Paper Code: BCA 201
Paper: Mathematics – III
Paper ID 20201
Pre-requisites: Mathematics I and Mathematics II

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Aim : To Understand the use of the basic data structures along with their applications.

Objectives :
   To get the knowledge about the important mathematical concepts & their application.

INSTRUCTIONS TO PAPER SETTERS: **Maximum Marks: 75**

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.

2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be 12.5 marks.

UNIT – I
Measures of Central Tendency & Dispersion
Definition, Importance & Limitation. Collection of data and formation of frequency distribution. Graphic presentation of frequency distribution – graphics, Bars, Histogram, Diagrammatic. Measures of central tendency – mean, median and mode, partition values – quartiles, deciles and percentiles. Measures of variation – range, IQR, quartile, deciles and percentiles.

[No. of Hrs: 11]

UNIT – II
Correlation/Regression
Correlation Coefficient; Assumptions of correlation analysis; coefficients of determination and correlation; measurement of correlation- Karl Person's Methods; Spearman's rank correlation; concurrent deviation the correlation coefficient; Pitfalls and limitations associated with regression and correlation analysis; real world application using IT tools

[No. of Hrs: 11]

UNIT – III
Linear Programming & Queuing
Concept a assumptions usage in business decision making linear programming problem: formulation, methods of solving: graphical and simplex, problems with mixed constraints: duality; concept, significance, usage & application in business decision making.
Queuing Models: Basic structure of queuing models, Birth-Death queuing models and its steady state solution, M/M/1 and M/M/C models with infinite/finite waiting space.
PERT,CPM

[No. of Hrs: 11]

UNIT – IV
Transportation & Assignment Problem
General structure of transportation problem, solution procedure for transportation problem, methods for finding initial solution, test for optimality. Maximization of transportation problem, transportation problem. Assignment problem approach of the assignment model, solution methods of assignment problem, maximization in an assignment, unbalanced assignment problem, restriction on assignment.

[No. of Hrs: 11]

TEXT BOOKS
[T1] Sharma, J.K.; Operations Research: problems & solutions; Macmillan India

[T2] Gupta, S.P. and Gupta, P.K.; Quantitative Techniques and Operations   Research,
Sultan Chand & Sons

[T3] Vohra, N.D.; Quantitative Techniques in Management 2003.

[T4] Gupta, S.P. Statistical Methods, Sultan Chand &Sons.2004

[T5] A. M. Natarajan, P Balasubramani A. Tamilarasi, Operations Research, Pearson 2005

REFERENCE BOOKS

[R1] R.L.Rardin, Optimization in Operations Research, Prentice Hall.

[R2] A.Racindran, D.T.Phillips, J.S.Solberg, Second edition, John Wiley.