast it with a bar chart? (3)
3. (3)
- If $\sum(x_i - \bar{x})(y_i - \bar{y}) = 100$, $Var(x) = 25$ for 10 observations of x, y . Calculate the Regression Coefficient (b) of y on x .
4. Given the following data: 10, 9, 8, 11, 12, 16. Compute the Standard Deviation. (3)
5. Two dice are rolled together. Compute the probability of getting no '6's. (3)
6. Justify the superiority of fitting a trend line using least squares over the moving average method. (3)

OR

- Express the Bayes Theorem in your own words. (3)

Group-C

(Long Answer Type Questions)

5 x 6=30

7. Given the following frequency distribution, draw a histogram and frequency polygon. (5)

Class Boundary	Frequency
10-20	3
20-30	7
30-40	4
40-50	4
50-60	2

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8. Given the following frequency distribution, find out median (5)

Class interval	f_i
0-20	17
20-40	28
40-60	32
60-80	24
80-100	19

9. State the measures of central tendency and examine the applicability of each for the following data types: Nominal, Ordinal, Quantitative. (5)
10. Explain the basic difference between simple and weighted aggregative methods for calculating Index Numbers. (5)
11. Test scores of English and maths are given below. Compute Spearman's Rank correlation coefficient. (5)

English	Maths	Rank-Eng	Rank-Math
56	66	9	4
75	70	3	2
45	40	10	10
71	60	4	7
61	65	6.5	5
64	56	5	9
58	59	8	8
80	77	1	1
76	67	2	3
61	63	6.5	6

12. Compare and contrast the measures of central tendency. (5)

OR

- Compare and contrast the absolute measures of dispersion. (5)
