



PG – 915

I Semester M.B.A. Degree Examination, February 2017
(CBCS)
Management
Paper – 1.4 : STATISTICS FOR MANAGEMENT

Time : 3 Hours

Max. Marks : 70

Instruction : Statistical tables and calculators are ***allowed***.

SECTION – A

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

1. Explain the role of statistics in managerial decision-making. Illustrate with examples.
2. A bowler's scores for six games were 182, 168, 184, 190, 170 and 174. Using these data as a sample, compute the following descriptive statistics.
 - a) Standard Deviation
 - b) Variance
 - c) Coefficient of variation.
3. What is Sampling ? Explain the different methods of sampling.
4. Five students P, Q, R, S and T are given a problem to solve. The probabilities are $\frac{1}{3}, \frac{1}{5}, \frac{1}{6}, \frac{1}{8}$ and $\frac{1}{9}$ of solving the problem. What is the probability that the problem will be solved ?
5. The mean circumference of 1500 shafts manufactured in a company is 15 cm and the deviation from the mean is 3 cm. Assuming normal distribution find out how many shafts have a circumference
 - a) greater than 13 cm
 - b) lesser than 19 cm.

P.T.O.



6. From the following data, find the straight line trend and forecast the production figures for the next two years of a certain company. A graph is not necessary.

| Year | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 |
|-----------------------|------|------|------|------|------|------|------|------|
| Production ('000 kgs) | 64 | 70 | 82 | 69 | 75 | 88 | 90 | 94 |

7. Using the chi square test, determine whether a new drug discovered for preventing poultry disease is successful or not, based on the data given below : You may use a 5% degree of significance.

| | Got disease | Did not get disease |
|-----------------------------|-------------|---------------------|
| Administered the drug | 175 | 810 |
| Did not administer the drug | 215 | 620 |

SECTION – B

Answer **any three** questions. **Each** question carries **ten** marks.

(3×10=30)

8. Construct Laspeyre's, Paache's and Fischer's ideal index for the following data and prove that ideal index satisfies the time reversal and factor reversal tests for the data below :

| Commodity | 2015 | | 2016 | |
|-----------|-------|----------|-------|----------|
| | Price | Quantity | Price | Quantity |
| A | 3 | 9 | 5 | 8 |
| B | 6 | 12 | 7 | 9 |
| C | 4 | 14 | 5 | 10 |
| D | 2 | 18 | 3 | 15 |



9. A study was carried out on the advertising methods of a brand of product. The unit sales achieved by five stores were recorded as under.

| | Store – A | Store – B | Store – C | Store – D | Store – E |
|------------|-----------|-----------|-----------|-----------|-----------|
| Method I | 78 | 85 | 82 | 88 | 79 |
| Method II | 81 | 92 | 77 | 83 | 81 |
| Method III | 79 | 83 | 71 | 78 | 80 |

Calculate the F-ratio, using ANOVA and 15% level of significance. Establish there is a significant difference between the sales in the different stores.

10. Explain the following concepts briefly with suitable diagrams :

- One tailed and two tailed tests
- Type I and Type II errors
- Skewness
- Kurtosis.

11. Find the coefficient of correlation and the probable error for the following data.

| | | | | | | | |
|---|----|----|----|----|----|----|----|
| X | 12 | 24 | 30 | 45 | 56 | 70 | 83 |
| Y | 29 | 31 | 44 | 56 | 72 | 88 | 90 |

Comment on the significance of the correlation.

SECTION – C

12. Case study (**compulsory**) :

(1×15=15)

Anil has 2 investment options, but he can take up only one option at a time.

Option one : He can start a restaurant for an investment of Rs. 8,00,000. The outcome will be success (probability of 90%) with a cash inflow of Rs. 10,00,000. If he fails he incurs a loss of Rs. 2,00,000. If he succeeds he can decide to open a fast food joint for Rs. 6,00,000. The outcome would be success (probability 70%) with a cash inflow of Rs. 8,00,000. Failure means he can still salvage Rs. 3,00,000.

Option two : He can start a readymade dress showroom for Rs. 8,00,000. The outcome will be success (probability 80%) with a cash inflow of Rs. 11,00,000. Failure means he can still salvage Rs. 5,00,000. Draw a decision tree and a pay off table. Advise Anil on the most profitable option to undertake.