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560

I Semester M.B.A. Examination, February 2019

(CBCS Scheme)

Management

Paper – 1.4 : STATISTICS FOR MANAGEMENT

Time : 3 Hours

Max. Marks : 70

Instructions : 1) Calculators and appropriate statistical tables are **allowed**.
2) **Provide** the graph sheet.

SECTION – A

Answer **any five** questions. Each question carries **five** marks. (5×5=25)

1. Explain the importance of statistics in management.
2. Write short notes on :
a) Null hypothesis
b) Alternative hypothesis
c) Type I and Type II error.
3. A bag contains 5 white and 6 red marbles. Another bag contains 4 white and 7 red marbles. Two marbles are drawn from the selected bag. What is the probability that selected bag contains (a) white marbles (b) one white and one red marble.
4. Fit a linear trend for the following data and forecast for the next two years (A graph is necessary).

Year	2012	2013	2014	2015	2016	2017
Sale of sugar '000 kgs	80	90	92	94	96	98
5. Derive Chi-square statistic by stating suitable null and alternative hypothesis. Use 1% level of significance.

The data given below is regarding in favour of against and indifferent to a National Policy on FDI.

Occupation	Favour of	Against	Indifferent
Social workers	80	30	10
Lawyers	70	60	20
University students	60	60	40

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6. Calculate Karl Pearson's and Bowley's coefficient of skewness for the marks obtained by students of 2 institutions.

Measure	Institution A	Institution B
Mean	65	70
Standard deviation	10	14
Middle quartile	65	64
Third quartile	87	102
First quartile	28	35

7. The average height of 1000 students are normally distributed. Its mean is 72 inches and standard deviation is 2 feet. Find
- The number of students whose height is more than 68 inches.
 - The number of students whose height will be between 5.5 feet and 6.25 feet.

SECTION – B

Answer **any three** questions. Each question carries **10 marks**. (3×10=30)

8. What is non parametric test ? Explain the different types of test used in the statistical analysis.
9. Calculate the ideal index and test for the time reversal and factor reversal test for the following data.

Commodity	2017		2018	
	Price	Expenditure	Price	Expenditure
A	30	1350	22	990
B	32	1344	24	840
C	30	1200	25	1200
D	35	2100	27	1161
E	36	900	28	1036



10. An investment company speculates about the relationship between family incomes and their allocation for investments. A survey of 8 randomly selected families gives the following data.

Annual Income in '000 Rs.	:	18	21	19	34	23	30	36	39
Percent allocation for investment	:	28	36	32	40	35	55	60	70

- Develop the regression equations to describe the data.
 - What could be the percentage of income allocated to investment by a family earnings Rs. 27,500 per annum ?
11. A businessman from Delhi wishes to sell his products in Bangalore. He can set up a showroom in the city or can sell through a wholesaler. Setting up a showroom will entail cost of Rs. 7,25,000 with a 65% probability of success. If the showroom succeeds, he can get a net profit of Rs. 12,25,000 per year. If it fails, he can either shutdown the showroom or rent it out for an annual rent of Rs. 4,25,000 (for rest of the year). The probability that he gets rent for the showroom is 45%.
- If he sells through a wholesaler, he incurs Rs. 3,25,000 initial costs. The chances of selling successfully are 48% with a net profit of Rs. 6,20,000 per year.
- Advise the businessman on the best decision.
 - How is the decision tree analysis useful in business decision ?

SECTION – C

12. Compulsory :

(1×15=15)

A manufacturer of perfumes wishes to launch a new perfume in 4 different fragrances. Test marketing in 5 different cities has given the following data. Is there a significant difference in the sales figures of the various fragrances ?

	Lavender	Rose	Lily	Daisy
City A	80	100	95	70
City B	82	110	90	75
City C	88	105	100	82
City D	85	115	105	88
City E	75	90	80	65