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SF-246

February – March 2022
M. B. A. (Financial Administration) Examination

I Semester
STATISTICAL ANALYSIS

Time 3 Hours] [Max. Marks 90

Note : Attempt any five questions. Each question carries equal marks.

1. (a) Are statistical methods likely to be of any use to a business firm ? Illustrate your answer with some typical business problems and the statistical techniques to be used there.

   (b) During a period of decline of stock market prices, a stock sold at Rs. 50 per share on day one, Rs. 40 on the next day and Rs. 25 on the third day.
   (i) If an investor bought 100, 120 and 180 shares on the three respective days, find the average price paid per share.
   (ii) If an investor bought Rs. 1,000 worth of shares on each of the three days, find the average price paid per share.

2. Write short notes on the following :
   (a) Measures of Dispersion.
   (b) Mutually Exclusive Events.
   (c) Sample Space.
   (d) Conditional Probability.
   (e) Spearman's Correlation Coefficient.
   (f) Large Sample and Small Sample Test.

3. A finance company dealing in consumer finances out-sources dealership support services. The firm which provides this support employs 100 people on an average monthly salary of Rs. 4,000 with an incentive of 0.5% on such sales for which customers avail finances. It is found that the amount of monthly incentive is normally distributed with mean Rs. 5,000 and S. D. Rs. 1,500.
   Calculate :
   (a) The minimum and maximum amount of monthly income.
   (b) What is the minimum and maximum amount of monthly incentive earned by the middle 50% of the employees ?
   (c) What is the maximum amount of monthly incentive earned by the lowest paid 15% employees ?
   (d) What is the minimum amount of monthly incentive earned by highest paid 10% employees ?

4. (a) What is Time Series ? What are the objectives of Time Series Analysis ? Why do we need to separate out the trend movements from the periodic fluctuations ? Explain.

   (b) The production data of a factory (in tonnes) for the past 10 years are given below :

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Production	75	86	98	90	96	108	124	140	150	165

   Fit a straight line trend and tabulate the trend value. What is the expected production in 2018 on the basis of the trend ?

5. The following table gives the distribution of items, relative defectives and size of groups. Find the Correlation Coefficient between size and defect in quality :

Size – group	15–16	16–17	17–18	18–19	19–20	20–21
No. of items	200	270	340	360	400	300
No. of defective items	150	162	170	180	180	120

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6. The equation of two lines of regression obtained in Correlation Analysis are as follows :

$2x = 8 - 3y$ and $2y = 5 - x$

A student obtains mean values as :

$\bar{x} = 2, \bar{y} = 1$ and $r = 0.866$

Do you agree with him ?

7. (a) Explain the difference between One Tail and Two Tail Test.

(b) Explain the difference between Parametric and Non-Parametric Test.

(c) A big auto ltd has advertised in a newspaper as follows "There are many motor cycle manufacturers in India, but 30% of the users who use motor cycles are our customers." Other manufacturers complained to the authority challenging the validity of claim. Before acting on the complaint, it must decide about the truth of the claim. A random sample of 150 users selected. It finds that 39 users are customers of that big auto ltd. Should the claim of big auto ltd be accepted at 1% level of significance ?

8 (a) What is Decision Under Risk ? Discuss the steps to obtain expected monetary value and state its significance

(b) Calculate the expected opportunity loss from the following pay-off table and hence decide which act is to be selected :

Events	Acts			
	A	B	C	D
S_1	50	20	-10	-20
S_2	120	50	200	300
S_3	200	240	400	350

The probabilities of the events are 0.2, 0.5 and 0.3 respectively.
