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Semester-VI

B.C.A.

Academic Year: 2022-2023

BCA PART VI Semester Academic Year: 2022-2023
Course of studies for the BCA – VI Semester

BCA – VI Semester Course

SCHEME OF MARKS

Course	Theory Max. Marks		Practical Max. Marks	Max. Marks	Min. Marks
	Internal	External			
BCA – 601 Operations Research	15	85	--	100	5 + 28
BCA -602 Internet and Web Technology using PHP	15	85	--	100	5 + 28
BCA -603 Computer Graphics and Multimedia	15	85	--	100	5 + 28
BCA -604 Principles and Practices of Management	15	85	--	100	5 + 28
BCA -605 Project	40	60		100	33
BCA -606 Computer Graphics and Multimedia LAB	--	--	50	50	17
BCA -607 Practical on Internet and Web Technology using PHP	--	---	50	50	17
Total Marks	100	400	100	600	--

Min. Marks: 28   Max. Marks: 85

Unit I

Introduction to Operations Research: Origin and Development of OR, nature of OR, characteristics of OR, Meaning, Scope of Operations Research and Decision making, Advantages and Limitations of OR, Application of OR, Phases of OR, OR Models.

Unit II

Linear Programming: Meaning of Linear Programming, Mathematical Formulation of Linear Programming Problems, Graphical Solution, Simplex Method, Dual Simplex, Advantages and limitations of LPP.

Unit III

Transportation Problems: Mathematical Model and Formulation, Initial Basic Feasible Solution, North West Corner Method, Least Cost Method, Vogel's Approximation Method, Optimal Solution (Minimization And Maximization) using Modified Distribution Method, Degeneracy in Transportation Problem.

Unit IV

Assignment Problems:

Definition of Assignment Problem, comparison with Transportation Problem, formulation and solution of Assignment Problem using Hungerian Method (Minimization and Maximization), Travelling Salesman Problem.

Unit V

Sequencing and Scheduling: Johnson's Algorithm for processing n jobs through 2 machines, Algorithm for processing n jobs through 3 or more machines, Processing 2 jobs through n machines.

Text Books:

1) Gillet B.E., Introduction to Operation Research, Computer Oriented Algorithmic Approach, Tata McGraw Hill publishing Co. Ltd., New Delhi.
2) P.K.Gupta & D.S. Hira, Operations Research, S. Chand & Co.

References Books:

1) Taha H.A., Operations Research: AN Introduction, Mc Millian Co., New York.
2) N.S. Kambo, Mathematical Programming Techniques, Affiliated East West Press Pvt. Ltd., New Delhi, 1984.
3) R. Panneserlvam, Operations Resaerch, Prentic Hall of India Pvt. Ltd., New Delhi, 2004.
4) S.D. Sharma, Operations Research, Kedar Nath & Co. Meerut.
5) Gupta, Kanti Swaroop, Gupta P.K. and Manmohan, Operations Research, Sultan Chand and Sons, New Delhi.

Semester-VI
BCA – 602: Internet and Web Technology Using PHP
Academic Year: 2022-2023

Min. Marks: 28   **Max. Marks: 85**

Unit I
Web Technology: Introduction to WWW, web browsers, web servers, HTTP, URL.
HTML: Introduction, Objective, HTML Command Tags: Text, List, Table, creation of links, inserting graphics, forms.
Cascading style sheets: Introduction to CSS

Unit II
A Brief History of PHP, PHP Characteristics, Installing and Configuring PHP on Windows, PHP Language Basics: Lexical Structure, Data Types, Variables, Expressions and Operators, Decision Statements, Flow Control Statements, Embedding PHP in Web Pages.
Strings: String Constants, Printing Strings, Accessing Individual Characters, String Handling Functions: length, Word count, string position, reverse, replace.
Maths: max, min, sqrt, sin, cos, tan, sinh, cosh, tanh, abs, count, ceil, round, floor, log, log10, pow() functions.
Arrays: Indexed Arrays, Associative Arrays, Identifying Elements of an Array, Storing Data in Arrays, Multidimensional Arrays, extracting multiple values, converting between arrays and variables, Traversing Arrays.

Unit III
Session: Session handling, creating session, storing values in session, accessing values from session, destroying session. Cookies: creating cooking, setting values, accessing cookies values, session cookie, persistant cookie, redirecting page.
Functions: Calling a Function, Defining a Function, Variable Scope, Function Parameters, Return Values, Variable Functions.
Object Oriented Programming Concepts: Classes, Objects, Member Functions, Encapsulations, Inheritance, and Polymorphism. (only basic definitions of these topics).

Unit IV
Form Handling in PHP: Setting Up Web Pages to Communicate with PHP, Handling Text Fields, Text Areas, Check box, Radio button, Submit, Reset, Button, Image Button, Select Box, input type email, password, date and url.
File Handling: Working with files: File Open and Read, File Create and Write, Reading and writing Character in file, reading entire file, Rename and Delete File, File Uploading.

Unit V
Database Access: Using PHP to access a database. Introduction to MySql, connectivity with MySql.
Creating form and saving data of form to MySql. Performing CRUD operation using PHP and MySql.

Text Books:
1) Programming PHP by Rasmus Lerdorf and Kevin Tatroe, O'Reilly Publications
2) Beginning PHP5 by Wrox Publication
3) Mastering PHP : BPB Publication

4) PHP 5.1 for beginners by Evan Bayross and Sharman Shah, SPD Publications
5) PHP 5.2 The Complete Reference by Steven Holzner, Mc Graw Hill Edition 2008.

Min. Marks: 28   Max. Marks: 85

Unit I

Computer Graphics: Introduction, Application of Computer Graphics, Display Devices: Refresh Cathode -Ray Tubes, Raster Scan Displays, Random Scan Displays, Color CRT Monitors, Flat Panel Displays. Video cards/display cards. Input Devices: Mouse, Trackball, Space ball, Data Glove, Joystick, Light pen, Scanner, Digital Camera, Touch Panels, Voice Systems. Hardcopy Devices: Printers and Plotters.

Unit II

Graphics Primitives: Line Generation Algorithms: DDA algorithm, Bresenham's algorithm. Circle Generation Algorithms: Midpoint Circle algorithm, Bresenham's circle generation algorithm. Displaying Lines, characters and polygon. Polygon filling Algorithms: Scan Line Polygon fill algorithm, Inside - Outside Tests, Boundary-Fill algorithm, Flood -Fill algorithm. Fundamentals of Aliasing, Antialiasing Technique.

Unit III

Clipping: Clipping operations. Point clipping. Line clipping: Cohen Sutherland Algorithm, Liang Barsky Algorithm, Nicholl-Lee-Nicholl Algorithm. Polygon clipping: Sutherland- Hodgeman Algorithm, Weiler Atherton Algorithm. Text clipping, Exterior clipping.

Unit IV

Two Dimensional: Two Dimensional Transformations: Translation, Scaling, Rotation, Reflection, Shear, Homogenous coordinate system, Composite transformations, Raster method of transformation. Two- D i m e n s i o n a l Viewing: Window to Viewport coordinates transformation.

Unit V

Multimedia: Introduction, Multimedia applications, Multimedia data and File formats, Multimedia tools. Advancements in the technology in Computer graphics and Multimedia.

Text Books:

1) Donald Hearn and M. Pauline Baker, *Computer Graphics: C Version*, Second Edition, Prentice Hall of India.
2) Tay Vaughan, Multimedia: Making it Works, Seventh Edition, Tata McGraw-Hill Professional, New Delhi.

Reference Books:

1) David F. Rogers, *Procedural Elements for Computer Graphics*,Tata Mc-Graw-Hill Publishing Company Ltd.,New Delhi,2001.
2) James D. Foley, Andries van Dam, Steven K. Feiner, John F. Hughes, *Computer Graphics: Principles and Practice in C*, Second Edition,Addison-Wesley Professional.

3) Zhigang Xiang, Roy A. Plastock, *Schaum's outline of Theory and Problems of Computer Graphics*, Second Edition ,Tata McGraw-Hill Professional, New Delhi.

Min. Marks: 28   **Max. Marks: 85**

Unit I

The Nature of Management: Definition and role of management, Functions of Manager, Scientific Management, Human Relations school of Management, Contingency Theory of Management.

Unit II

Planning: Nature and Purpose of Planning, Components of Planning, Objective of Business Management by Objectives.

Unit III

Organizing: Nature and Purpose of Organizing, Departmentation, Span of management, Delegation of Authority, Line and Staff Relationships. Staffing: Nature of staffing, problems faced in staffing, process of staffing.

Unit IV

Directing Process: Principles of Direction, Problems in Human Relation, Strategies for Establishing Healthy Human Relations.

Unit V

Control: Meaning and Process of Control, Control Techniques.

Text Book:
1) "Principles of Management", Harold Koontz, O'Donnel and Heinz Weihrich ,New York: McGraw Hill Book Co

Reference Books:
1) "Management", Stoner, Freeman and Gilbert Jr., PHI, 6th Ed.
2) "Organization and Management Concepts", R.D. Agarwal, New Delhi, Tata McGraw Hill. 1995.
3) "Management", Robbins and Coulter, PHI, 8th Ed.
4) "A. - Fundamentals of Management: Essential Concepts and Applications", Robbins S. P. and Decenzo David, Pearson Education, 5th Ed.
5) "Introduction to Management Science: A Modeling and Case Studies Approach with Spreadsheets", Hillier Frederick S. and Hillier Mark S. Tata McGraw Hill, 2nd Ed., 2008.

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Semester-VI
BCA – 605: PROJECT
Academic Year: 2022-2023

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Min. Marks: 33   **Max. Marks: 100**

The students are expected to work on a project in their final year. The student can formulate a project problem with the help of her/his Guide and submit the project proposal of the same. If approved, the student can commence working on it and complete it. The Project comprises of 25 marks, of which Project Demonstration & Report is evaluated for 20 marks and the Viva-Voce is for 15 marks by the external examiner.

Project Report Guidelines

I Introduction

> Project Introduction
> Existing System with limitations
> Proposed System with aim and objectives
> Preliminary investigation
> Feasibility study
> Software/ hardware Requirements

II System Analysis

> Functional and non-functional requirements
> System Flowcharts
> Data Flow Diagram
> E-R Diagrams

III System Design

> Architectural design
> File / Database Design
> Normalization
> User Interface Design

IV Coding

VI System Testing

> Testing techniques and Testing strategies used
> Testing Plan used
> Test reports for Unit Test Cases and System Test Cases

VIII Conclusions
Bibliography
Appendices (if any)