# MANAGEMENT PROGRAMME 

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Term-End Examination
June, 2016

# MS-8 : QUANTITATIVE ANALYSIS FOR MANAGERIAL APPLICATIONS 

Time : $\mathbf{3}$ hours
Maximum Marks : 100
(Weightage 70\%)
Note: (i) Section A has six questions, each carrying 15 marks. Attempt any 4 questions from this section.
(ii) Section $B$ is compulsory and carries 40 marks. Attempt both questions.
(iii) Statistical tables may be supplied on request.
(iv) Use of calculator is permissible.

## SECTION - A

1. A salesman has the following record of sales during three months for three items A, B and C, which have different rates of commission :

| Month | Sale of Units |  |  | Total Commission |
| :--- | ---: | ---: | :---: | :---: |
|  | A | B | C | drawn (in ₹) |
| Jan | 90 | 100 | 20 | 800 |
| Feb | 130 | 50 | 40 | 900 |
| Mar | 60 | 100 | 30 | 850 |

Find out the rates of commission on items A, B and $C$.
2. The following results were obtained on the basis of runs scored by two players A and B in 10 matches. Who is a more consistent player ?

|  | Player A | Player B |
| :--- | :---: | :---: |
| Average runs | 44.30 | 62.70 |
| Standard deviation | 4.21 | 9.83 |

3. In a sample of 1,000 cases, the mean score of a certain test is 14 and standard deviation is 2.5 . Assuming normality find :
(a) How many candidates score between 12 and 15 ?
(b) What is the probability that a candidate selected at random will score above 20 ?
4. What is time series analysis ? Decompose a time series into its various components and describe them.
5. In a locality of 18,000 families, a sample of 840 families was selected at random. Of the 840 families, 210 had a weekly income of ₹ 500 or less. Estimate the number of families having weekly income of ₹ 500 or less in the population at $99.73 \%$ confidence level.
6. Write short notes on any three of the following :
(a) Absolute value function
(b) Skewness
(c) Baye's Theorem
(d) Multistage sampling
(e) Delphi

## SECTION - B

7. What is a random variable ? How is it used to define a probability distribution? Make the probability distribution of "Number of Heads" in a toss of three coins.
8. A HR manager is interested in trying to determine whether absenteeism is uniformly distributed over the week days? His record for the past year show this sample distribution :

| Day of the week | Mon | Tue | Wed | Thu | Fri |
| :---: | :---: | :---: | :---: | :---: | :---: |
| No. of Absentees | 66 | 57 | 54 | 48 | 75 |

Test whether the absense is uniformly distributed over the week? (Given tabulated value of test statistic at 0.05 is 9.49 )

