Group A

Attempt all questions:

MCQ [1×30=30]

1. **If mean and standard deviation of a set of data are 25 and 10 respectively, then coefficient of variation of given data set is:**
2. 50%
3. 35%
4. **40%**
5. 15%
6. **In regression line of Y on X, the variable X is known as:**
7. Dependent variable
8. **Independent variable**
9. Explained variable.
10. None of above.
11. **Bayes’ theorem is applied to calculate:**
12. **Conditional probability**
13. Revised probability
14. Joint probability
15. Marginal probability.
16. **Correlation coefficient search for:**
17. **Relationship between two variables.**
18. Effectiveness of two variables.
19. Sufficiency between two variables.
20. None of above.
21. **Coefficient of quartile deviation is given by the formula:**
22. **Value of correlation coefficient lies between:**
23. - ∞ to ∞
24. - ∞ to 1
25. -1 to 1
26. 0 to 1
27. **In regression line Y= a + b X, b is called the:**
28. Slope of the line
29. Intercept of the line
30. Regression coefficient of Y on X.
31. All of above.
32. **Test of hypothesis H0: µ=70 vs H1: µ≠70 leads to:**
33. Left-tailed test
34. Right-tailed test
35. Two-tailed test
36. None of above
37. **It is necessary to find cumulative frequencies in order to draw a/an**
38. Histogram
39. Frequency polygon
40. Ogive curve
41. Frequency curve
42. **Median is a measure of**
43. Positional average.
44. Dispersion.
45. Correlation.
46. Deviation from central value.
47. **A random variable which takes integer values is called:**
48. Discrete random variable.
49. Continuous random variable.
50. Mixed random variable.
51. Qualitative random variable.
52. **Which one of the given measure of dispersion is considered best?**
53. Range.
54. Quartile deviation.
55. Standard deviation.
56. Mean deviation.
57. **Given that P(B)= 0.4 and P(A∩B)=0.2, probability P( ) is equal to**
58. 0.4
59. 0.7
60. 0.5
61. 0.15
62. **With help of histogram we can prepare:**
63. Frequency curve
64. Ogive curve
65. Pie chart
66. Line
67. **Parameter of poison probability distribution is:**
68. Mode
69. Standard deviation
70. Mean per unit time
71. variance
72. **Binomial probability distribution refers to:**
73. Continuous probability distribution
74. Discrete probability distribution
75. Mixed probability distribution
76. All of above.
77. **Independent events are those events which are:**
78. Related with each-other.
79. Not occur simultaneously.
80. Complimentary to each-other.
81. Not related with each-other.
82. **Variance of binomial distribution is equal to:**
83. np
84. npq
85. nq
86. p+q
87. **Hypothesis of no significance difference between true parameter and hypothesized parameter refers to:**
88. Alternative hypothesis
89. Estimation
90. Null hypothesis
91. Probability distribution
92. **The probability of the intersection of two mutually exclusive events is always:**
93. Infinity
94. Zero
95. One
96. None of above
97. **If A and B are two events, the probability of at least one of them can occur is given as:**
98. P (A∩B)
99. P(AB)
100. P(A) P(B)
101. P(A ∩ )
102. **Which of the following relations among the location parameters does not hold?**
103. Q2=median
104. P50=median
105. D5=median
106. D6=median
107. **Student’s t-test is applicable when:**
108. The sample size is less than 30 and population sd is unknown.
109. The sample size is more than 30 and population sd is unknown.
110. The sample size is less than 30 and population sd is known.
111. The sample size is more than 30 and population sd is known.
112. **Formula for determine sample size(n) is given by:**
113. **Coefficient of determination in regression analysis measures:**
114. Variation in independent variable due to dependent variables.
115. Variation in dependent variable due to independent variables.
116. Association between two variables.
117. Independency of two variables.
118. **Whether a test is one-tailed or two-tailed depends on:**
119. Null hypothesis
120. Alternative hypothesis
121. Simple hypothesis
122. Composite hypothesis
123. **Parameters are those measure which describes the characteristics of:**

a) Population

b) Sample

c) A formula

d) None of above

1. **Standard error of sample mean measures**
2. Deviation of observations.
3. Deviation of sample means.
4. Average of observations.
5. Average of sample means
6. **In regression line Y= a + b X, Y is called the:**
7. Independent variable.
8. Constant term.
9. Dependent variable.
10. Slope of line.
11. **Confidence interval of sample mean is given by:**
12. Z× SE(
13. SE(
14. Z
15. Z× SE(

Group B

Short answer questions:

Attempt any six questions [5×6=30]

1. The probability that a new airport will get an award for its design is 0.16, the probability that will get an award for the efficient use of material is 0.24 and the probability that it will get both awards is 0.11. What is the probability that
   1. It will get at least one of the two awards.
   2. It will get only one of two awards.
2. An analysis of monthly wages paid to the workers in two company X and Y gives the following results:

Firm X Firm Y

Number of worker: 45 50

Average monthly wages in $: 100 120

Variance of distribution of wage: 49 36

1. Which company, X or Y, has a large wage bill?
2. In which company, X or Y is there grater variability in wage?
3. Calculate combined mean wage of company X and Y.
4. c
5. If the probability of recovery from a certain disease is 0.2 and 10 people came down with the disease, what is the probability that i) Two of them will recover? ii) At least one will recover?
6. At a checkout counter customers arrive at an average number of 1.5 per minute. Find the probability that:
7. at most four will arrive in any given minute
8. at least 3 will arrive during an interval 2 minutes.
9. In a test administered to1000 students, the average score was 55 and standard deviation 15. Find
   1. The number of students exceeding a score 75.
   2. The number of students lying between 46 and 86.
   3. The probability that student get mark less than 40.
10. A random sample of 90 students is drawn from a certain campus and their weight showed a mean of 55 kg and a standard deviation of 5 kg.
11. Find standard error of sample means.
12. Construct a 95% confidence interval of mean weight of all students of the campus.
13. The breaking strengths of cable produced by a manufacturer have mean 200 N and standard deviation 50 N. by a new technique in the manufacturing process, it is claimed that the breaking strength can be increased. To test this claim a sample of 45 cables is tested and it is found that mean breaking strength is 220 N. Can we support the claim at α=0.05?

Group C

Long answer questions:

Attempt any two questions [20×2=20]

1. Below is given five-year data on money supply and domestic credit for Nepal. Both variables are in thousands of rupees.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year | 1971 | 1992 | 1993 | 1994 | 1995 |
| Domestic credit | 18 | 21 | 25 | 26 | 27 |
| Money supply | 10 | 12 | 15 | 16 | 20 |

* 1. Develop the estimation linear equation to predict Domestic credit from money supply.
  2. How do you interpret a slope of the regression line?
  3. Compute and interpret the standard error of estimate.
  4. Compute correlation coefficient between domestic credit and money supply.
  5. Predict domestic credit when money supply is 14.
  6. What percent of the total variation in domestic credit is explained by money supply?

1. From the following distribution of wage of 250 workers in a factory, find
2. Mean wage of the distribution
3. Median wage of the distribution
4. The percentage of workers getting wage more than 75.
5. Construct histogram and locate mode.
6. Coefficient of quartile deviation.
7. the minimum wage of 25% of richest workers.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Wage | 0-20 | 20-40 | 40-50 | 50-60 | 60-80 | 80-100 |
| No. of workers | 50 | 100 | 150 | 90 | 60 | 50 |

1. Price of shares of a company on a different day in a year were found to be in Rs 66,65,69,70,69,71,70,63,64 and 68.
2. Compute sample mean share and sample standard deviation.
3. Compute standard error of estimate.
4. Construct 95% confidence limits for mean share.
5. In the light above that, test the hypothesis that the mean share of a company is 68 at α=5%.