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24-0003-AB3 TEST BOOKLET

Time Allowed: 2 hours

PAPER – II

Maximum Marks: 100

INSTRUCTIONS TO CANDIDATES

***Read the instructions carefully before answering the questions*: -**

1. This Test Booklet consists of **12 (twelve) pages** and has **50 (fifty) items (questions).**
2. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS BOOKLET ***DOES NOT*** HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
3. **Please note that it is the candidate's responsibility to fill in the Roll Number and other required details carefully and without any omission or discrepancy at the appropriate places in the OMR Answer Sheet. Any omission/discrepancy will render the OMR Answer Sheet liable for rejection.**
4. Do not write anything else on the OMR Answer Sheet except the required information. Before you proceed to mark in the OMR Answer Sheet, please ensure that you have filled in the required particulars as per given instructions.
5. Use **only Black Ball Point Pen** to fill the OMR Answer Sheet.
6. This Test Booklet **consist of Multiple Choice-based Questions.** The answers to these questions have to be marked in the **OMR Answer Sheet** provided to you.
7. Each item (question) **comprises of 04 (four) responses (answers).** You are required to select the response which you want to mark on the OMR Answer Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose ***ONLY ONE*** response for each item.
8. After you have completed filling in all your responses on the OMR Answer Sheet and the Answer Booklet(s) and the examination has concluded, you should hand over to the Invigilator ***only the OMR Answer Sheet and the Answer Booklet(s)***. You are permitted to take the Test Booklet with you.
9. **Penalty for wrong answers in Multiple Choice-based Questions:**
   THERE WIL BE **PENALTY** FOR WRONG ANSWERS MARKED BY A CANDIDATE.
   (i) There are four alternatives for the answer to every question. For each question for which a wrong answer has been given by the candidate, **one-third** of the marks assigned to the question will be deducted as penalty.
   (ii) If a candidate gives more than one answer, it will be treated as a **wrong answer** even if one of the given answers happens to be correct and there will be same penalty as above to the question.
   (iii) If a question is left blank. i.e., no answer is given by the candidate, there will be **no penalty** for that question.

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Choose the correct answer for the following questions: **(2x50=100)**

1. The control charts and procedures of descriptive statistics which are used to enhance a procedure can be classified into which of these categories?

   (a) Behavioural tools
   (b) Serial tools
   (c) Industry statistics
   (d) Statistical tools

2. What are the variables whose calculation is done according to the weight, height, and length known as?

   (a) Flowchart variables
   (b) Discrete variables
   (c) Continuous variables
   (d) Measuring variables

3. The range of data is the:

   (a) Difference between the highest and lowest values
   (b) Average of the data
   (c) Number of values in the data set
   (d) Most frequent value in the data set

4. Reviews of performance appraisal, labour turnover rates, planning of incentives and training programs are the examples of which of the following?

   (a) Statistics in production
   (b) Statistics in marketing
   (c) Statistics in finance
   (d) Statistics in personnel management

5. Which of the following values is used as a summary measure for a sample, such as a sample mean?

   (a) Population parameter
   (b) Sample parameter
   (c) Sample statistic
   (d) Population mean

6. To which of the following options do individual respondents, focus groups, and panels of respondents belong?

   (a) Primary data sources
   (b) Secondary data sources
   (c) Itemised data sources
   (d) Pointed data sources

7. Which of the following is a branch of statistics?

   (a) Descriptive statistics
   (b) Inferential statistics
   (c) Industry statistics
   (d) Both A and B

8. Which of the following can also be represented as sample statistics?

   (a) Lowercase Greek letters
   (b) Roman letters
   (c) Associated Roman alphabets
   (d) Uppercase Greek letters

9. Which of the following is not a step in the presentation of data?

   (a) Tabulating the data
   (b) Pictures
   (c) Mapping the data
   (d) Presenting the data in a table

10. In a frequency distribution, the mode is:

    (a) The most frequent value
    (b) The median value
    (c) The smallest value
    (d) The largest value

11. The concept that the probability of two independent events occurring simultaneously is the product of their individual probabilities is known as:

    (a) Addition rule
    (b) Multiplication rule
    (c) Complement rule
    (d) Conditional probability

12. Which of the following is a measure of dispersion?

    (a) Mean
    (b) Median
    (c) Variance
    (d) Mode

13. The probability of an event that is certain to occur is:

    (a) 1
    (b) 0
    (c) 0.5
    (d) -1

14. Which of the following is not a characteristic of a good sampling design?

(a) It should be representative of the population.
(b) It should be unbiased.
(c) It should be efficient.
(d) It should be inexpensive.

15. In a standard normal distribution, what is the mean and standard deviation?

(a) Mean = 1, Standard deviation = 0
(b) Mean = 0, Standard deviation = 1
(c) Mean = 0, Standard deviation = 0
(d) Mean = 1, Standard deviation = 1

16. The value that separates the lower 50% from the upper 50% of data in a data set is the:

(a) Range
(b) Median
(c) Mode
(d) Mean

17. If two events are mutually exclusive, then the probability of both events occurring is:

(a) 1
(b) 0
(c) 0.5
(d) 2

18. If the median of a data set is less than the mean, the data is:

(a) Positively skewed
(b) Negatively skewed
(c) Symmetric
(d) Not enough information to determine

19. A sample space that contains an exhaustive list of all possible outcomes is:

(a) Random sample
(b) Simple random sample
(c) Mutually exclusive sample
(d) Complete sample space

20. The arithmetic mean of a set of values is the:

(a) Most frequently occurring value
(b) Mid-value of the data set
(c) Sum of all values divided by the number of values
(d) Highest value in the data set

21. A z-score represents:

(a) The number of standard deviations a value is from the mean
(b) The average value in a data set
(c) The highest value in a data set
(d) The range of values in a data set

22. Which of the following ***is not*** a measure of dispersion?

(a) Range
(b) Variance
(c) Standard deviation
(d) Mean

23. Which of the following is not a method of sampling?

(a) Systematic sampling.
(b) Stratified sampling.
(c) Cluster sampling.
(d) Convenience sampling.

24. In a standard normal distribution, what percentage of values lies within one standard deviation from the mean?
(a) 68%
(b) 95%
(c) 99.7%
(d) 50%

25. A distribution in which the mean, median, and mode are all equal is:

(a) Positively skewed
(b) Negatively skewed
(c) Symmetric
(d) Not enough information to determine

26. The median is a measure of:

(a) Central tendency
(b) Variability
(c) Probability
(d) None of the above

27. Which of the following is not a step in the collection of data?

(a) Defining the problem
(b) Collecting the data
(c) Organizing the data
(d) Presenting the data

28. The sum of the probabilities of all possible outcomes in an experiment should be:

(a) Greater than 1
(b) Less than 0
(c) Less than 1
(d) Equal to 1

29. In a standard normal distribution, what percentage of values lies within two standard deviations from the mean?

(a) 68%
(b) 95%
(c) 99.7%
(d) 50%

30. The spread of data around the mean value is measured by:

(a) Variance
(b) Standard deviation
(c) Range
(d) Mode

31. What is the scale applied in statistics, which imparts a difference of magnitude and proportions, is considered as?

(a) Exponential scale
(b) Goodness scale
(c) Ratio scale
(d) Satisfactory scale

32. The runs scored by a batsman in 5 ODIs are 31,97,112, 63, and 12. The standard deviation is-

(a) 24.79
(b) 23.79
(c) 25.79
(d) 26.79

33. When interpreting a coefficient of variation (CV) value, a smaller CV indicates:
(a) Less relative variability
(b) More relative variability
(c) No variability
(d) The dataset is not reliable

34. In statistics, which graphical representation is used to display the relationship between two continuous variables?

(a) Histogram
(b) Scatter plot
(c) Boxplot
(d) Bar graph

35. What is the probability of rolling a dice and getting an even number?

(a) 1/6
(b) 1/2
(c) 2/3
(d) 1/3

36. What is the purpose of the interquartile range (IQR)?

(a) Identifying outliers
(b) Showing the spread of middle 50% of the data
(c) Displaying frequency distributions
(d) Representing cumulative frequencies

37. What does a small p-value indicate in hypothesis testing?

(a) Strong evidence against the null hypothesis
(b) Strong support for the null hypothesis
(c) The test is inconclusive
(d) The test should be repeated

38. What does a correlation coefficient of -1 indicate between two variables?

(a) Perfect positive correlation
(b) Perfect negative correlation
(c) No correlation
(d) Weak positive correlation

39. Specialised processes such as graphical and numerical methods are utilised in which of the following?

(a) Education statistics
(b) Descriptive statistics
(c) Business statistics
(d) Social statistics

40. Which type of data is measured on a continuous scale and has infinite possible values?

(a) Nominal
(b) Ordinal
(c) Interval
(d) Ratio

41. In statistical terms, what does "outlier" mean?

(a) A value that is significantly higher than the mean
(b) A value that is significantly lower than the mean
(c) A value that does not follow the trend of the data
(d) A value that is far from the other values in the dataset

42. Calculate the Pearson's correlation coefficient for two datasets:
Dataset X: 4, 6, 8, 10, 12
Dataset Y: 20, 18, 16, 14, 12

(a) -1
(b) -0.95
(c) 0.95
(d) 1

43. The heights (in inches) of 9 people have a mean of 65 and a variance of 16. If 2 inches are added to each height, what will be the new variance?

(a) 16
(b) 20
(c) 24
(d) 32

44. The ages (in years) of a group of people are normally distributed with a mean of 45 and a standard deviation of 5. What percentage of people are expected to be between the ages of 35 and 55?

(a) 68%
(b) 95%
(c) 99.7%
(d) 84%

45. A dataset has a mean of 55 and a standard deviation of 8. If a value of 63 is added to the dataset, what will be the new standard deviation?

(a) 8
(b) 8.5
(c) 9
(d) 9.5

46. A standard deck of cards contains 52 cards (26 red, 26 black). What is the probability of drawing a black card or a face card?
(a) 13/52
(b) 15/52
(c) 21/52
(d) 26/52

47. In a class, 60% of students play basketball, 40% play football, and 20% play both basketball and football. What is the probability that a randomly chosen student plays at least one of these sports?

(a) 0.80
(b) 0.60
(c) 0.40
(d) 0.20

48. A fair coin is tossed three times. What is the probability of getting at least one head?

(a) 1/4
(b) 3/4
(c) 7/8
(d) 1/8

49. Find the mean absolute deviation (MAD) of the numbers: 5, 9, 11, 14, 18.

(a) 3.2
(b) 3.6
(c) 4.8
(d) 5.2

50. Which method used to examine inflation rate anticipation, unemployment rate, and capacity utilisation to produce products?

(a) Data exporting technique
(b) Data importing technique
(c) Forecasting technique
(d) Data supplying technique