

Roll No.

Question Booklet Number

O. M. R. Serial No.

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350151

B. B. A. (Second Semester) EXAMINATION, 2022-23

BUSINESS STATISTICS

Paper Code						
B	B	A	2	0	6	N

Time : 1:30 Hours]

Questions Booklet
Series

C

[Maximum Marks : 75

Instructions to the Examinee :

परीक्षार्थियों के लिए निर्देश :

1. Do not open the booklet unless you are asked to do so.
 2. The booklet contains 100 questions. Examinee is required to answer 75 questions in the OMR Answer-Sheet provided and not in the question booklet. All questions carry equal marks.
 3. Examine the Booklet and the OMR Answer-Sheet very carefully before you proceed. Faulty question booklet due to missing or duplicate pages/questions or having any other discrepancy should be got immediately replaced.
1. प्रश्न-पुस्तिका को तब तक न खोलें जब तक आपसे कहा न जाए।
 2. प्रश्न-पुस्तिका में 100 प्रश्न हैं। परीक्षार्थी को 75 प्रश्नों को केवल दी गई OMR आन्सर-शीट पर ही हल करना है, प्रश्न-पुस्तिका पर नहीं। सभी प्रश्नों के अंक समान हैं।
 3. प्रश्नों के उत्तर अंकित करने से पूर्व प्रश्न-पुस्तिका तथा OMR आन्सर-शीट को सावधानीपूर्वक देख लें। दोषपूर्ण प्रश्न-पुस्तिका जिसमें कुछ भाग छपने से छूट गए हों या प्रश्न एक से अधिक बार छप गए हों या उसमें किसी अन्य प्रकार की कमी हो, तो उसे तुरन्त बदल लें।

(Remaining instructions on the last page)

(शेष निर्देश अन्तिम पृष्ठ पर)

1. The percent of the total variation of the dependent variable Y explained by the set of independent variables X is measured by :
 - (A) Coefficient of Correlation
 - (B) Coefficient of Skewness
 - (C) Coefficient of Determination
 - (D) Standard error
2. The method used to compute average or central value of the collected data is considered as :
 - (A) measures of positive variation
 - (B) measures of central tendency
 - (C) measures of negative skewness
 - (D) measures of negative variation
3. Which index number is called as ideal index number ?
 - (A) Laspeyre
 - (B) Paasches
 - (C) Fisher
 - (D) None of the above
4. Additive and multiplicative time series models are :
 - (A) $Y = T + S + C + I$ and $Y = TSCI$ respectively
 - (B) $Y = TSCI$ and $Y = T + S + C + I$
 - (C) $Y = T + S + C + I$ or $Y = TSCI$
 - (D) None of the above
5. If one of the regression coefficient is greater than unity, the other must be :
 - (A) More than unity
 - (B) Less than unity
 - (C) Unity
 - (D) None of the above
6. A time series consists of :
 - (A) Short-term variations
 - (B) Irregular variations
 - (C) Long-term variations
 - (D) All of the above
7. Graph of variables having linear relation will be :
 - (A) Curved
 - (B) Hyperbola
 - (C) Straight line
 - (D) Vertical line
8. Q_3 is equal to size of item.
 - (A) $(N+1)/4$
 - (B) $3(N+1)/4$
 - (C) $(N+1)*4$
 - (D) $(N+1)/4$
9. divides the distribution into 100 equal parts.
 - (A) Quartile
 - (B) Percentile
 - (C) Median
 - (D) All of the above

10. In case there is no relation between two variables, value of coefficient of correlation will be :
- (A) -2
(B) -1.5
(C) -1
(D) 0
11. If one card is drawn out of 52 playing cards, the probability that it is a queen is :
- (A) $1/26$
(B) $1/13$
(C) $1/52$
(D) $1/4$
12. The probability that M speaks truth is $3/4$ while this probability for N is $4/5$. What is The probability that they contradict each other when asked to speak the truth is :
- (A) $4/5$
(B) $7/20$
(C) $3/20$
(D) $1/5$
13. In a Binomial Distribution, if p , q and n are probability of success, failure and number of trials respectively, then variance is given by
- (A) np
(B) npq
(C) np^2q
(D) npq^2
14. Which of the following is not a property of a binomial experiment ?
- (A) the experiment consists of a sequence of n identical trials.
(B) each outcome can be referred to as a success or a failure.
(C) the probabilities of the two outcomes can change from one trial to the next.
(D) the trials are independent.
15. Which one of the following is a relative measure of dispersion ?
- (A) Standard deviation
(B) Variance
(C) Range
(D) Coefficient of Standard Deviation

16. A single value which is used to represent the entire mass of data is :
- (A) Measure of central tendency
 - (B) Statistics
 - (C) Measure of Dispersion
 - (D) Skewness
17. A statement about a population developed for the purpose of testing is called :
- (A) Hypothesis
 - (B) Hypothesis testing
 - (C) Level of significance
 - (D) Test-statistic
18. Any hypothesis which is tested for the purpose of rejection under the assumption that it is true is called :
- (A) Null hypothesis
 - (B) Alternative hypothesis
 - (C) Statistical hypothesis
 - (D) Composite hypothesis
19. Any statement whose validity is tested on the basis of a sample is called :
- (A) Null hypothesis
 - (B) Alternative hypothesis
 - (C) Statistical hypothesis
 - (D) Simple hypothesis
20. A statement that is accepted if the sample data provide sufficient evidence that the null hypothesis is false is called :
- (A) Simple hypothesis
 - (B) Composite hypothesis
 - (C) Statistical hypothesis
 - (D) Alternative hypothesis
21. The alternative hypothesis is also called :
- (A) Null hypothesis
 - (B) Statistical hypothesis
 - (C) Research hypothesis
 - (D) Simple hypothesis
22. A hypothesis that specifies all the values of parameter is called :
- (A) Simple hypothesis
 - (B) Composite hypothesis
 - (C) Statistical hypothesis
 - (D) None of the above
23. A hypothesis may be classified as :
- (A) Simple
 - (B) Composite
 - (C) Null
 - (D) All of the above
24. The probability of rejecting the null hypothesis, when it is true is called :
- (A) Level of confidence
 - (B) Level of significance
 - (C) Power of the test
 - (D) Difficult to tell

25. Position of median is equal to item.

- (A) $(N+1)/2$
- (B) $(N-1)/2$
- (C) $(N*(N+1))/2$
- (D) None of the above

26. A sampling distribution is the probability distribution for which one of the following ?

- (A) A sample
- (B) A sample statistic
- (C) A population
- (D) A population parameter

27. Individual respondents, focus groups, and panels of respondents are categorised as :

- (A) Primary Data Sources
- (B) Secondary Data Sources
- (C) Itemized Data Sources
- (D) Pointed Data Sources

28. Which statement best describes the relationship between a parameter and a statistic ?

- (A) A parameter has a sampling distribution that can be used to determine what values the statistic is likely to have in repeated samples.

(B) A parameter has a sampling distribution with the statistic as its mean.

(C) A statistic is used to estimate a parameter.

(D) A parameter is used to estimate a statistic.

29. The difference between upper-class limit and lower-class limit is called

- (A) Exponential scale
- (B) Width of class-interval
- (C) Interview
- (D) Statistics in Marketing

30. Two series A and B with equal means have standard deviations 19 and 10 respectively, which series is more consistent ?

- (A) A is more consistent.
- (B) B is more consistent.
- (C) Data insufficient
- (D) None of the above

31. is always equidistant between third quartile and first quartile.

- (A) Mean
- (B) Mode
- (C) Mix
- (D) Median

32. Mean, Median and Mode are equal in a
- (A) Continuous
 - (B) unsymmetrical distribution
 - (C) symmetrical distribution
 - (D) None of the above
33. While calculating the mean of grouped data, what assumption can be made regarding the frequencies of all the classes ?
- (A) Centered at the lower limits of the classes
 - (B) Evenly distributed over
 - (C) Centered at the upper limits of the classes
 - (D) Centered at the class marks of the classes
34. Which of the following cannot be calculated graphically ?
- (A) Mean
 - (B) Median
 - (C) Mode
 - (D) None of the above
35. Construction of a cumulative frequency table is useful in determining the :
- (A) Mean
 - (B) Median
 - (C) Mode
 - (D) All of the above
36. What error occurs when you fail to reject the null hypothesis, when it is false is :
- (A) alpha
 - (B) beta
 - (C) Type I error
 - (D) Type II error
37. A statistic is :
- (A) sample characteristic
 - (B) population characteristic
 - (C) unknown
 - (D) normally distributed
38. The need for inferential statistical methods derives from the need for
- (A) Population
 - (B) Association
 - (C) Sampling
 - (D) Probability
39. In statistics classification includes data according to the time period in which the items under consideration occurred.
- (A) Chronological
 - (B) Alphabetical
 - (C) Geographical
 - (D) Topological

40. The process would be required to ensure that the data is complete and as required.
- (A) Tabulation
 - (B) Analysis
 - (C) Editing
 - (D) Ordering
41. For a symmetrical distribution :
- (A) $\beta_1 > 0$
 - (B) $\beta_1 < 0$
 - (C) $\beta_1 = 0$
 - (D) $\beta_1 = 3$
42. The mean deviation from the median is :
- (A) Equal to that measured from another value.
 - (B) Maximum if all the observations are positive.
 - (C) Greater than that measured from any other value.
 - (D) Less than that measured from any value.
43. What type of line is the above ?
- (A) X on Y
 - (B) Y on X
 - (C) Data insufficient
 - (D) None of the above
44. What is the value of regression coefficient ?
- (A) $b_{xy} = 1.5$
 - (B) $b_{yx} = 1$
 - (C) $b_{xy} = -1.5$
 - (D) $b_{xy} = -1$
45. What is the value of dependent variable if the value of independent variable is 10.
- (A) 12
 - (B) 15
 - (C) 16
 - (D) None of the above
46. In Spearman's Rank Correlation what is 'd' ?
- (A) difference between scores
 - (B) difference between ranks
 - (C) Both (A) and (B)
 - (D) None of the above

47. The standard deviation of a binomial distribution depends on :
- (A) Probability of success
 - (B) Probability of failure
 - (C) Number of trials
 - (D) All of the above
48. Which of the following are features of statistics in a plural sense ?
- (A) Reasonable accuracy
 - (B) Set in relation to one another
 - (C) Predetermined purpose
 - (D) All of the above
49. Which measure of dispersion is independent of frequencies of given distribution
- (A) Range
 - (B) Q. D.
 - (C) S. D.
 - (D) M. D.
50. The median of the observation 11, 12, 14, 18, $x + 4$, 30, 32, 35, 41 arranged in ascending order is 24, then x is :
- (A) 20
 - (B) 22
 - (C) 23
 - (D) 24
51. What is the formula of Karl Pearson's Coefficient of Skewness ?
- (A) $(\text{Mean} - \text{Mode}) / \text{S.D.}$
 - (B) $(\text{Mean} - \text{Median}) / \text{S.D.}$
 - (C) $3(\text{Mean} - \text{Median}) / \text{S.D.}$
 - (D) $2(\text{Mean} + \text{Median}) / \text{S.D.}$
52. The measures of dispersion can never be :
- (A) Positive
 - (B) Zero
 - (C) Negative
 - (D) Equal to 2
53. Which of the following are the limitations of statistics ?
- (A) Study of numerical facts only
 - (B) Study of aggregates only
 - (C) Results are true only on an average
 - (D) All of the above

54. The cumulative frequency for a particular class is equal to 35. The cumulative frequency for the next class will be :
- (A) equal to 65.
 (B) 35 minus the next class frequency.
 (C) less than 35
 (D) 35 plus the next class frequency.
55. What is the modal value for the numbers 4, 3, 8, 15, 4, 3, 6, 3, 15, 3, 4 ?
- (A) 3
 (B) 4
 (C) 6
 (D) 15
56. Which of the following is not an example of the functions of statistics ?
- (A) Intelligence Quotient (IQ)
 (B) Average
 (C) Diagram
 (D) χ^2 -test
57. Non-sampling errors are introduced due to technically faulty observations or during the of data.
- (A) Collection
 (B) Analysis
 (C) Sequencing
 (D) Processing
58. Sampling is simply a process of learning about the on the basis of a sample drawn from it.
- (A) Census
 (B) Population
 (C) Group
 (D) Area
59. Numerical facts are usually subjected to statistical analysis with a view to helping a decision maker make wise decisions in the face of
- (A) Surety
 (B) Uncertainty
 (C) Probability
 (D) Randomness
60. The sum of the squares of the deviations of the variable when taken about arithmetic mean is :
- (A) Maximum
 (B) Zero
 (C) Minimum
 (D) None of the above

61. The measurements of spread or scatter of the individual values around the central point is called :
- (A) Measures of dispersion
 - (B) Measures of skewness
 - (C) Measures of central tendency
 - (D) Measures of kurtosis
62. The method of sampling, in which the choice of sample items depends exclusively on the judgement of the investigator is termed as
- (A) Convenience sampling
 - (B) Quota sampling
 - (C) Systematic sampling
 - (D) Judgement sampling
63. The measures of dispersion can never be :
- (A) Positive
 - (B) Negative
 - (C) Zero
 - (D) equal to 2
64. A sample is formed by selecting one unit at random and then selecting additional units at evenly spaced intervals until the sample has been formed.
- (A) Stratified
 - (B) Systematic
 - (C) Judgement
 - (D) Random
65. The standard deviation is independent of :
- (A) Change of scale
 - (B) Change of origin
 - (C) Change of origin and scale
 - (D) None of the above
66. means separating items according to similar characteristics and grouping them into various classes.
- (A) Tabulation
 - (B) Editing
 - (C) Separation
 - (D) Classification
67. The degree of peakedness or flatness of a unimodal distribution is called :
- (A) Skewness
 - (B) Kurtosis
 - (C) Dispersion
 - (D) Normal distribution
68. The value lying halfway between the upper limit and lower limit of the class is :
- (A) Frequency
 - (B) Mid-point
 - (C) Class interval
 - (D) None of the above

69. The classes in which the lower limit or the upper limit is not specified are known as :
- (A) Open-ended classes
 - (B) Close-ended classes
 - (C) Inclusive classes
 - (D) Exclusive classes
70. Standard deviation is always computed from :
- (A) Mean
 - (B) Median
 - (C) Mode
 - (D) Geometric mean
71. The process would be required to ensure that the data is complete and as required.
- (A) Ordering
 - (B) Tabulation
 - (C) Analysis
 - (D) Editing
72. The first step in tabulation is :
- (A) Footnote
 - (B) Source note
 - (C) Captions
 - (D) Classification
73. Correlation analysis is a
- (A) Univariate analysis
 - (B) Bivariate analysis
 - (C) Multivariate analysis
 - (D) Both Bivariate and Multivariate analysis
74. An example of bar diagram is :
- (A) Pictogram
 - (B) Subdivided diagram
 - (C) Line diagrams
 - (D) Pie diagram
75. The point of intersection of two regression lines is :
- (A) (0, 0)
 - (B) (1, 1)
 - (C) (x, y)
 - (D) $(\bar{x}, \bar{y})$
76. The median of a frequency distribution is found graphically with the help of :
- (A) Histogram
 - (B) Frequency curve
 - (C) Frequency polygon
 - (D) Ogive
77. The measure of central tendency of a statistical data which takes into account all the data :
- (A) Median
 - (B) Mean
 - (C) Mode
 - (D) Range

78. The standard deviation for 15, 22, 27, 11, 9, 21, 14, 9 is :
- (A) 6.22
(B) 6.12
(C) 6.04
(D) 6.32
79. If the two regression coefficients are $b_{yx} = -0.4$ and $b_{xy} = -0.16$, then the value of correlation coefficient (r) is :
- (A) 0.6
(B) 0.8
(C) -0.6
(D) -0.8
80. The median of the data : 19, 25, 59, 48, 35, 31, 30, 32, 51. If 25 is replaced by 52, what will be the new median ?
- (A) 35
(B) 32
(C) 30
(D) 31
81. Two unbiased coins are tossed simultaneously. The probability of getting a head and a tail is :
- (A) $1/4$
(B) $1/2$
(C) 1
(D) $3/4$
82. If two events are independent, then :
- (A) they must be mutually exclusive.
(B) the sum of their probabilities must be equal to one.
(C) their intersection must be zero.
(D) None of the above alternatives is correct.
83. The mean of five observations 5, 10, 15, 20, 25 is :
- (A) 19
(B) 16
(C) 17
(D) 15
84. If two regression equations $x + 5y = 13$ and $3x - 2y = 5$, then the mean values of x and y are respectively :
- (A) (2, 3)
(B) (3, 2)
(C) (4, 5)
(D) (5, 4)
85. The A. M. of first n natural numbers is 6. The value of n is :
- (A) 12
(B) 9
(C) 11
(D) 16

86. If there is a very strong correlation between two variables, then the correlation coefficient must be :
- any value larger than 1.
 - much smaller than 0, if the correlation is negative.
 - much larger than 0, regardless of whether the correlation is negative or positive.
 - None of the above alternatives is correct.
87. For two mutually exclusive events A and B, $P(A \cup B)$ is equal to :
- $P(A) - P(B)$
 - $P(A) + P(B)$
 - $\frac{1}{2} [P(A) + P(B)]$
 - $P(A) \times P(B)$
88. The Arithmetic Mean for the series 2, 6, 5, 7, 9, 4, 2 is :
- 7
 - 4
 - 5
 - 6
89. The Standard Deviation for two observations is :
- square of their difference.
 - half of their absolute difference
 - their absolute difference
 - twice of their absolute difference
90. If the correlation coefficient is a positive value, then the slope of the regression line :
- must also be positive
 - can be either negative or positive
 - can be zero
 - cannot be zero
91. The coefficient of skewness of a distribution is 0.4. Its S.D. and Mean are respectively 8 and 30. The mode of the distribution is :
- 26
 - 26.2
 - 26.4
 - 26.8
92. The mode for the series 2, 5, 7, 6, 3, 7, 4, 7, 9, 2 is :
- 6
 - 2
 - 7
 - 9

93. Which average is affected most by the presence of extreme items ?
- (A) Median
 - (B) Mode
 - (C) Arithmetic mean
 - (D) None of the above
94. For a symmetric distribution, skewness is :
- (A) 0
 - (B) 1
 - (C) -1
 - (D) 0.5
95. The value of the correlation coefficient lies between :
- (A) 0 and 1
 - (B) -1 and 1
 - (C) -1 and 0
 - (D) -0.5 and 0.5
96. If $y = 3x + 30$ and mean of x is 20, then the mean of y is :
- (A) 90
 - (B) 80
 - (C) 70
 - (D) 100
97. If the odds against an event 3 : 5, the probability of that event is :
- (A) $3/8$
 - (B) $5/8$
 - (C) $2/3$
 - (D) $1/3$
98. If $r = \pm 1$, then two regression lines are
- (A) Coincident
 - (B) Parallel
 - (C) Perpendicular to each other
 - (D) None of the above
99. What are the method of collecting Primary Data ?
- (A) Interview
 - (B) Observation
 - (C) Questionnaire
 - (D) All of the above
100. If b_{xy} and b_{yx} are two regression coefficients, they have :
- (A) Same signs
 - (B) Opposite signs
 - (C) Either (A) or (B)
 - (D) None of the above

4. Four alternative answers are mentioned for each question as—A, B, C & D in the booklet. The candidate has to choose the correct answer and mark the same in the OMR Answer-Sheet as per the direction :

Example :

Question :

- Q. 1 (A) ● (C) (D)
Q. 2 (A) (B) ● (D)
Q. 3 (A) ● (C) (D)

Illegible answers with cutting and over-writing or half filled circle will be cancelled.

5. Each question carries equal marks. Marks will be awarded according to the number of correct answers you have.
6. All answers are to be given on OMR Answer sheet only. Answers given anywhere other than the place specified in the answer sheet will not be considered valid.
7. Before writing anything on the OMR Answer Sheet, all the instructions given in it should be read carefully.
8. After the completion of the examination candidates should leave the examination hall only after providing their OMR Answer Sheet to the invigilator. Candidate can carry their Question Booklet.
9. There will be no negative marking.
10. Rough work, if any, should be done on the blank pages provided for the purpose in the booklet.
11. To bring and use of log-book, calculator, pager and cellular phone in examination hall is prohibited.
12. In case of any difference found in English and Hindi version of the question, the English version of the question will be held authentic.

Impt. : On opening the question booklet, first check that all the pages of the question booklet are printed properly. If there is any discrepancy in the question Booklet, then after showing it to the invigilator, get another question Booklet of the same series.

4. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार सम्भावित उत्तर—A, B, C एवं D हैं। परीक्षार्थी को उन चारों विकल्पों में से सही उत्तर छोटना है। उत्तर को OMR आन्सर-शीट में सम्बन्धित प्रश्न संख्या में निम्न प्रकार भरना है :

उदाहरण :

प्रश्न :

- प्रश्न 1 (A) ● (C) (D)
प्रश्न 2 (A) (B) ● (D)
प्रश्न 3 (A) ● (C) (D)

अपठनीय उत्तर या ऐसे उत्तर जिन्हें काटा या बदला गया है, या गोले में आधा भरकर दिया गया, उन्हें निरस्त कर दिया जाएगा।

5. प्रत्येक प्रश्न के अंक समान हैं। आपके जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।
6. सभी उत्तर केवल ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर ही दिये जाने हैं। उत्तर-पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।
7. ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाये।
8. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी OMR Answer Sheet उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें। परीक्षार्थी अपने साथ प्रश्न-पुस्तिका ले जा सकते हैं।
9. निगेटिव मार्किंग नहीं है।
10. कोई भी रफ कार्य, प्रश्न-पुस्तिका के अन्त में, रफ-कार्य के लिए दिए खाली पेज पर ही किया जाना चाहिए।
11. परीक्षा-कक्ष में लॉग-बुक, कैलकुलेटर, पेजर तथा सेल्युलर फोन ले जाना तथा उसका उपयोग करना वर्जित है।
12. प्रश्न के हिन्दी एवं अंग्रेजी रूपान्तरण में भिन्नता होने की दशा में प्रश्न का अंग्रेजी रूपान्तरण ही मान्य होगा।

महत्वपूर्ण : प्रश्नपुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्न-पुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्षनिरीक्षक को दिखाकर उसी सिरीज की दूसरी प्रश्न-पुस्तिका प्राप्त कर लें।