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12MBA13

First Semester MBA Degree Examination, Dec.2015/Jan.2016
Quantitative Methods - I

Time: 3 hrs.

Max. Marks:100

Note: *1. Answer any THREE full questions from Q.No.1 to 6.*
2. Q.No.7 and 8 are compulsory.
3. Statistical tables may be permitted.

1 a. What do you mean by a research design? (03 Marks)
   b. Write down the chief merits of telephone interviews. (07 Marks)
   c. Briefly describe the different steps involved in a research process. (10 Marks)

2 a. Write any three measurement scales in research. (03 Marks)
   b. Find the missing frequency from the following data

Marks :	0 – 10	10 – 20	20 – 30	30 – 40	40 – 50	50 – 60
No of Students :	5	15	20	-	20	10

The arithmetic mean is 34 marks. (07 Marks)
   c. From the following table calculate the coefficient of correlation by Karl Pearson's method.

X :	6	2	10	4	8
Y :	9	11	?	8	7

Arithmetic means of X and Y series are 6 and 8 respectively. (10 Marks)

3 a. Write three of the most important way of classifying correlation. (03 Marks)
   b. The incidence of occupational disease in an industry is such that the workmen have 20% chance of suffering from it. What is the probability that out of six workmen, 4 or more will contract disease? (07 Marks)
   c. In an experiment on immunization of cattle from tuberculosis, the following results were obtained

	Affected	Not Affected
Inoculated	140	30
No Inoculated	60	20

Calculate χ^2 and discuss the effect of vaccine in controlling susceptibility to tuberculosis (5% value of χ^2 for one degree of freedom = 3.84). (10 Marks)

4 a. What do you mean by convenience sampling? (05 Marks)
   b. What do you mean by secondary data? What are the characteristics to be seen before using it? (05 Marks)
   c. A project yields an average cashflow of Rs.500 Lakhs with a standard deviation of Rs. 60 Lakhs. Calculate the following probabilities.
      i) Cash flow will be more than Rs 560 Lakhs
      ii) Cash flow will be less than Rs 420 Lakhs
      iii) Cash flow will be between Rs 460 Lakhs and Rs 540 Lakhs
      iv) Cash flow will be more than Rs 680 Lakhs. (10 Marks)

5 a. You are working as a purchase manager for a company. The following information has been supplied to you by two manufactures of electric bulbs:

	Company A	Company B
Mean life (In Hours)	1300	1248
Standard deviations (In Hours)	82	93
Sample size	100	100

Which brand of bulbs are you going to purchase if you desire to take a risk of 5%?

(05 Marks)

b. From the following calculate the coefficient of variation.
Karl Pearson's coefficient of Skewness = 0.42
Arithmetic mean = 86   Median = 80.   **(05 Marks)**

c. A research company summarized advertising expenditure and sales results as follows ;

	Adv. Exp (Rs. in crore)	Sales (Rs. in crore)
Mean	20	200
S.D	18	17

Karl Pearson's Correlation Coeff. (r) = 0.6
Derive two regression equations.   **(10 Marks)**

6 a. Goals scored by two teams in a Football match were as follows :

No of Goals scored in a Foot Ball Match	No of Football Matches Played	
	Team 'A'	Team 'B'
0	15	20
1	10	10
2	07	05
3	05	04
4	03	02
5	02	01

Calculate CV and state which team is more consistent.   **(10 Marks)**

b. To study the performance of three detergents and three different water temperatures, the following 'Whiteness' Readings were obtained with specially designed equipment :

Water Temp	Detergent A	Detergent B	Detergent C
Cold water	57	55	67
Warm water	49	52	68
Hot water	54	46	58

Perform A two way analysis of variance, using 5% level of significance
(Given F 5% = 6.94)   **(10 Marks)**

7 a. In a particular study of skewness the mean value arrived at 25 and mode value at 24. Find out the median value for study.   **(05 Marks)**

b. An insurance company wants to test whether three of its field officers A, B and C in a given territory, meet equal number of customers during a given period of time. What test is preferred?   **(05 Marks)**

c. The HR manager of a company wants to find a measure which he can use to fix the monthly income of persons applying for a job in the production department. As an experiment, he collected data on 7 persons from the department. What measure he has to undertake? Illustrate.   **(05 Marks)**

d. What probability model is appropriate to describe a situation where 100 misprints are distributed randomly throughout the 100 pages of a book?   **(05 Marks)**

8 a. A mall in New – Delhi is interested in knowing better ways of providing shopping facilities to the consumers. Draft a questionnaire for survey.   **(10 Marks)**

b. What is a hypothesis? Write the characteristics of hypothesis.   **(10 Marks)**

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