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Question Paper Code : 70161

M.B.A. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019
First Semester
BA 5106 – STATISTICS FOR MANAGEMENT
(Regulations 2017)

Time : Three Hours | Maximum : 100 Marks

Statistical table may be provided

Answer ALL questions

PART – A **(10×2=20 Marks)**

1. Define Probability as mathematical function.
2. Differentiate independent and mutually exclusive events.
3. What is meant by sampling distribution ?
4. Define Population Estimation.
5. What do you mean by hypothesis ?
6. Classify the parametric and nonparametric tests.
7. Write the formula for Chi-square test of standard deviation.
8. Give an example for run test.
9. Define standard error.
10. How do you infer if $R^2 = 0.9$?

PART – B **(5×13=65 Marks)**

11. a) Two food delivery services "S" and "Z" have 1000 orders and 500 orders respectively per day in a city. Both have some miss-delivery of 1% and 2% per day. In a typical day if a food is ordered by a customer, then

    i) What is the probability that the delivery is missing ?

    ii) If the delivery was missing, what is the probability that the customer has ordered through "S" ?

(OR)

b) A cable TV operator collects monthly charge Rs. 300 as an average and standard deviation of Rs. 100. Monthly charge will vary by normal distribution since it depends on the choices of package by customer. If a household is chosen at random, what is the probability that the customer pays

i) Below Rs. 200

ii) Rs. 200-400

iii) Above Rs. 400

12. a) Explain the use of central limit theorem.

(OR)

b) How do you find confidential intervals of population mean in both large sample and small sample case ?

13. a) A social experiment shows that in a group 20% people are ready to sell their votes for money when they are offered a small amount. In another group, 40% people are ready to sell their votes when they are offered huge sum money. In both the cases, 1000 members each were participated. Test at 5% level of significance (Two-sided) that there is a difference two proportions.

(OR)

b) A time management training session shows improvement in employees biometric punching by 5 min, 10 min, 2 min and 3 mins as sample. Test the hypothesis that the improvement is 0 min (i.e. no improvement) using a t test at 5% (against one-sided alternate).

14. a) Write steps in Chi-square test for Goodness of fit with example.

(OR)

b) Explain the steps in Kruskal-Wallis test.

15. a) Find the Karl Pearson correlation between the following data :

Sale of Sunscreen Rs. Lakhs	12	18	36	14	29	21	7	13	10
Sale of Ice cream Rs. Lakhs	120	180	360	140	290	210	70	130	100

(OR)

b) The following table gives the data for electricity supplied to industries and agriculture and the demand for electric motors in a certain region of the country for six years.

Electric supply Mega Watt	10	15	20	22	24
Demand for electric motors (Thousand H.P.)	12	16	20	22	25

i) Find the regression equation on supply of electricity. **(10)**

ii) Estimate the demand of electric motors when supply is 50 megawatt. **(3)**

PART – C (1×15=15 Marks)

16. a) A manufacturer has found that 0.1% of production process has defects. In a day, 100 customers bought 1000 units each as lots. If a customer finds a defect in the lot, they may complaint. How many customers may come and complaint in a day ? What is the right method for this problem and why ?

(OR)

b) A researcher wants to find the association between the Personality type and Employee Performance and 400 employees are classified as given below. Apply appropriate method to analyze and interpret.

Personality	Low Performer	Medium	High Performer
Type A	20	80	100
Type B	120	30	50