MANONMANIAM SUNDARANAR UNIVERSITY

TIRUNELVELI

UG COURSES – AFFILIATED COLLEGES

B.Sc Software Engineering

(Choice Based Credit System)

(With effect from the academic year 2021-2022 onwards)

MANONMANIAM SUNDARANAR UNIVERSITY

REGULATIONS AND SYLLABUS (with effect from 2021 onwards)

Introduction

Outcome Based Education is incorporated into the curriculum based on the requirements of NAAC – UGC-Quality Mandate .To fulfill these requirements, the Program Educational Objectives(PEO's),Program Outcomes (POs) and Program Specific Outcomes(PSOs) and Course Outcomes(CO) were framed for all programs in alignment with the Vision and Mission of the respective departments and in-turn with the Vision and Mission and Educational Objectives of the University.

Vision of the University

- To provide quality education to reach the unreached

Mission of the University

- To conduct research ,teaching and outreach programs to improve conditions of human living
- To create an academic environment that honours women and men of all races, caste, creed, cultures and an atmosphere
- That values intellectual curiosity ,pursuit of knowledge ,academic freedom and integrity
- To offer a wide variety of off campus educational and training programs, including the use of information technology,to individuals and groups
- To develop partnership with industries and government so as to improve the quality of the workplace and to serve as Catalyst for economic and cultural development
- To provide quality /inclusive education ,especially for the rural and un-reached segments of economically downtrodden students including women, socially oppressed and differently abled

Vision Mission of the Department

Vision

The vision and mission of the Software Engineering programme is to supply local and international markets with highly qualified competitive IT personnel as well as prepare students for postgraduate studies and exploring research opportunities.

Mission

In software engineering programme, we aim to ensure that after the completion of the academic programme, the graduates are fully equipped with knowledge required for their future careers, their self-improvement, and serving their communities.

Preamble

The present curriculum of B.Sc Software Engineering have been modified with The Programme Outcomes (POs)/Programme Specific Outcomes(PSOs) are the qualities that must be imbibed in the graduates by the time of completion of their programme. At the end of each programme the PO/PSO assessment in done from the CO attainment of all curriculum components. The POs/PSOs are framed based on the guidelines of LOCF. There are five POs UG programme . PSOs are framed by the departments and they are five in numbers. For each Course, there are five Course Outcomes to be achieved at the end of the course. These Course outcomes are framed to achieve the POs/PSOs.

Eligibility Norms for Admission

Candidate should have passed the Higher Secondary Examination conducted by the Board of Higher Secondary Education , Government of Tamil Nadu or any other Examinations accepted by the syndicate as equivalent thereto with Mathematics / Computer Science as one of the subjects

Duration of the Course

The students shall undergo the prescribed course of study for a period of not less than three academic years (Six semesters).

- * 10 hours ofpractical
- **L**-Lecture **T**-Tutorial **P-**Practical

Program Structure B.Sc Software Engineering 21-22

Sem	Part I/II/ III/ IV/ V	Subject No.	Subject Status	Subject Title	Contact Hrs/ Week	L	T	P	Credits
I	I	1	Language	Tamil/Other Language	6	6	0	0	4
	II	2	Language	Communicative EnglishI	6	6	0	0	4
	III	3	Core	Programming in C	4	3	1	0	4
	III	4	Major Practical - I	Programming in C	4	0	0	4	2
	III	5	**Allied - I** a) For theB.Sc.(CS) Programme	a)Discrete Mathematics	4	4	0	0	3
	III	6	Professional English for Physical Sciences I		4	4	0	0	4
	IV	7	Common	Environmental Studies	2	2	0	0	2
	Subtotal				**30**	**25**	**1**	**4**	**23**
	I	8	Language	Tamil/Other Language	6	6	0	0	4
	II	9	Language	Communicative EnglishII	6	6	0	0	4
	III	10	Core	Programming in C++	4	3	1	0	4
	III	11	Major Practical - II	Programming in C++	4	0	0	4	2
	III	12	Professional English for Physical Sciences II		4	4	0	0	4

II	III	13	**Allied Practical – I** a)For the B.Sc.(CS) Programme	a) Linux	4	0	0	4	2
	IV	14	Common	Value Based Education	2	2	0	0	2
	Subtotal				**30**	**21**	**1**	**8**	**22**
III	I	15	Language	Tamil/Other Language	6	6	0	0	4
	II	16	Language	English	6	6	0	0	4
	III	17	Core-3	Java Programming	4	4	0	0	4
	III	18	Major Practical -3	Java Programming Lab	3	0	0	3	2
	III	19	Allied II	Scripting Languages	3	3	0	0	3
	III	20	Allied Practical - II	Scripting Languages Lab	2	0	0	2	2
	III	21	Skill Based Core-I	Software Engineering	4	4	0	0	4
	IV	22	Non-Major Elective	1. Fundamentals of Internet and Emerging Technologies 2. Basic Programming Design	2	2	0	0	2
		23	Common	Yoga*	2	2	0	0	2
				Subtotal (excluding Yoga)	**30**	**25**	**0**	**5**	**27**
IV	I	24	Language	Tamil/Other Language	6	6	0	0	4
	II	25	Language	English	6	6	0	0	4
	III	26	Core-4	Data Structures	4	4	0	0	4
	III	27	Major Practical - IV	Data Structure lab	3	0	0	3	2
	III	28	Allied -II	Digital Design	3	3	0	0	3
	IV	29	Allied II Practicals	PYTHON	2	0	0	2	2
	III	30	Skill Based – Core II	Software Quality and Testing	4	4	0	0	4
	IV	31	Non-Major Elective	1. HTML 2. Programming in C	2	2	0	0	2
		32	Common	Computers for Digital Era *	2	2	0	0	2

	V	33	Extension Activity	NCC, NSS, YRC, YWF	0	0	0	0	1
	Subtotal (Excluding Computer for Digital Era)				**30**	**22**	**0**	**8**	**28**
V	III	34	Core-5	Machine Learning Techniques	5	5	0	0	4
	III	35	Core-6	Software Project Management	4	4	0	0	4
	III	36	Core-7	PHP and mySQL	4	4	0	0	4
	III	37	Major Practical - V	PHP	4	0	0	4	2
	III	38	Major Practicals VI	Machine Learning lab	4	0	0	4	2
	III	39	Major practicals - VII	Green Foot Lab	3	0	0	3	2
	III	40	Major Elective – I (Anyone)	1. Mobile application Development 2. Introduction to Security in Computing 3. Cloud Computing	4	4	0	0	4
	III	41	Skill Based Common	Personality Development/ Effective Communication/ Youth Development	2	2	0	*	2
	Subtotal				**30**	**19**	**0**	**11**	**24**
VI	III	42	Core-8	Operating System	4	4	0	0	4
	III	43	Core-9	Object Oriented Software Engineering	4	4	0	0	4
	III	44	Core-10	Computer Graphics and Visualization	4	3	1	0	4
	III	45	Major Practical VIII	Computer Graphics Lab	4	0	0	4	2
	III	46	Major Practical IX	Oracle	4	0	0	4	2

	III	47	Major Elective – II	.Internet of Things(IoT) 2. Software Agents 3. Network Security	4	4	0	0	4
	III	48	Major Project		6	0	0	6	6
	Subtotal				**30**	**19**	**1**	**10**	**28**
	Total credits(including Yoga & Computers for Digital Era)								**150**

- **L**-Lecture **T**-Tutorial **P**-Practical

Distribution ofmarksbetweenExternalandInternalAssessmentis

For Theory , External -75, Internal-25

For Practical External -50, Internal- 50

Interna lMarksforPracticalshallbeallottedinthefollowingmanner

ContinuousAssessment:25marks"N"numberofpractical'sbeingconductedbasedonthepractical prescribed in the syllabus and the marks should be distributed equally for each practical.

Calculation ofmarks: Sumofmarksawardedtonumberofpracticals+theaverage marksoftwo tests (25 marks)

Total-50marks

Internal Test:20marks . Three testsshouldbeconducted and the averageof best two testsbetaken for 20 marks. Assignment – 5 marks

Passing minimum 40 marks out of 100

Program Educational Objectives(PEO's)

The B.Sc Software Engineering Program will enable the student to

PEO1: To apply acquired knowledge of latest technology in support of academia and the industry

PEO2: Graduates make notable contributions to the development of Software field and practices with Innovation, Research and Development

PEO3: Graduates are conducting themselves to high standards professionally and ethically as representatives and leadersin technology and IT industry.

PEO4: Provide with a sufficiently broad range of courses to enable them to be successful in postgraduate programmes anywhere in the world

PEO5: Create an awareness on social , ethical and professional issues related to

computers

Program Outcomes(Pos).

Upon Completion of B.Sc the general intended learning outcomes are that students will:

PO1: Be aware of the history of the discipline of Software Engineering and understand the concepts and apply it in relative specialised areas like research & development, teaching and government, social or public services underpinnings of the subject

PO2: The graduates must be able to demonstrate fundamental concepts in science. Illustrate the nature ofthe software development process , including the need to provide appropriate documentation

PO3: Be able to develop program in one or two programming languages

PO4: Be able to analyse a technique for a specific problem to meet a particular objective .

PO5: Compare the basic theory of computer architectures , including computer hardware and networking

PO6: Construct new innovation methods applicable to the society , business and the individual , both from a technical and from an ethical and legal point of view

Program Specific Outcomes(PSOs)

Upon Completion of B.Sc Computer Science the student will be able to

PSO1: Define Fundamental principles and methods of Software Engineering wide range of applications

PSO2: Demonstrate and document solutions to significant computational problems

PSO3: Apply design,programming skills and develop principles in the construction of software systems

PSO4: Decide for continued professional Development

PSO5: Design new technologies in web development

MSU/ 2021-22/ UG-Colleges /Part-III (B.Sc. Software Engineering) / Semester – I / Core-1

Programming in C

LTPC
41 0 4

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

CO1: To obtain knowledge about the structure of the programming language C

CO2: To develop the program writing and logical thinkingskill.

CO3: To summarizestatements and arrays

CO4: To make use of defined functions

CO5: To explainpointers and files

Unit – I: INTRODUCTION

C Declarations**:-** Character Set – C tokens – Keywords and Identifiers – Identifiers – Constants – Variables – Data types – Declaration of Variables – Declaration of Storage Class – Assigning Values to Variables – Defining Symbolic Constants – Declaring Variable as Constant. Operators and Expressions**:-** Introduction – Arithmetic Operators – Relational Operators – Logical Operators – Assignment Operators – Increment and Decrement Operators – Conditional Operator – Bitwise Operators – Special Operators – Arithmetic Expressions – Evaluation of Expressions – Precedence of Arithmetic Expressions. Managing Input and Output Operations:- getchar( ) – putchar( ) – scanf( ) – printf().(15L)

Unit – II: CONTROLSTRUCTURES

Decision Making and Branching:- Decision Making with IF Statement – Simple IF statement – The IF…Else Statement – Nesting of IF…Else Statements – The ELSE IF ladder – The Switch Statement – The ?: Operator – The GOTO statement. Decision Making and Looping:- The WHILE Statement – The DO Statement – TheFORstatement.(15L)

Unit – III:ARRAYS

One-dimensional arrays – Declaration of One-dimensional arrays – Initialization of One-dimensional arrays - Two-dimensional arrays – Initialization of Two-dimensional arrays – Multi- dimensional arrays. Character Arrays and Strings:- Declaring and Initializing String Variables – Reading Strings from Terminal – Writing Strings to Screen – String Handling Functions. (15L)

Unit – IV: FUNCTIONS

User-Defined functions:- Need for User-defined functions – Definition of functions – ReturnValuesandtheirTypes–FunctionCalls–FunctionDeclaration–Categoryoffunctions–

No Arguments and No return values – Arguments but No return Values – Arguments with return values – No arguments but a return a value – Recursion – Passing Arrays to functions – PassingStringstofunctions– TheScope,Visibilityandlifetimeofavariables.StructuresandUnions:- Defining a Structure – Declaring Structure Variables – Accessing Structure Members – Structure Initialization – Arrays ofstructures–Unions.(15L)

Unit – V: POINTERS ANDFILES

Pointers:- Understanding pointers – Accessing the Address of a Variable – Declaring Pointer Variables – Accessing a variable through its pointer – Pointer Expressions – Pointers as function arguments. File Management in C:- Defining and Opening a file – Closing a File – Input/output Operations on files – Error Handling duringI/OOperations.(15L)

Text Book:

Programming in ANSI C – 8th Edition by E Balagurusamy – McGraw Hill Publishing CompanyLimited.

ReferenceBooks:

1. Computer System and Programming in C by Manish Varhney, Naha Singh – CBS Publishers and Distributors Pvt Ltd.
2. Introduction to Computer Science, ITL Education Solutions Limited, Second Edition, PearsonEducation
3. Computer Basics and C Programming by V. Rajaraman – PHI Learning PrivateLimited
4. Programming with C, Third Edition, Byron S Gottfried, McGraw Hill Education Private Limited.

LOCF MAPPING

Course code and title : C PROGRAMMING											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	3	2	2	2	3	3	2	2	2	2.4
CO2	3	3	3	2	2	3	3	2	3	3	2.7
CO3	2	3	2	2	2	2	3	3	3	2	2.4
CO4	2	3	2	3	2	2	2	3	3	3	2.5
CO5	2	2	3	3	3	2	2	2	3	2	2.4
Average of CO's = 2.48(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

B.Sc (CBCS) DEGREE EXAMINATION

Programming in C

Semester: I

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10 Marks)

Answer all Questions

Choose the correct answer

1. Which of the Following operators takes only integer operands?

a.* b. / c. % d. +

2. = = is _____ operator.

a. assignment b. relational. c. logical d. bitwise.

3. If x=5; y=10 A=x+y*(2+x) the what is the value a?

a. 90 b. 60 c. 75 d.70

4. The number of elements in a 2-d array of size 3*3 is _____.

a. 6 b. 3 c. 9 d. none

5. In while and do loops _____ statement causes the control to go directly to the test condition.

a. break. b. continue c. go to d. none

6. int digits[10]={1,2,3,4,5,6,7,8,9,10}; which element is in the position digits[5]

a. 5 b 6 c. 8 d. 7

7. _____ is a indirection operator

a. & b. * c.% d. none

8. Return statement can be used to _____.

a. return the control to the called function b. call the function

c. return the value if any to the calling function d. none

9. Select the keyword among the following.

a. member b. Input c. union d. none

10. The scope of the ___ variable is the whole program in which it is declared..

a. static b. register c. external d. auto

PART B-(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words

11 a. What is variable? How will you declare a variable? Or

b. Discuss the difference between While & Do While statements with example.

12 a. Explain if else statement with example. Or

b. Discuss the difference between break &continue statements with example.

13 a.Write a C program to convert Fahrenheit temperature to Celsius. Or

b. Write a C program to exchange the variables x & y.

14 a.Explain how to initialize 2-dimensional arrays? Give an example. Or

b. Explain how to define structure.

15 a. Define recursion?. Give an example. Or

b. Write a C program to find the sum of all elements in the array using pointer.

PART C -(5X8=40Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16 a. Explain different data types in C Or

b. Explain various types of input output functions in C.

17 a. Explain different types of for loop with example.Or

b. Write a program to calculate and print the Fibonacci numbers.

.18 a. Explain how define looping structure in function. Give an example. Or

b. Write a program to find the product of two matrices.

19 a. Write a program to sort numbers using function.Or

b. Explain how to use structures with in structure?. Give an example.

20 a.Explain various types of storage classes with example.Or

b. Discuss how to read and write data file

MSU/ 2021-22 / UG-Colleges /Part-III (B.Sc. Software Engineering) / Semester – I / Major Practical –I

Programming in C

L T P C

004 2

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: To define the features of C by applying sampleproblems
- CO2: To explore skills in implementing algorithms through the programming Language C
- CO3: To develop array of elements
- CO4: To evaluate matrices
- CO5: To develop the programs using pointers and functions

Each exercise should be completed within two hours.

1. To find all possible roots of a quadratic equation using ifstatement
2. Program to check vowel or consonant using switch casestatement
3. Evaluate Sine series using whileloop

   Sin (x) = $x - x^3 / 3! + x^5 / 5! - \ldots . x^n / n$
4. Sort a list of numbers in ascendingorder
5. Search an element in anarray
6. Reverse anumber
7. Check the given string is palindrome ornot
8. Find the binomial coefficient (nC_r) value usingrecursion
9. Multiply two matrices (check forcompatibility)
10. Transpose of amatrix
11. Find the sum of 'n' numbers by making functioncall
12. Alphabetical sorting (passing array as argument tofunction)
13. Exchange values using pointers andfunction
14. Prepare the student details usingstructure
15. Prepare mark sheet usingfile

LOCF MAPPING

Course code and title : C PROGRAMMING LAB											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	2	2	2	2	2	2	3	2	2	3	2.2
CO2	2	3	2	3	3	2	3	2	3	3	2.6
CO3	2	2	3	3	3	2	2	3	3	3	2.6
CO4	2	3	2	3	2	2	2	3	3	3	2.5
CO5	2	3	3	3	3	2	2	2	3	3	2.6
Average of CO's = 2.5(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

MSU/ 2021-22 / UG-Colleges /Part-III (B.Sc. Software Engineering) / Semester – I / Allied -I

Discrete Mathematics

L T P C

300 3

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: To recall basic concepts for clear understanding of mathematical principles
- CO2: To explain practicalproblems.
- CO3: To construct matrices using discrete mathematics
- CO4: To analyze techniques to draw graph using mathematics
- CO5: To design graphs using the representations

Unit – I: RELATIONS

Introduction to Relations – Binary relation – Classification of Relations – Composition of Relations – Inverse of Relation – Closure operation on Relations – Matrix representation of Relation-digraphs.(9L)

Unit – II: FUNCTIONS

Introduction to Functions – Addition and Multiplication of Functions - Classifications of Functions – Composition of Function –InverseFunction.(9L)

Unit – III: MATHEMATICALLOGIC

Introduction – Statement (Propositions) – Laws of Formal Logic –Basic Set of Logical operators/operations - Propositions and Truth Tables – Algebra Propositions - Tautologies and Contradictions – Logical Equivalence – Logical Implication – NormalForms.(9L)

Unit – IV: MATRIXALGEBRA

Introduction – Definition of a Matrix - Types of Matrices – Operations on Matrices – Related Matrices – Transpose of a Matrix – Symmetric and Skew-symmetric Matrices – Complex Matrix – Conjugate of a Matrix – Determinant of a Matrix – Typical Square Matrices – Adjoint and Inverse of a Matrix – Singular and Non-singular Matrices – Adjoint of a Square Matrix – Properties of Adjoint of a Matrix – Properties of Inverse ofaMatrix.(9L)

Unit – V:GRAPH

Introduction – Graph and Basic Terminologies – Types of Graphs – Sub Graph and

Isomorphic Graph – Operations on Graphs – RepresentationofGraph.(9L)

Text Book:

DISCRETE MATHEMATICS, Swapan Kumar Chakraborty and BikashKantiSarkar, OXFORD University Press.

Reference Books:

1. DISCRETE MATHEMATICS, Third Edition, Seymour Lipschutz and Marc LarsLipson, McGraw Hill Education PrivateLimited.
2. Discrete Mathematical Structures with Aplications to Computer Science byJ.P.Tremblay, R.Manohar TMHedition

LOCF MAPPING

Course code and title : DISCRETEMATHEMATICS											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	2	2	2	3	3	2	2	2	2.3
CO2	2	3	2	2	2	2	3	2	3	3	2.2
CO3	2	2	3	2	2	2	2	3	3	3	2.4
CO4	2	3	2	3	3	2	2	3	3	3	2.6
CO5	2	3	3	3	3	2	2	2	3	3	2.5
Average of CO's = 2.4(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

B.Sc (CBCS) DEGREE EXAQMINATION

Discrete Mathematics

Semester: I

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10 Marks)

Answer all Questions

Choose the correct answer

1. A relation R on A is said to be reflexive if for each a,b ϵ R, then

   (a) b R a (b) a R b (c) a R a (d) none

2. Let R = {(a,a),(a,b),(b,c),(c,a)} be a relation on A={a,b,c}. The reflexive Closure of R is

   (a) {(a,a),(a,b),(b,c),(c,a),(b,b),(c,c)} (b) {(a,a),(a,b),(b,c),(c,a),(b,a),(c,b)}
   (c) {(a,a),(a,b),(b,c),(c,a),(b,b),(c,b)} (d) none

3. In one-to-one function if $f(a_1) = f(a_2)$,then

   (a) $a_1 = a_2$ (b) $a_1 = a_1$ (c) $a_2 = a_2$ (d) none

4. Onto function is also called _____.

   (a) Injection (b) Bijection (c) Surjection (d) None

5. If P = T and Q = F then P→Q is

   (a) T (b) F (c) T or F (d) None

6. Let p : Priya is tall and q : Priya is beautiful. The Symbolic form of the statement 'It is false that Priya is short or beautiful' is _____.

   (a) p ∨ q (b)p ∧ q (c) ~ (~ p v q) (d) ~p ∧ q

7. In unit matrix diagonal elements are ____.

   (a) 0 (b) 1 (c) 2 (d) 3

8. A matrix A is said to be a Singular matrix if _____.

   (a) |A| = 0 (b) $|A^2| = 0$ (c) $|A| \neq 0$ (d) $A^2 = I$

9. Any vertex having degree _____ is called pendant vertex.

   (a) 0 (b) 1 (c) 2 (d) 3

10. The degree of every vertex in a complete graph with n vertices is _____.

    (a) n (b) n -1 (c) 2n (d) n + 1

PART B(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words

11. (a) Let Z denote the set of integers and the relation R in Z be defined by a R b iff a – b is an even integer. Show that R is an equivalence relation. (OR)

    (b) If a relation R is transitive, then prove that its inverse relation R^{-1} is also transitive.

12 (a) Let f: R → R be defined by f(x) = 3x - 4. Find a formula for f^{-1}. (OR)

    (b) If f : A → B, g : B → C and h : C → D, then Prove that h o (g o f) = (h o g)of.

13. (a) Show that the proposition p V ~ (p ^ q) is a tautology. (OR)

    (b) State De Morgan's laws. Using truth table prove them.

14. (a) Show that the matrix A = $\begin{bmatrix} 2 & 3 \\ 1 & 2 \end{bmatrix}$ satisfies the equation $A^2 - 4A+I= 0$ and hence find A^{-1}. (OR)

    (b) Show that the matrix $\begin{bmatrix} Cos\,\theta & 0 & Sin\,\theta \\ 0 & 1 & 0 \\ -Sin\,\theta & 0 & Cos\,\theta \end{bmatrix}$ is Orthogonal. Find the value of |A|.

15. (a) Show that the maximum number of edges in a simple undirected graph with n vertices is n(n-1)/2. (OR)

    (b) State and prove The Handshaking Theorem.

PART C -(5X8=40Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words

16. (a) Let R = {(1,2),(2,3),(3,1)} be a relation on A = {1,2,3}. Find the reflexive, Symmetric and Transitive Closure of R. (OR)

    (b) Discuss the several types of relations.

17. (a) Let X= {a,b,c}. Define f: X → X such that f = {(a,b),(b,a),(c,c)}. Determine

    (i) f^{-1} (ii) f^2 (iii) f^3 (iv) f^4 (OR)

    (b) Let f : X→Y, g :Y→Z be two functions. Then prove that

(i) If f and g are one-to-one, then gof is 1-1

(ii) If f and g are onto, then gof is onto

18. (a) Using the laws of propositions prove the following.

$\sim (p \vee q) \vee (\sim p \wedge q) \equiv \sim p$ (OR)

(b) Find the dnf of $p \rightarrow ((p \rightarrow q) \wedge \sim(\sim q \vee \sim p))$

19. (a) Explain the different types of matrices. (OR)

(b) Find the inverse of the matrix

$$A = \begin{bmatrix} 1 & 1 & 3 \\ 1 & 3 & -3 \\ -2 & -4 & -4 \end{bmatrix}.$$

20. (a) Explain the different Operations on Graphs with examples. (OR)

(b) Explain the different types of graphs with examples

MSU/ 2021-22 / UG-Colleges /Part-III (B.Sc. Software Engineering) / Semester – II / Core -2

Programming in C++

L T P C

4 1 0 4

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: To define the basic knowledge of object oriented programming concepts
- CO2: To relate the idea of classes and objects
- CO3: To analyze and develop constructors and destructors
- CO4: To design C++ streams, Inheritance, Overloading of operators, functions, constructors, File Handling and templates concepts of C++ programming.
- CO5: To develop the knowledge about how to work on files

Unit – I: Principles of Object Oriented Programming

Basic Concepts of Object Oriented Programming. **Classes and Objects:** Introduction – Specifying a Class – Defining Member Functions – Making an Outside Function Inline – Nesting of Member Functions - Private Member Functions – Static Data Members – Static Member Functions – Arrays of Objects – Objects as function arguments – Friendly Functions – Returning Objects.(12L)

Unit – II: Constructors and Destructors

Introduction – Constructors – Parameterized Constructors – Multiple Constructors in a class – Constructors with Default Arguments – Dynamic Initialization of Objects – Copy Constructors – Dynamic Constructors – const objects-Destructors.(12L)

Unit – III: Operator Overloading, Type Conversions andInheritance

Defining Operator Overloading – Overloading Unary Operators – Overloading Binary Operators – Overloading Binary Operators using Friends – Rules for Overloading Operators – Type Conversions. **Inheritance (Extending Classes):** Introduction – Defining Derived Class – Single Inheritance - Making a Private Member Inheritable – Multilevel Inheritance – Multiple Inheritance – Hierarchical Inheritance – Hybrid Inheritance – Virtual Base Classes - Abstract Classes.(12L)

Unit – IV: Pointers, Virtual Functions and Polymorphism

Pointers - Pointers to Objects – this Pointer – Pointers to Derived Classes – Virtual Functions - Pure Virtual Functions. **Managing Console I/O Operations:** Introduction –

C++ Streams – C++ Stream Classes – Unformatted I/O operations – Managing Output with Manipulators.(12L)

Unit – V: Files and Templates

Working with Files: Introduction – Classes for File Stream Operations – Opening and Closing a file – Detecting end-of-file – File Modes – Sequential Input and Output Operations. **Templates:** Introduction - Class Templates –FunctionTemplates.(12L)

TextBook:

Object Oriented Programming with C++, Sixth Edition by E. Balagurusamy, McGraw Hill Publishing Company Limited.

Reference Book:

1. Programming with ANSI C++, BhushanTrivedi, 2010, Oxford UniversityPress
2. The Complete Reference C++, Fourth/ Fifth Edition Herbert Schildt, McGraw Hill Publishing CompanyLimited.
3. Programming With C++ Third Edition by D. Ravichandran, McGraw Hill Education,2011.
4. Programming in C++ Second Edition by Ashok N. Kamthane, PearsonEducation

LOCF MAPPING

Course code and title : OBJECTORIENTEDPROGRAMMINGINC++											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	2	2	2	3	3	2	2	2	2.3
CO2	2	3	2	2	2	2	3	2	3	2	2.2
CO3	2	2	3	2	2	2	2	3	3	3	2.4
CO4	2	3	2	3	3	2	2	3	2	3	2.5
CO5	2	3	3	3	3	2	2	2	3	3	2.6
Average of CO's = 2.4(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

B.Sc (CBCS) DEGREE EXAQMINATION

Programming in C++

Semester: II

TIME: Three hours Maximum:75 Mark

PART A-(10X1=10 Marks)

Answer all Questions

Choose the correct answer

1. The _____ keyword is used to prevent direct access to member variables or function by the user.

   (a) Private (b) Public (c) void (d) none

2. When the class is declared inside the function, it is called as

   (a) local class (b) global class (c) friend function (d) Private class

3. Constructor is executed when

   (a) object is declared (b) object is destroyed (c) both (a) & (b) (d) none

4. Constructor that accepts parameters is called _____ Constructor.

   (a) Default (b) Overload (c) Parameterized (d) Implicit

5. Which one of the following operator cannot be overloaded

   (a) - (b) + (c) & (d) - -

6. When a single base class is used for derivation of two or more classes, it is called _____ inheritance.

   (a) multiple (b) hierarchial (c) hybrid (d) multipath

7. In pointer declaration, * is known as _____.

   (a) indirection operator (b) deference operator

   (c) address operator (d) (a) or (b)

8. The pointer becomes wild pointer due to _____.

   (a) Pointer declared but not initialized (b) Pointer alteration

   (c) Accessing destroyed data (d) All the above

9. ostream class controls _____ functions.

   (a) input (b) output (c) library (d) file

10. _____ invokes the filebuf function to perform the extraction of the streams.

(a) istream (b) ostream (c) ios (d) none

PART B(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words

11. (a) What is class in C++ ? Explain with an example and the syntax of classdeclaration. Or

    (b) Explain Data Hiding or Encapsulation with an example program.

12. (a) Describe the characteristics of Constructors and Destructors. Or

    (b) Write a C++ program to define conditional constructor and destructor.

13. (a) Explain the keyword **operator** with an example program. Or

    (b) Write a program to overload unary operator using friend function.

14. (a) Explain **this** pointer with an example program. Or

    (b) List the rules for virtual functions

15. (a) What are File Stream classes? Explain. Or

    (b) Explain the need for Templates.

PART C -(5X8=40Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words

16. (a) Explain static member variables and functions with suitable examples. Or

    (b) Explain the use of friend function with an example program.

17. (a) Explain Constructors with arguments and with default arguments. Give examples. Or

    (b) Describe the use of Copy and Private constructors with examples.

18. (a) Write about Type Conversion. Or

    (b) Explain the types of Inheritance.

19. (a) What are pointers? Explain pointer declaration with the features of pointers Or

    (b) Explain pointer to Derived Classes and Base Classes with an example program.

20. (a) Explain the steps of file operations. Or

    (b) Describe file pointers and manipulators.

Programming in C++

L T P C
0 0 4 2

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- To define object oriented programming concepts using class and member functions.
- To develop overloading operators
- To analyze friend function
- To gain the knowledge about the importance of constructor
- To design C++ virtual functions

Each exercise should be completed within three hours.

It is compulsory to complete all the exercises given in the list in the stipulated time.

1) Program with a Class and MemberFunctions.
2) Program to Overload Function.(minimum three geometricfigures)
3) Program to implement ParameterizedConstructor.
4) Program to implement Friend Function (minimum twoclasses)
5) Program to Overload Unary MinusOperator.
6) Program to Overload Binary PlusOperator.
7) Program to implement Multiple Inheritance for FamilyDetails.
8) Program to implement Multilevel Inheritance for Bank CustomerDetails.
9) Program to implement Hierarchical Inheritance for StudentsDetails.
10) Program to implement VirtualFunction.

LOCF MAPPING

Course code and title : PROGRAMMINGINC++ Lab											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	2	3	3	3	3	2	3	3	2.7
CO2	2	3	2	3	3	2	3	2	3	3	2.6
CO3	2	2	3	2	2	2	2	3	3	3	2.4
CO4	2	3	2	3	3	2	2	3	3	3	2.6
CO5	2	3	3	3	3	2	2	2	3	3	2.6
Average of CO's = 2.6(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

LINUX

L T P C

0 0 4 2

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: To find various Linux commands
- CO2: To interpret and make effective use of Linux utilities
- CO3: To constructShell scripting language to solveproblems.
- CO4: To list shell scripting conditions
- CO5: To develop Linux communication oriented commands

Each exercise should be completed within three hours.

It is compulsory to complete all the exercises given in the list in the stipulated time.

1. Use any text editor in linux(say vi) to enter a C program to find the largest of three numbers, compile using gcc and display theoutput.
2. Use any text editor in linux(say vi) to enter a C program to find the factorial of a given number, compile using gcc and display theoutput.
3. Linuxcommands
   a. ls, mkdir, rmdir, cd, pwd, find, du(Directoryoriented)
   b. cat, cp, rm, mv, wc (File oriented)
   c. ps, kill, batch, grep(Processoriented)
   d. write, mail, wall (Communicationoriented
4. Linuxcommands
   a. date, who, who am i, man, cal, echo, bc(Generalpurpose)
   b. Pipe,Filter
5. Write a shell script to display date in the mm/dd/yy format, time, username and current directory.
6. Write a shell script to find the sum of digits of a givennumber.
7. Write a program to generate Fibonacciseries.
8. Write a program to check whether given string is palindrome ornot
9. Write a shell script to find factorial of a giveninteger.
10. Write a shell script to generate mark sheet of a student. Take 3 subjects, calculate and display total marks, percentage and Class obtained by thestudent.

Reference Books:

1. Linux: A practical approach, B. Mohamed Ibrahim, FirewallMedia
2. Comdex Linux and Open Office course kit revised and upgraded, Gupta, WileyIndia.
3. A practical guide to Linux command, editors, and shell programming 2/e; Mark G Sobell, PrenticeHall.
4. Linux Lab - Open source Technology : Ambavade–Dreamtech

LOCF MAPPING

Course code and title : LINUX LAB											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	2	3	3	2	2	2	3	3	2.5
CO2	2	3	2	3	3	2	3	2	3	3	2.6
CO3	2	2	3	3	3	2	2	3	3	3	2.6
CO4	2	3	2	3	3	2	2	3	3	3	2.6
CO5	2	3	3	3	3	2	2	2	3	3	2.6
Average of CO's = 2.58(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

MSU/ 2021-22 / UG-Colleges /Part-III (B.Sc. Software Engineering) / Semester – III / Core-3

JAVA PROGRAMMING

L T P C
4 0 0 4

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: To understand the basic concepts of Java programming
- CO2: To develop tools of Object – Oriented Paradigm in programming
- CO3: To understand the fundamentals of applet, event – driven programming
- CO4: To build ability to develop Applet programs with tools of Java
- CO5: To mould the skills to develop software programming

UNIT IClass, Objects, Inheritances, Arrays, Strings:

Classes, Objects and methods: Defining A Class – Fields Declaration – Methods Declaration – Creating Objects – Accessing Class Members – Constructors – Methods Overloading – Static Members – Nesting Of Methods. Extending a Class – Overriding Methods – Final – Variables, Methods And Classes – Finalizer Methods. (15L)

UNIT II Arrays, Strings, Interfaces and Packages:

One-Dimensional Arrays – Creating An Array – Two-Dimensional Arrays – Strings.

Interfaces: Defining Interfaces – Extending Interfaces – Implementing Interfaces – Accessing Interface Variables.Java API Packages – Using System Packages – Naming Conventions – Creating Packages - Accessing A Package – Using A Package – Adding Classes To A Package – Hiding Classes – Static Import. (15L)

UNIT IIIMultithreading and Exceptions:

Creating Threads – Extending Thread Class – Stopping And Blocking A Thread – Life Cycle Of A Thread – Using Thread Methods – Thread Exceptions – Thread Priority – Synchronization – Implementing Runnable Interface. Managing Errors and Exceptions: Types Of Errors – Exceptions – Syntax Of Exception Handling Code – Multiple Catch Statements – Finally Statement – Throwing Our Own Exceptions – Using Exceptions For Debugging.(15L)

UNIT IVApplet Programming

Applet Programming: How Applets Differ From Applications? – Preparing Applets – Building Applet Code – Applet Life Cycle – Creating An Executable Applet – Designing A Web Page – Applet Tag – Adding Applet To HTML File – Running Applet - More About Applet Tag - Passing Parameters To Applets – Aligning The Display – Displaying Numerical Values .(15L)

UNIT VEvent Handling and Graphics Programming

Getting Input from User – Event Handling**.** The Graphics Class – Drawing Lines, Rectangles, Circles, Ellipses, Arcs, Polygons – Line Graphs – Using Control Loops in Applets – Drawing Bar Charts – Introducing to AWT Package. (15L)

TEXT BOOK:

Programming with Java A Primer – E.Balagurusamy, McGraw Hill- Fourth Edition

REFERENCE BOOKS:

Java2 – Complete Reference – Herbert Schildt, McGraw Hill Publications

LOCF Mapping

Course code and title : JAVA PROGRAMMING											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	3	2	2	2	3	3	2	2	2	2.4
CO2	3	3	3	2	2	3	3	2	3	3	2.7
CO3	2	3	3	2	2	2	3	3	3	2	2.5
CO4	2	3	3	3	2	2	2	3	3	3	2.6
CO5	2	3	3	3	3	2	2	3	3	3	2.7
Average of CO's = 2.58(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

B.Sc (CBCS) DEGREE EXAQMINATION

JAVA Programming

Semester: III

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10 Marks

Answer all Questions

Choose the correct answer

1. Java uses ____ to represent characters.

   a. byte code b. Unicode c. ASCII d. none

2. _____ defines a scope of variable

   a. braces b. blocks c. code d. all the above

3. Classes in the java program is encapsulated by

   a. method overloading b. method overriding c. main() d. none

4. _____ operator dynamically allocate the memory for an object

   a. this b. throw c. new d. all the above

5. _____ can be used to overriding

   a. inheritance b. interface c. final d. none

6. Partial implementation of class in interface is declared as

   a. abstract b. interface c. final d. none

7. _____ defines a path of execution

   a. abstract b. interface c. final d. thread

8. The Applet class contained in

   a. java.awt b. applet viewer c. java.applet d. none

9. All events are encapsulated in

a. AWT b. event object c. applet d. all above

10. AWT classes are contained in _____.

a. java.awt b. java. Event c. java.applet d. none

PART B-(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words.

11 a. Explain automatic type promotion in java. Or

b. Define scope of variable. Give an example.

12 a. Define Method overriding. Give an example. Or

b. Define command line argument. Give an example

13 a. Explain CLASSPATH Or

b. Define exception handling. Give an example.

14 a. Explain Applet Display methods

b. Explain delegation event models. Or

15 a. Explain how to create frame window using Applet. Or

b. Explain how to create Choice controls

PART C -(5X8=40Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16 a. Explain elementary data types in java Or

b. Explain how to declare objects. Give an example

17 a. Explain Overloading constructors with example Or

b. Explain how to create multiple inheritance. Give an example.

18 a. Explain how to import packages. Give an example. Or

b. Explain how to create multiple thread. Give an example.

19 a. How to create Applet Skeleton. Discuss Applet methods . Or

b. Explain Event Listener Interface

20 a. Explain any two graphical function with example Or

b. Explain how to create menu. Give an example

L T P C
0 0 3 2

JAVA PROGRAMMING Lab

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: To build and make effective use of Java Programming to develop softwares.
- CO2: To develop the dimensional arrays
- CO3: To implement interfaces
- CO4: To develop, create and deal multiple threads
- CO5:To design Applet web page

1. Write a JAVA program using Multiple Constructors
2. Write a JAVA program using different types of inheritance
3. Write a JAVA program using Overriding Methods.
4. Write a JAVA program using one-dimensional arrays
5. Write a JAVA program using Two-dimensional arrays
6. Write a JAVA program implementing interface(s)
7. Write a JAVA program to create and import package
8. Write a JAVA program to create and deal multiple threads
9. Write a JAVA program with throwing your own exception
10. Write a JAVA program using Applet to Design Web Page.
11. Write a JAVA program for handling mouse events
12. Write a JAVA program for handling keyboard events.

LOCF MAPPING

Course code and title : JAVA PROGRAMMING LAB											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	2	3	3	2	3	2	2	3	2.5
CO2	2	3	2	3	3	2	3	2	3	3	2.6
CO3	2	2	3	3	3	2	2	3	3	3	2.6
CO4	2	3	2	3	2	2	2	3	3	3	2.5
CO5	2	3	3	3	3	2	2	2	3	3	2.6
Average of CO's = 2.5(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

SCRIPTING LANGUAGES

L T P C

3 0 0 3

On Successful completion of the course, the student will be able to

- CO1: To d the conceefinepts of scripting languages
- CO2: To demonstrate simple web page using HTML
- CO3: To develop web-based projects
- CO4: Ability to compare Scripting languages and programming languages
- CO5: To explain CSS, Multimedia in HTML and Javascript

Unit I: Introduction to Web programming and HTML

Examining the Pieces of Web Programming: Creating a Simple Web Page - Creating a Dynamic Web Page - Storing Content

The Basics of HTML5: Diving into Document Structure - Looking at the Basic HTML5 Elements - Marking Your Text - Working with Characters - Making a List - Building Tables

Unit II: CSS and HTML Forms

The Basics of CSS3: Understanding Styles - Styling Text - Working with the Box Model - Styling Tables - Positioning Elements

HTML5 Forms: Understanding HTML5 Forms - Using Input Fields - Adding a Text Area - Using Drop-Down Lists - Enhancing HTML5 Forms - Using HTML5 Data Validation

Unit III: Advanced CSS and HTML Multimedia

Advanced CSS3: Rounding Your Corners - Using Border Images - Looking at the CSS3 Colors - Adding Shadows. **HTML5 and Multimedia:** Working with Images - Playing Audio - Watching Videos

Unit IV: JavaScript

JAVASCRIPT: Knowing Why You Should Use JavaScript - Seeing Where to Put Your JavaScript Code - The Basics of JavaScript - Controlling Program Flow - Working with Functions. **Advanced JavaScript Coding:** Understanding the Document Object Model - Finding Your Elements

Unit V: Introduction to jQuery

Using jQuery: Using jQuery Functions - Finding Elements - Replacing Data - Changing Styles

Reacting to Events with JavaScript and jQuery: Understanding Events - Focusing on JavaScript and Events - Looking at jQuery and Events

Text Book:

1. PHP, MySQL &Javascript for dummies - Richard Blum, Wiley Publishing – 2018 (Book:Chapter - 1:1, 2:1, 2:2, 2:3, 2:4, 2:5, 3:1, 3:2, 3:3, 3:4)

Reference Books:

1. MASTERING HTML, CSS & JavaScript Web Publishing – Laura Lemay, Rafe Coburn and Jennifer Kyrnin – BPB publishing – 2016
2. Beginning HTML, XTML, CSS and Java script - Jon Duckett - Wiley Publishing
3. Web Technologics for Beginners - Ashwin Mehta - Shroff Publishers & Distributors Pvt. Ltd.

LOCF MAPPING

Course code and title : **SCRIPTINGLANGUAGES**											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	3	2	2	2	3	3	2	3	2	2.5
CO2	2	3	2	3	3	2	3	2	3	3	2.6
CO3	2	2	3	2	2	2	2	3	3	3	2.4
CO4	2	3	2	3	3	2	2	3	3	3	2.6
CO5	2	3	3	3	3	2	2	2	3	3	2.6
Average of CO's = 2.54(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

MODEL QUESTION

B.Sc.(CBCS)DEGREE EXAMINATION,

Third Semester(Software Engineering) –– Allied

SCRIPTING LANGUAGES

(For those who joined in July2021 onwards)

Time: Three hours Maximum:75 marks

PARTA—(10x1=10marks)

Answer ALL questions.

Choose the correct answers:

1. ––––––––– convertstheconnectionintoasecuretunnelforsendingdatainHTTPclientrequest.
   (a) CONNECT (b)DELETE (c) GET (d) HEAD
2. Unvisitedlinksappearsunderlinedin–––––––––color.
   (a) green (b) blue (c) red (d)yellow
3. A ––––––––– applies the defined styles toelementsthatisinaspecificstateonthewebpage.
   (a) abstract-class (b) pseudo-class(c) empty-class (d) base-class
4. The–––––––––elementprovidesalargerinterfaceforenteringtext.
   (a) text (b) textarea (c) anchor (d) headings
5. ––––––––– specifiestheamounttheimageextendsbeyondthenormalborderboxarea.
   (a) border-image-source (b) border-image-slice
   (c) border-image-outset (d) border-image-repeat
6. The–––––––––functiontodefinethedirectionofthefadeandthetransitioncolors.
   (a) radial-gradient( ) (b) linear-gradient()
   (c) parallel-gradient (d) vertical-gradient
7. JavaScriptallowsstoringmultiplevaluesinasingle variable. Thesevariablesarecalled––––––
   (a) constant (b) operator (c) arrays (d) function

8. ----------returnstheDOMobjectforthehtmlelementofthewebpage.

(a) documentElement (b)documentMode

(c) characterSet (d)embeds

9. ----------functionstofindelementsinthewebpage.

(a) getElementBysearch( )

(b) getElementBywerite( )

(c) getElementByread()

(d) getElementByTagName( )

10. ----------triggerswhenthebrowser'shistorychanges.

(a) Onpageshow (b) Onpopstate(c) Onpagehide (d) Onstorage

PARTB—(5x5=25marks)

AnswerALLquestions,choosingeither(a)or(b)Eachanswershouldnotexceed250words.

11. (a)Whatismeantbystyling?Explain.(OR)

(b)Discussaboutformattingtextwithexample.

12. (a)Explainaboutcascadingstylerules. .(OR)

(b)How willyouusingdrop-sownlistinHTML5?Giveanexample.

13. (a) Explainaboutroundingyourcorners. .(OR)

(b) Describelookingatdigitalvideoformats.

14. (a)ElucidateaboutembeddingJavaScript withanexample. .(OR)

(b)Discuss about switch statements with suitableexample.

15. a) Illustrate about mouse events with anexample. .(OR)

(b) Discuss about clicking the button withsuitableexample.

PARTC—(5x8=40marks)

AnswerALLquestions,choosingeither(a)or(b)Eachanswershouldnotexceed600words.

16. (a)Elucidate about client-sideprogramming. .(OR)

(b)Discuss abou tworkingwithcharacters.

17. (a)Explain playingwithcolorinCSS. .(OR)

(b)Illustrate textboxesandfile upload withsuitableexample.

18. (a)Explain addin gshadowsindetail.(OR)

(b)Describe briefly about working with imag emap.

19. (a) Analyze the different types of loopingstatementinJavaScript. .(OR)

(b) Discussaboutfindingyourelement.

20. (a) Explainaboutworkingwithtext. .(OR)

(b)DiscussabouttheJQueryeventhandlerindetail.

MSU/ 2021-22/ UG-Colleges /Part - III (B.Sc. Software Engineering/ Semester – III / Allied Practical-III

SCRIPTING LANGUAGES Lab

L T P C
0 0 2 2

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: To demonstrate a web page using HTML
- CO2: To develop CSS script files
- CO3: To develop knowledge in web-based projects
- CO4: To create mouse handling functions
- CO5: To design various elements using Java Script

1. Create a web page with HTML5 media elements.
2. Use CSS script to display different background-colour for different tags including header, footer, nav etc. in a form. Use HTML5 data validation.
3. Develop a HTML Form, which accepts any Mathematical expression. Write JavaScript code to Evaluates the expression and Displays the result.
4. Write a JavaScript code to find the sum of N natural Numbers. (Use user-defined function)
5. Create a web page using two image files, which switch between one another as the mouse pointer moves over the image. Use the on Mouse Over and on Mouse Out event handlers.
6. Create a form having number of elements (Textboxes, Radio buttons, Checkboxes, and so on). Write JavaScript code to count the number of elements in a form.
7. Create a HTML form that has number of Textboxes. When the form runs in the Browser fill the textboxes with data. Write JavaScript code that verifies that all textboxes has been filled. If a textboxes has been left empty, popup an alert indicating which textbox has been left empty.
8. Create a form for Student information. Write JavaScript code to find Total, Average, Result and Grade.

LOCF MAPPING

Course code and title : **SCRIPTINGLANGUAGES**											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	2	2	3	3	2	2	3	3	3	2	2.5
CO2	2	3	3	2	2	3	3	3	3	2	2.6
CO3	2	3	3	2	2	2	3	3	3	3	2.6
CO4	2	3	3	3	3	2	2	3	3	3	2.7
CO5	2	3	3	3	3	2	2	3	3	2	2.6
Average of CO's = 2.6(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

L T P C
4 0 0 4

SOFTWAREENGINEERING

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: Tolistthesoftwareengineeringb a s i c concepts.
- CO2: Interprethow thecoding are managed in software engineering
- CO3: To develop testinganduserinterfacedesign
- CO4: To Design thesoftwareprojects
- CO5: To developthesoftwareprojectsandsoftwarereliabilityandqualitymanagement

UNIT-I

Introduction-SoftwareEngineeringDiscipline-EvolutionandImpact-Programs VsSoftware Products. Software Life Cycle Models: Use of a Life CycleModels-ClassicalWaterfallModel-IterativeWaterfallModel-PrototypingModel-EvolutionaryModel-SpiralModel.SoftwareProjectManagement:Responsibilities of a Software Project Manager - Project Planning - Metrics forProjectSizeEstimation-ProjectEstimationTechniques-RiskManagement.(15L)

UNIT-II

RequirementsAnalysisandSpecification:RequirementsGatheringandAnalysis–SoftwareRequirementsSpecification(SRS)-FormalSystemDevelopment Techniques. Software Design: Characteristics of a Good SoftwareDesign-CohesionandCoupling-NeatArrangement-SoftwareDesignApproaches.(15L)

UNIT-III

Function-OrientedSoftwareDesign:OverviewofSA/SDMethodology-Structured Analysis - Data Flow Diagrams (DFDs).Object Modeling Using UML:OverviewofObject-OrientedConcepts-UMLDiagrams-UseCase Model - ClassDiagrams–InteractionDiagrams-ActivityDiagrams-StateChartDiagram.(15L)

UNIT-IV

UserInterfaceDesign:CharacteristicsofaGoodUserInterface-BasicConcepts-TypesofUserInterfaces-Component-BasedGUIDevelopment;CodingandTesting:Coding-Testing-UNITTesting-Black-BoxTesting-White-BoxTesting-Debugging-IntegrationTesting-SystemTesting.(15L)

UNIT-V

Software Reliability and Quality Management: Software Reliability - StatisticalTesting-SoftwareQuality-SoftwareQualityManagementSystem-ISO9000.ComputerAidedSoftwareEngineering:CASEEnvironment-CASEsupportinSoftwareLifeCycle-CharacteristicsofCASETools-ArchitectureofaCASEEnvironment.SoftwareMaintenance:CharacteristicsofSoftwareMaintenance - Software Reverse Engineering - Software Maintenance ProcessModels - Estimation of Maintenance Cost. Software Reuse: Issues in any ReuseProgram-ReuseApproach.(15L)

TEXTBOOK

1. RajibMall,"FundamentalsofSoftwareEngineering",3rdEdition, PrenticeHallofIndiaPrivateLimited,2008.
2.

REFERENCEBOOKS

1. RajibMall,"FundamentalsofSoftwareEngineering",4thEdition,PrenticeHallofIndiaPrivateLimited,2014.
2. RichardFairley,"SoftwareEngineeringConcepts",TMGHPublications,2004.

LOCF MAPPING

Course code and title : **SOFTWAREENGINEERING**											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	3	2	2	2	3	3	3	2	2.5
CO2	3	3	2	2	2	3	3	2	2	2	2.4
CO3	2	3	2	2	2	2	3	3	2	2	2.3
CO4	2	2	2	3	3	2	2	3	3	3	2.5
CO5	2	2	3	3	3	2	2	3	3	2	2.5
Average of CO's = 2.34(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

B.Sc (CBCS) DEGREE EXAMINATION

Software Engineering

Semester: III

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10 Marks)

Answer all Questions

Choose the correct answer

1. Customers are known as _____.

   (a) Users (b) Clients (c) Developers (d) Managers

2. A _____ is a place where we can put the data.

   (a) variable (b) object (c) attribute (d) association

3. _____ is an effective way to gather information from a group of people.

   (a) Observation (b) Interviewing (c) Brainstorming
   (d) Informal Use Case Analysis

4. The _____ rule is called the Pareto principle.

   (a) 50-50 (b) 60-40 (c) 70-30 (d) 80-20

5. A _____ diagram shows the sequence of messages exchanged by the set of objects performing a certain task.

(a) Sequence (b) Class (c) State (d) Collaboration

6. A _____ diagram is another way of expressing dynamic information about a system.

(a) Sequence (b) Class (c) State (d) Collaboration

7. _____ design is the design of computational mechanisms.

(a) Class (b) Database (c) Algorithm (d) Protocol

8. The _____ principle is an extension of the divide and conquer principle.

(a) Cohesion (b) Portability(c) Testability (d) Abstraction

9. A _____ is a situation where two or more threads are stopped waiting for each other to do something

(a) Deadlock (b) live lock (c) critical race(d) none

10. _____ is the process of deciding in sequence a set of activities will be performed, as well as when they should start and be completed.

(a) Scheduling (b) Tracking (c) Designing (d) Testing

PART B(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words

11. (a) What are most important attributes of software quality? Explain. Or

(b) Explain difficulties and risks in Software Engineering as a whole.

12. (a) Write notes on the starting point for software projects. Or

(b) How will you manage changing requirements? Explain.

13. (a) Describe Associations and Multiplicity. Or

(b) Explain the Activity diagrams.

14. (a) What are techniques for making good design decisions? Explain. Or

(b) How to write a good design document?

15. (a) Write notes on deadlock and livelock. Or

(b) What is project management? What are the specific activities often done by a project manager?

PART C -(5X8=40Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words

16. (a) List and explain the activities common to software projects. Or

(b) Explain in detail about example of classes representing geometric points.

17. (a) What are the two major types of requirements? Explain. Or

(b) Explain the various techniques for gathering and analyzing requirements.

18. (a) Explain detailed example of a class diagram genealogy. Or

(b) What are the two types of UML interaction diagrams? Explain.

19. (a) Explain Software architectures for high level design. Or

(b) List and explain the design principles leading to a good design.

20. (a) Explain Quality Assurance in general. Or

(b) Explain Project Scheduling and Tracking.

MSU/ 2021-22 / UG-Colleges /Part-III (B.Sc. Software Engineering) / Semester – III / Non-Major Elective

1. Fundamentals of Internet and Emerging Technologies

L T P C
2 0 0 2

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: To explain the background, drivers and history in the invention of computers so
- that the student gains a big picture of the subject.
- CO2: To provide a high level understanding various branches of Computer Science so
- that students can detect their interest and specialization
- CO3: To introduce the computational models such as cloud computing and makestudents choose one for their use
- CO4: Understand the Artificial Intelligence technologies, Networks and Cybersecurity and its impact on human life in future
- CO5: Introduce Computer Ethics and help the society retain human values whiletechnology is developing.

Unit I

Man and Machines - Human Capability of five senses to see, hear, smell, speak and act - Basic Structure of a Computer - Data - Characteristics of a Computer-History of Computers - - Classification of Computers (6L)

Unit II

Application Software and Programming Languages - Application Software - Packaged Software Products (Off-the-Shelf Products) - Office Automation - Core Banking System - Enterprise Software Products – SAP - Sales Force – Oracle - CRM and ERP - Early High Level Programming Languages - Translators (Compilers and Interpreters) – FORTRAN – BASIC – COBOL – PASCAL - C Language - Web Programming Languages – HTML - Java Script - Objected Oriented Programming with C++ - C++ Language - C# Language - Java Programming - Modern Programming Language – Python - GO Language - Swift Language - Kotlin Language - R Language - Artificial Intelligence Languages - Database Management Software (6L)

Unit III

Digital Transformation - Data (High Value Commodity) - Digital Transformation in Business - Features of Digital Transformation - Banking and Financial Services Industry (BFSI) - Human Resource Management – Healthcare - Big Data Analytics in Healthcare - Virtual Reality Wearable medical devices - Retail Industry and CPG -Computer Networks - Basic Networking Terminologies - Node / Host - Client / Server - MAC Address - IP Address - Unicast, Multicast and Broadcast - Half Duplex and Full Duplex – Encapsulation - Network Protocols - Open System Interconnection (OSI) Model - TCP/IP Protocol Suite - Transfer Control Protocol (TCP) - User Datagram Protocol (UDP) – Ethernet - Hardware Used for Networking - Hubs and Switches – Routers - Networking Cables - Coaxial Cable - Twisted Pair Cable - Fiber Optics Cable - Network Topology - Ring Topology - Star Topology (Hub and Spoke Topology) - Bus Topology - More Topologies - Wireless Networks - Radio Waves - Micro Waves – Bluetooth – WiFi - Types of Networks - Personal Area Network (PAN) - Local Area Network (LAN) - MAN and WAN (6L)

Unit IV

Cyber Security - IT Assets - Risk and Vulnerabilities - Computer Security Types - Fundamental Principles of Security - Physical Safety and Security - Access Control - Biometric Access Control - Network Security - AAA Server -– Firewall – Malware – Spyware – Adware – Spamware – Virus – Ransomware – Worms - Trojan Horse - Computer Virus - Types of Computer Viruses - Antivirus Protection - Digital Signature - Cyber Crime – Hacking – Phishing - Spam e-mails - Attack using Malware - ATM Skimming –

Ransomware - Fake News - Deep fake – Cyberbullying - Cyber Law (IT Law) -
Cloud Computing and Virtualization - Own Versus Hire - Benefits and Challenges of Cloud Computing – Virtualization –Hypervisor - Data Center - Hardware Platform Infrastructure - Infrastructure as a Service (IaaS) - Software as a Service (SaaS) - Platform as a Service (PaaS) - Application as a Service (AaaS) - Functions as a Service (FaaS) - Cloud Deployment Models - Private Cloud - Community Cloud - Public Cloud - Hybrid Cloud (6L)

Unit V

Artificial Intelligence - Machine Learning - Training Data - Machine Learning Models - Deep Learning and Neural Networks - Robotics Process Automation (RPA) - Speech Recognition - Natural Language Processing – Bots - Natural Language Generation - Computer Vision – Biometrics - Sentiment Analysis - Artificial Intelligence Applications - Banking and Financial Fraud Detection - Medical Diagnostics - Retail Business - Autonomous Car / Driverless Car

Professional Ethics in Computer - Ethics and Law - Ethical Behaviors - Professional Ethics Frameworks - Utilitarian Ethics - Deontological Ethics - Virtue Ethics, Communitarian Ethics - Ethical Issue in Computer Science - Intellectual Property Rights (IPR) - Data Protection Law - Information Security and Privacy - Software License - Open-Source Software - Freeware - Unethical Content Filtering - Technology Impact on Society (6L)

Textbook

Fundamentals of Internet and Emerging Technologies (2021) , C. Xavier, *New Age International Publishers Ltd.*, New Delhi., Chapters 1, 2, 3 and 9 to 16 only.

Reference Book

1. Introduction to Computer Science, Second Edition, ITL Education Solutions Ltd, Pearson Education
2. Introduction to Computers, Peter Norton, 7th Edition, McGraw Hill Education
3. Fundamentals of Computers, V.Rajaram, 5th Edition, PHI

LOCF MAPPING

Course code and title: FUNDAMENTALSOFINTERNET AND EMERGING TECHNOLOGIES											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	3	2	2	2	3	3	3	2	2.5
CO2	3	3	3	2	2	3	3	3	2	2	2.6
CO3	2	3	3	2	2	2	2	3	2	2	2.3
CO4	2	2	2	3	3	2	2	3	3	3	2.5
CO5	2	2	3	3	3	2	2	3	3	2	2.5
Average of CO's = 2.48(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

B.Sc (CBCS) DEGREE EXAQMINATION

Fundamentals of Internet & Emerging Technologies

Semester: III

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10 Marks

Answer all Questions

Choose the correct answer

1. A large number of several computer networks spreading across the world is -------.

   (a) Internet b. www c. wide area network d. node

2. IRC is ---------.

   a. Internet Relay Chat b. Internal Relay Chat c. Internet Relay Chat d. none

3. Devices are required to access the internet through television sets

   a. internet television translator b. set-top boxes c. both a & b d. none

4. -------- is a set of rules that enable the exchange of information between computers.

   a. protocols b. band width c. interface d. none

5. The first page of a web site is ----------.

   a. front page b. home page c. web site d. none

6. Webalizer is an example of----------.

   a. statics analyzer package b. accounting package c. database d. none

7. ___ is transaction between the customer and seller.

   a. B2C b. B2B c. C2B d. none

8. WAP stands for

a. Wireless Application Protocol b. Wired application Protocol

   c. Wireless Application Procedure d. none

9. Blog sites are hosted by ---------.

   a. service provider b. protocols c. ISDN d. none

10. IDS stands for

    a. Intrusion Detection System b. Integrated digital System

    c. Integrated digital Software

PART B-(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words

11. a. Explain any two network technologies.**OR**

    b. Write short notes on E-mail.

12 a. List the advantages of E-mail. **OR**

    b.Write about URL.

13 a. Write short note on Front page. **OR**

b. How to analyze Visitor statics on the internet.

14 a. Write about M-Commerce. **OR**

b.Explain issues of E-commerce

15 a. Describe the advantages of Blogs **OR**

b. Write note on cybersquaffing .

PART C -(5X8=40Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16 a. Explain architecture of the internet. **OR**

b.Write notes on

i IRC ii News groups

17 a. Explain DNS **OR**

b. Write short note on

i Mail transfer protocol

ii Internet explorer

18 a. Explain website promoting methods. **OR**

b. Write about structure of websites.

19 a. What is the business relationship in the internet.**OR**

b. Explain marketing strategies on the web.

20 a. Explain how to host a blog. **OR**

b. Discuss about viruses and worms

2.BASIC PROGRAMMING DESIGN

L T P C
2 0 0 2

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: To recall the basic concepts of Programming
- CO2: To make use of the structures of programming constructs.
- CO3: To analyze program testing and debugging
- CO4: To discuss the Evolution and generation of computer programs
- CO5: To develop programs using Computer Software

Unit I

Computer Program: Introduction – Developing a program – Algorithm – Flowchart – Decision Tables.(6L)

Unit II

Program Testing and Debugging – Program Documentation – Program Paradigms: Unstructured programming, Structured programming and Object Oriented Programming – Characteristics of a Good Programming. (6L)

Unit III

Computer Languages: Evolution Programming Languages – Classification of Programming Languages – Generation of Programming Languages – Features of Good Programming language.(6L)

Unit IV

Computer Software: Software Definition – Relationship between Software and Hardware - Software Categories : System Software and Application Software – Terminology Software Firmware, Liveware, Freeware, Public Domain Software,Shareware, Commercial Software and Proprietary Software. (6L)

Unit V

Evolution of Internet - Internet Basics: Basic Internet Terms – Getting connected to Internet - Internet Applications – E-mail – Searching the Web – Internet and Viruses. (6L)

Text Book:

Introduction to Computer Science, ITL Education Solutions Limited, 2/e, Pearson

Reference Books:

1. Fundamentals of Computers, V.Rajaram, 5th Edition, PHI
2. IntroductiontoComputers,PeterNorton,7/e,TMH.

LOCF MAPPING

Course code and title : BASICPROGRAMMINGDESIGN											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	3	2	2	2	3	3	3	2	2.5
CO2	3	3	3	2	2	3	3	3	3	2	2.7
CO3	2	3	3	2	2	2	3	3	2	2	2.4
CO4	2	2	2	3	3	2	2	3	3	3	2.5
CO5	2	2	3	3	3	2	2	3	3	2	2.5
Average of CO's = 2.52(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

B.Sc (CBCS) DEGREE EXAQMINATION

Basic Programming Design

Semester: III

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10 Marks

Answer all Questions

Choose the correct answer

1. The number system computers operate

a. Decimal b. Octal c. Binary d. Hexadecimal

2. The gate known as inverter

a. AND b. OR c. NOT d. NAND

3. The basic component of fourth generation computers

a. Vacuum Tube b. Transistor c. IC d. Microprocessor

4. Administrative section of a computer system

a. input unit b. output unit c. Memory unit d. central processing unit

5. Mouse, track ball and joystick are examples of _____

a. Scanning devices b. Pointing devices c. Storing devices d. Multimedia devices

6. Device used to generate data on magnetic media other than paper

a. Computer Output Microfilm b. printer c. plotter d. monitor

7. Memory that has the highest cost per bit of storage

a. RAM b. Cache memory c. ROM d. Hard disk

8. CDROM is a

a. Optical Disk b. Magnetic Disk c. Magneto- Optical Disk d. none

9. Set of rules that coordinates the exchange of information

a. Message b. Protocol c. Gateway d. Router

10. URL stands for.

a. Uniform Resource Locator b. Universal Resource Locator

c. Uniform Resource Location d. Universal Resource Location

PART B-(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words.

11. a. Convert decimal 36 and. 671 into its binary equivalent Or

b. Write a note on NAND gate.

12. a. Discuss the characteristics of computers. Or

b. List out the various applications of computers.

13. a. Write a note on Web Cam . Or

b. Describe Projectors.

14. a. Explain memory hierarchy. Or

b. Describe pen drive.

15. a. Describe data communication components. Or

b. Explain Video Conferencing.

PART C -(5X8=40Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. a. Briefly explain the types of Number System. Or

b. Explain the basic logic gates with truth table and diagrams

17. a. Explain the generations of computers Or

b. Describe the classification of computers according to functionality.

18. a. Explain Pointing devices . Or

b. Explain the different types of printers.

19. a. Describe the types of ROM Or

b. Explain the storage organization of magnetic disks

20. a. Explain the different Data Transmission Mode. Or

b. Describe email in detail.

MSU/ 2021-22 / UG-Colleges /Part-III (B.Sc. Software Engineering) / Semester – IV / Core-4

DATA STRUCTURES

L T P C
4 0 0 4

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: To list theconceptsofbasicdatastructures
- CO2: To perform techniquessuchasstack,Queuesand Linkedlist.
- CO3: Tohave analyzethenetworkstructuresthroughtreesandgraph.
- CO4: Tomakethestudentstounderstandthebasicalgorithmsforsorting.
- CO5: To acquire the performance Analysis

UnitI

Basic Concepts:- Algorithm specification – Data Abstraction – Performance Analysis.**ArraysandStructures:-**Arrays:Abstractdatatype–Polynomials–SparseMatrices– Representationof Multidimensional Arrays.(15L)

Unit-II

StacksandQueues:-Stacks–Queues–EvaluationofExpressions.**LinkedLists**:-

SinglyLinkedListsandChains–LinkedStacksandQueues–
Polynomials:PolynomialRepresentation – Adding Polynomials. Sparse Matrices: Sparse Matrix Representation. – DoublyLinkedLists.(15L)

UnitIII

Trees:-Introduction–BinaryTrees–BinaryTreeTraversals:InorderTraversal–Preorder Traversal – Postorder Traversal. Heaps – Binary Search Trees Forests: Transforming aForestinto aBinaryTree.(15L)

UnitIV

Graphs: - The GraphAbstract Data Type-Elementary Graph Operations– MinimumCost Spanning Trees: Kruskal's Algorithm – Prim's Algorithm. – Shortest Paths and TransitiveClosure:SingleSource/All Destination: Nonnegative EdgeCosts-AllPairsShortestPaths.(15L)

UnitV

Sorting:-Motivation– InsertionSort–QuickSort–MergeSort:RecursiveMergeSort.

–HeapSort–ExternalSorting: Introduction–k-wayMerging..**Hashing**:-StaticHashing:HashTables.

TextBook:

Fundamentals of Data Structures in C by Ellis Horowitz, SartajSahni, Susan Anderson-Freed–Second Edition –UniversitiesPress(India)PrivateLimited.

ReferenceBooks:

1. DataStructuresUsingC,Second Edition byReemaThareja– Oxford UniversityPress
2. DataStructuresbyDrNJeyaPrakash – AnuradhaPublications

LOCF MAPPING

Course code and title **: DATA STRUCTURES**											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	3	2	2	2	3	3	2	2	2.4
CO2	3	3	3	2	2	3	3	3	2	2	2.6
CO3	2	3	3	2	2	2	3	3	2	2	2.4
CO4	2	2	2	3	3	2	2	2	3	3	2.4
CO5	2	2	3	3	3	2	2	3	3	2	2.5
Average of CO's = 2.46(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

B.Sc (CBCS) DEGREE EXAMINATION

DATA STRUCTURES

Semester: IV

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10 Marks)

Answer all Questions

Choose the correct answer

1. Programmer's own data type

   a) Information b) Data c) Abstract data type d) Object

2. Matrix where majority of elements have null value

   a) Null matrix b) square matrix c) Value matrix d) Sparse matrix

3. In a linked list a node contains information on

   a) data b) link c) data and link d) none

4. A linked list where the last node of the list points to the first node

   a) single linked list b) circular linked list c) double linked list d) none

5. Postfix form of expression (A+B)^C-(D*E)/F)

   a) AB+C^DE*F/- b) AB+C^DEF*/- c) AB+C^DEF/-* d) AB+CDEF/-*^

6. _____ inserts an element at the rear of the queue

   a) enqueue b) dequeue c) queue rear d) queue data node

7. The out degree of a leaf is

   a) 0 b) 1 c) 2 d) any number

8. In any binary tree, the maximum number of nodes on level l is

   a) $2l$ b) l c) $2l+1$ d) 2^l

9. Algorithm for Single source shortest path problem

   a) Warshall b) Floyd c) Dijkstra d) none

10. Average run time of Quick sort algorithm

    a) O(1) b) $O(\log_2 n)$ c) $O(n)$ d) $O(n\log_2 n)$

PART B-(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words.

11 (a). Describe the concept of data structures. OR

(b). Explain Jagged table.

12 (a). Write the algorithm for searching an element in a single linked list. OR

b). Explain Fixed block storage.. OR

14. a. Prove that the height of a complete binary tree with *n* number of nodes is $\log_2(n+1)$
OR

b. How will you insert a node in a heap tree?

15. a. Explain adjacency matrix with example. OR

b. Explain adjacency list with example.

PART C -(5X8=40Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16 (a). Explain collision resolution techniques. OR

(b) Describe the different operations on arrays with relevant algorithms.

17 (a). Describe how to insert a node in a single linked list with relevant algorithms.OR

(b Explain any one application of linked lists.

18 (a). Explain the evaluation of expression using stacks OR

(b). Describe the various queue structures.

19. a. Explain binary tree traversal . OR

b. Describe the procedure to insert and delete an item in a binary search tree.

20. a. Describe Quick sort.. OR

b. Explain depth first and breadth first search in a graph with example.

MSU/ 2021-22 / UG-Colleges /Part-III (B.Sc. Software Engineering) / Semester – IV / Major Practical-IV

DATA STRUCTURE LAB

L T P C
0 0 3 2

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: To develop skills in implementing data structure algorithms
- CO2: To prove Stack concepts
- CO3: To interpret Queue implementation in Data structure algorithms
- CO4: To develop Tree traversals
- CO5: Implementing Sorting algorithms

Eachexerciseshouldbecompletedwithintwohours.
Itiscompulsoryto completealltheexercisesgiveninthelistinthestipulatedtime.

1. Search an element in a list using Binary Search.
2. Implementation of Stack- Push and Pop.
3. Implementation of Queue–Enqueue and Dequeue
4. Implementation of BinaryTree Traversalsusingrecursion.
   a) Pre-order b)In-order c)Post-Order
5. Implementation of Breadth Firs tSearchalgorithm.
6. Implementation of Depth First Search algorithm.
7. Implementation of Merge Sort
8. Implementation of Quick Sort

LOCF MAPPING

Course code and title : DATA STRUCTURES LAB											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	2	3	3	2	3	2	2	3	2.5
CO2	2	3	2	3	3	2	3	2	3	3	2.6
CO3	2	2	3	3	3	2	2	3	3	3	2.6
CO4	2	3	2	3	2	2	2	3	3	3	2.5
CO5	2	3	3	3	3	2	2	2	3	3	2.6
Average of CO's = 2.5(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

MSU/ 2021-22/ UG-Colleges /Part - III (B.Sc Software Engineering**.) /Semester – IV /Allied II**

DIGITAL DESIGN

LTPC

3 0 0 3

COURSE OUTCOMES

On Successful completion of the course, the student will be able to

CO1: To recall the concept of digital systems, to operate on various number systems and

simplify Boolean functions and to distinguish logical and combinational circuits.

CO2: Illustrate the concept of digital and binary systems

CO3: Be able to develop combinational logic circuits.

CO4: Be able to design and analyze sequential logic circuits.

CO5: Construct and implementation of digital circuits and systems.

Unit I **12 Hours**

Number Systems : Codes and Digital Logic Binary Number System –Binary to Decimal Conversion – Decimal to Binary Conversion –Octal Numbers –Hexadecimal Numbers –The ASCII Code –The Excess- 3 Code –The Gray Code. Digital Logic:The Basic gates NOT, OR , AND –Universal Logic Gates NOR,NAND –AND-OR Invert Gates.

Unit II **12 Hours**

Combinational Logic: Circuits Boolean Laws and Theorems –Sum of Products Method– Truth Table to Karnaugh Map –Pairs, Quads and Octets –Karnaugh Simplifications –Don't Care Conditions –Product of Sums Method –Product of Sums Simplification.

Unit III **14 Hours**

Data Processing and Arithmetic circuits : Multiplexers –De-multiplexers –1-of-16-Decoders –BCD- to-Decimal Decoders –Seven-Segment decoders –Encoders –Exclusive-OR gates. Arithmetic Circuits:Binary Addition –Binary Subtraction –Unsigned Binary Numbers –Sign-Magnitude Numbers – 2's Complement Representation –2's Complement Arithmetic.

Unit IV: **10 Hours**

Flip-Flops:RS Flip Flops –Edge Triggered RS Flip Flops -Edge Triggered D Flip Flops -Edge Triggered JK Flip Flops –JK Master Slave Flip Flops.

Unit V: **12 Hours**

Registers : Types of Registers –Serial in serial out –serial in parallel out –parallel in serial out – parallel in parallel out–Universal Shift Register.

Text Book:

Digital Principles and Applications, by Albert Paul Malvino & DonaldP.Leach, Seventh Edition, McGraw Hill Education Private Limited

Reference Books:

1. Fundamentals of Digital Circuits, A.Anand Kumar, Second Edition,PHI Learning Private Limited2. 2.Digital design, M.Morris Mano, Third Edition, Pearson Education

LOCF MAPPING

Course code and title : DIGITAL DESIGN											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	3	3	2	2	3	3	2	2	2	2.5
CO2	3	3	3	2	2	3	3	3	3	2	2.7
CO3	2	3	3	2	2	2	3	3	3	2	2.5
CO4	2	3	3	3	2	2	2	3	3	3	2.6
CO5	2	3	3	3	3	2	2	3	3	3	2.7
Average of CO's = 2.6(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

B.Sc (CBCS) DEGREE EXAQMINATION
DIGITAL DESIGN
Semester: III

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10 Marks)

Answer all Questions

Choose the correct answer

1. Data selector is a ----- circuit.

a) Multiplexer b) Demultiplexer c)Encoder d)Decoder

2. -----circuit identify odd number of inputs.

a) AND b) OR c) NOT d) EX-OR

3. A flip flop is constructed from ----- gate

a) NOR b) NAND c) NOR and NAND d) None of the above

4. Feed back is in ---- flip flop

a) JK b) RS c) D d) ALL the above

5. Serial in Serial out register is constructed from

a) JK b) RS c) D d) ALL the above

6. NAND gate is equal to

a. bubbled AND gate b. bubbled OR gate c. bubbled NOT gate d. none

7. (A+B)(A+B') is equal to

a. A b. B c. A+B d. none

8. In Half adder the equation for sum is equal to output of two input

a. AND gate b. NAND gate c. NOR gate d. XOR gate

9. 2's complement is used to represent

a. +ve number b. –ve number c. Both +ve and –ve number d. none

10. Data is shifted in during ---- transition of serial in serial out register

a.positive b. negative c. positive and negative

d. none of the above

PART B(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)
Each answer should not exceed 250 words.

11(a). With suitable diagram explain construction and working ofMultiplexer. Or

(b). Explain the working principle of 1 to 16 decoder.

12(a). With neat diagram explain the function EX-OR gate. Or

b). Describe the working of seven segment display.

13.a. Explain Gray code in detail. Or

b. Explain bubbled AND and Bubbled OR gates.

14.a. Simplify F(A,B,C,D)= Σ(3,5,12,13,15) Or

b. Explain excess 3 code.

15.a. Add using two's complement

Find i.. -97+37 ii. – 43 and -27 Or

b. Explain universal shift register.

PART C -(5X8=40Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16(a).Explain the working of JK flip flop. Or

(b) Explain the function of RS flip flop.

17(a). Explain the working principle of serial in serial out registers Or

(b) Describe the circuit for serial in parallel out registers.

18(a). Explain in detail the Encoders Or

(b). Explain in detail the parity generators and checkers with suitable waveforms.

19.a. Implement all the logic gates using NAND gates. Or

b. Describe sum of product and product of sum with example.

20.a. Implement two variables, three variables and four variables karnaugh map.Also explain overlapping and rolling the map with example. Or

b. i. Simplify and draw the logic circuits.

i. F(A,B,C)=Σ(3,5,6,7)

ii. prove that A(A'+C)+(A'B+C)(A'BC+C') =0

PYTHON

L T P C

0 0 2 2

COURSE OUTCOMES

On Successful completion of the course, the student will be able to

CO1: To understand the basic concepts in python
CO2: To understand the concepts and develop python programs
CO3: To acquire the knowledge about menu driven programs
CO4: To improve the knowledge in CSV files
CO5: To understand the functions of python

1. Write a menu driven program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon user‟s choice.
2. Write a menu-driven program, using user-defined functions to find the area of rectangle, square, circle and triangle by accepting suitable input parameters from user.
3. Write a program (WAP) to display the first n terms of Fibonacci series.
4. WAP to find factorial of the given number.
5. WAP to find sum of the following series for n terms: 1 – 2/2! + 3/3! ---------- n/n!
6. WAP to calculate the sum and product of two compatible matrices.
7. WAP to explore String functions.
8. WAP to create and read a CSV file and display the file contents.
9. WAP to write the text “hello python” in an existing file.
10. WAP to set background color and draw a circle using turtle module

LOCF MAPPING

Course code and title : **PYTHON**											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co’s
CO1	2	2	3	2	3	2	2	3	3	3	2.4
CO2	2	3	3	2	2	2	3	3	3	2	2.5
CO3	2	2	3	2	3	2	3	3	2	2	2.4
CO4	2	2	2	3	3	2	2	3	3	3	2.5
CO5	2	2	3	3	3	2	2	3	3	2	2.5
Average of CO’s = 2.52(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

MSU/ 2021-22 / UG-Colleges /Part-III (B.Sc. Software Engineering) / Semester – IV / Allied-IV

SOFTWARE QUALITY AND TESTING

L T P C
4 0 0 4

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: To understand software testing and quality assurance as a fundamental component of software life cycle
- CO2: To define the scope of SW T & QA projects
- CO3: To efficiently perform T & QA activities using modern software tools
- CO4: To estimate cost of a T & QA project and manage budgets
- CO5: To prepare test plans and schedules for a T&QA project

UNIT I

Software Quality Assurance and Standards: The Software Quality challenge, What is Software Quality, Software Quality factors, The components of Software Quality Assurance system, Software Quality Metrics, Costs of Software Quality, Quality Management Standards, Management and its role in Software Quality Assurance, SQA unit and other actors in SQA system. (12L)

UNIT II

Software Testing Strategy and Environment: Minimizing Risks, Writing a Policy for Software Testing, Economics of Testing, Testing-an organizational issue, Management Support for Software Testing, Building a Structured Approach to Software Testing, Developing a Test Strategy Building Software Testing Process: Software Testing Guidelines, workbench concept, Customizing the Software Testing Process, Process Preparation checklist.(12L)

UNIT III

Software Testing Techniques: Dynamic Testing – Black Box testing techniques, White Box testing techniques, Static testing, Validation Activities, Regression testing**. Software Testing Tools:**Selecting and Installing Software Testing tools – Automation and Testing Tools.(12L)

UNIT IV

Testing Process : Seven Step Testing Process – I: Overview of the Software Testing Process, Organizing of Testing, Developing the Test Plan, Verification Testing, Validation Testing. (12L)

UNIT V

Seven Step Testing Process – II: Analyzing and Reporting Test results, Acceptance and Operational Testing, Post-Implementation Analysis Specialized Testing Responsibilities: Software Development Methodologies, Testing Client/Server Systems.(12L)

TEXT BOOK(S):

1. Effective Methods for Software Testing, Third edition, William E. Perry, Wiley India, 2006. (Unit II, IV, V)
2. Software Testing – Principles and Practices, NareshChauhan, Oxford University Press, 2010. (Unit III)
3. Software Quality Assurance – From Theory to Implementation, Daniel Galin, Pearson Education, 2009. (Unit I)

REFERENCE BOOK(S):

1. Testing Computer Software, CemKaner, Jack Falk, Hung Quoc Nguyen, Wiley India, rp2012.
2. Software Testing – Principles, Techniques and Tools, M.G.Limaye, McGraw-Hill, 2009.
3. Software Testing – A Craftsman's approach, Paul C. Jorgensen, Third edition, Auerbach Publications, 2010.
4. Foundations of Software Testing, Aditya P. Mathur, Pearson Education, 2008.

LOCF MAPPING

Course code and title : SOFTWARE QUALITY AND TESTING											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	2	2	2	3	3	2	2	2	2.3
CO2	2	3	2	2	2	2	3	2	3	3	2.2
CO3	2	2	3	2	2	2	2	3	3	3	2.4
CO4	2	3	2	3	3	2	2	3	3	3	2.6
CO5	2	3	3	3	3	2	2	2	3	3	2.5
Average of CO's = 2.4(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

MODEL QUESTION

B.Sc (CBCS) DEGREE EXAMINATION

Software Quality and Testing

Semester: VI

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10 Marks)

Answer all Question

Choose the Correct Answer

1. Whichofthefollowingtermsdescribestesting?

a) Findingbrokencode b)Evaluatingdeliverabletofinderrors

c) Astageofallprojects d)Noneofthementioned

2. WhatisCyclomaticcomplexity?

a) Blackboxtesting b)Whiteboxtesting

c)Yellowboxtesting d)Green box testing

3. Lowerandupperlimitsarepresentinwhichchart?

a) Runchart b)Barchart c)Controlchart d)None

4. Maintenancetestingisperformedusingwhichmethodology?

a) Retesting b)Sanitytesting

c)Breadthtestanddepthtest d)Confirmation testing

5. Exhaustivetestingis

a) alwayspossible b)practicallypossible

c)impracticalbutpossible d).None

6. Whichofthefollowingis/areWhiteboxtechnique?

a) StatementTesting b)DecisionTesting

c)ConditionCoverage d).All of the mentioned

7. Boundaryvalueanalysisbelongto?

a) WhiteBoxTesting b)BlackBoxTesting

c)WhiteBox&BlackBoxTestingd)None

8. Whichofthefollowingisnon-functionaltesting?

a) Blackboxtesting b)Performancetesting

c)Unittestingd)Noneofthementioned

9. SPICEstandsfor

a) SoftwareProcessImprovementandCompatibilityDetermination

b) SoftwareProcessImprovementandControlDetermination

c) SoftwareProcessImprovementandCapabilityDetermination

d) None

10. Whichofthefollowingisnotusedinmeasuringthesizeofthesoftware

a) KLOC b)FunctionPoints c) Sizeofmodule d)Noneofthementioned

PART B-(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words

11 a.Whichofthefollowingisnotusedinmeasuringthesizeofthesoftware Or

b.Whatisexploratorytesting?

12 a. Comparesoftwareerrors,softwarefaultsandsoftwarefailures. Or

b.CompareQCandQA.

13 a.OutlinetheProductviewofsoftwarequality. Or

b.DemonstratetheManufacturingviewofsoftwarequality.

14 a.Outlinetheuserviewofsoftwarequality. Or

b.Outlinethevaluebasedviewofuserquality.

15 a. ClassifySQAsystem. Or

b.Comparetestinganddebugging

PART C-(5X8=40 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words

16 a.Explainthethreecategoriesbelongingto McCall'sfactormodelwithexamples. Or

b.ClassifytheMccall'sfactormodelandextenditscomponents.

17 a.ClassifySQAsystemcomponentsandexplainatleasttwomajorcomponentsindetail. Or

b.Explainindetailaboutfiveviewsof softwarequalityandobjectivesofSQA.

18 a.Explainindetailabout preprojectqualitycomponents. Or

b.ExplainindetailaboutSQAArchitecture.

19 a.ExtendtheSQAsystem. Or

b.OutlinethemajorcomponentsofSQAandexplainindetail.

20 a.DemonstrateSQAactivitiesinsoftwaredevelopmentandsoftwaremaintenance. Or

b.Show the architecture of SQA andexplainitscomponents

MSU/ 2021-22 / UG-Colleges /Part-III (B.Sc. Software Engineering) / Semester – IV / Non Major Elective

HTML

LTPC

2 0 0 2

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: TodefinethebasicconceptsofWebdesignusingHTML.
- CO2: Tooutline thevarious tagsusedinHTML
- CO3: Tomakeuseof DynamicHTML
- CO4: To develop frames of web page in HTML
- CO5: To discuss DHTML

Unit I:

Introduction to HTML: Designing a Home page – History of HTML – HTML generations-HTMLDocuments-Anchortag–Hyperlinks–SampleHTMLdocuments.(6L)

Unit II :

Head and Body section: Header Section –Title-Prologue-Links-Colorful web page –CommentslinesDesigningthebody:Headingprinting–Aligningtheheadings-Horizontalrule-paragraph-Tabsettings-Image andpictures-EmbeddingPNGformatImages(6L)

Unit III:

Ordered and unordered lists: List-Unordered lists- headings in a list – ordered lists- Nested lists.Table handling: Tables- table creation in HTML- Width of the Tables and cells-Cells spanning multiplerows/Columns-Coloringcells–Columnspecification(6L)

Unit IV:

Frames: Frame set - Definition – Frame definition –Nested Frames Web Page Design Project :Frameset Definition – Animals – Birds – Fish Forms: Action attributes –Method attributes – Enctypeattribute–Dropdownlist-sample forms(6L)

Unit V:

DHTML and Style sheets: Defining styles –Elements of styles- Linking a style sheet to an HTMLdocument–Inlinestyles–Internal&External stylesheets–Multiplestyles(6L)

TextBook:

WorldWideWebDesignwith HTML,C. Xavier,TMH,2001

ReferenceBook:

1. Internet&WorldWideWeb,H.M.Deital,P.J.Deital&A.B.Goldberg,PearsonEducation
2. Fundamentalsofinformationtechnology,Mathew'slenonandAlxisleon,VijayNicolepriva telimited,Chennai.

LOCF MAPPING

Course code and title : HTML											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	2	2	2	2	3	2	2	2	2.2
CO2	2	3	2	3	3	2	3	2	2	2	2.4
CO3	2	2	3	3	3	2	2	3	3	3	2.6
CO4	2	3	2	3	2	2	2	3	3	3	2.5
CO5	2	2	2	3	3	2	2	2	3	3	2.4
Average of CO's = 2.42(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation 0

B.Sc (CBCS) DEGREE EXAMINATION

HTML

Semester: IV

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10) Marks

Answer all Questions

Choose the correct answer

1. The first page of a web page is called as _____.

   a. Home page b. main page c. web page d. none

2. HTML is a _____

   a. high level language b. Programming language

   c. documentation language d. none

3. _____ tag has the facility to include comment lines for the reference to the programmer

   a.<!> b .
 c. <H> d .none

4. Which tag is used for smallest heading

   a.<H1> b .<H6> c. <H5> d .<H4>

5. <OL> tag indicates

   a. Numbered list b. Bulleted list c. Diamonded list d .None

6. The unordered list-items style is changed by using –––––––––– attribute.

   a. TYPE b. VALUE c .STYLE d .STARY

7. One <frame set> tag contains another inside its body is called as ––––––––––.

   a. Nested framesets b Contained c. Container d. Inclusion

8. The –––––––––– tag controls the number of rows and columns to be displayed on the screen and it accepts as many characters as the user wants to enter.

   a. <TEXT AREA> b. <ADDRESS> c. <PRE> d <BLOCK QUOTE>

9. The –––––––––– tag is used to create different types of pop up and scrolling menus.

   a. <SELECT> b.<OPTION> c. <INPUT> d .<CREATE>

10 ------- attribute assign a name for a variable

   a. Name b. size c. multiple d . none

PART B-(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words.

11 a. What are the sections in HTML document Or

   b.What is anchor tag? Give example.

12 a. What are the attributes of colorful webpage. Or

   b.What are the purposes of Links.

13 a. Distinguish between Head and title tag. Or

b. What is binding space?

14 a.Describe attributes of frame set. Or

b. Explain Action attribute.

15 a.Describe about <hr> tag and tab settings with example. Or

b. What are the elements of styles? Discuss with example.

PART C -(5X8=40Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16 a. Create a web page of your own using anchor tag Or

b. Explain how to create document in html.

17 a. Write HTML code for TAB setting Or

b. Explain how to create colorful web page? Give example.

18 a.Briefly discuss about ordered list with suitable HTML program example. Or

b. Explain how to create table? Give example.

19 a. Describe in detail HTML forms. Or

b. Explain how to create frames? Give example.

20 a. With suitable example, discuss about inline styles in detail. Or

b. Write notes on multiple styles

PROGRAMMING IN C

LTPC
2002

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: To obtain knowledge about the structure of the programming language C
- CO2: Todeveloptheprogramwriting andlogicalthinking skill.
- CO3: To understand operators and Expressions
- CO4: To acquire loop control
- CO5: To enhance operators and Expressions

UNIT I

C Declarations –Introduction-Character Set-C tokens-Keywords and Identifiers- Constants-Variables-Data types- Declaration of Variables- Initializing Variables- Dynamic Initialization- Type Modifiers- TypeConversion- Constant And Volatile Variables

Operators and Expressions:- Introduction – ArithmeticOperators – Relational Operators – Logical Operators – Assignment Operators –Increment and Decrement Operators – Conditional Operator – Bitwise Operators –Special Operators – Arithmetic Expressions – Evaluation of Expressions – OperatorPrecedence.(6L)

UnitII

InputandOutputinC: Introduction–FormattedFunctions–Flags,widthsandPrecision with Format String – Unformatted Functions – Commonly used Libraryfunctions. **Decision Statements :** Introduction – Simple IF statement – The IF…ElseStatement **—** Nesting of IF…Else Statements **—** The ELSE IF ladder **—** The BreakStatement– TheContinueStatement–TheGotoStatement–TheSwitchStatement.(6L)

UnitIII

LoopControl:-Introduction–TheWHILEStatement–TheDOStatement–TheFORstatement– NestedFORLoops.**Arrays:-**Introduction–One-dimensionalarraysDeclarationofOne-dimensionalarrays–InitializationofOne-dimensionalarrays–Array terminology-Two-dimensionalarrays–InitializationofTwo-dimensionalarrays.(6L)

UnitIV

Strings and Standard functions:- Introduction – Declaring and Initializing StringVariables – Display of strings in different formats – String Standard functions – StringConversionFunctions.(6L)

UnitV

Functions:- Introduction – Basics of a function - Function definition – TheReturn statement Types of functions – Call by Value and Reference – Function as anargument – Function with operators – function and decision statements – function andloopstatements–functionswitharrays.(6L)

TextBook:

ProgramminginC–3thEditionbyAshokKamthane–PearsonEducation

ReferenceBook:

1. ComputerBasicsandCProgrammingbyV.Rajaraman–PHILearningPrivateLimited
2. Programming with C, Third Edition, Byron S Gottfried, McGraw HillEducation PrivateLimited.

LOCF MAPPING

Course code and title **: PROGRAMMINGIN C**											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	3	2	2	2	3	3	2	2	2.4
CO2	3	3	3	2	2	3	3	3	2	2	2.6
CO3	2	3	3	2	2	2	3	3	2	2	2.4
CO4	2	2	2	3	3	2	2	3	3	3	2.5
CO5	2	2	3	3	3	2	2	3	3	2	2.5
Average of CO's = 2.48(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

B.Sc (CBCS) DEGREE EXAMINATION

Programming in C

Semester: IV

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10 Marks)

Answer all Questions

Choose the correct answer

1. Which of the Following operators takes only integer operands?

   a.* b. / c. % d. +

2. = = is _____ operator.

   a. assignment b. relational. c. logical d. bitwise.

3. If x=5; y=10 A=x+y*(2+x) the what is the value a?

   a. 90 b. 60 c. 75 d.70

4. The number of elements in a 2-d array of size 3*3 is _____.

   a. 6 b. 3 c. 9 d. none

5. In while and do loops _____ statement causes the control to go directly to the test condition.

   a. break. b. continue c. go to d. none

6. int digits[10]={1,2,3,4,5,6,7,8,9,10}; which element is in the position digits[5]

   a. 5 b 6 c. 8 d. 7

7. _____ is a indirection operator

   a. & b. * c.% d. none

8. Return statement can be used to _____.

   a. return the control to the called function b. call the function

   c. return the value if any to the calling function d. none

9. Select the keyword among the following.

   a. member b. Input c. union d. none

10. The scope of the ___ variable is the whole program in which it is declared..

a. static b. register c. external d. auto

PART B-(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words

11 a. What is variable? How will you declare a variable? Or

b. Discuss the difference between While & Do While statements with example.

12 a. Explain if else statement with example. Or

b. Discuss the difference between break &continue statements with example.

13 a.Write a C program to convert Fahrenheit temperature to Celsius. Or

b. Write a C program to exchange the variables x & y.

14 a.Explain how to initialize 2-dimensional arrays? Give an example. Or

b. Explain how to define structure.

15 a. Define recursion?. Give an example. Or

b. Write a C program to find the sum of all elements in the array using pointer.

PART C -(5X8=40Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16 a. Explain different data types in C Or

b. Explain various types of input output functions in C.

17 a. Explain different types of for loop with example. Or

b. Write a program to calculate and print the Fibonacci numbers.

.18 a. Explain how define looping structure in function. Give an example. Or

b. Write a program to find the product of two matrices.

19 a. Write a program to sort numbers using function. Or

b. Explain how to use structures with in structure?. Give an example.

20 a.Explain various types of storage classes with example. Or

b. Discuss how to read and write data file

MACHINE LEARNING TEQUNIQUES

L T P C
5 0 0 4

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1:TointroducestudentstothebasicconceptsofMachineLearning.
- CO2: To acquire various techniques in Machine learning.
- CO3:TohaveathoroughunderstandingoftheSupervisedandUnsupervisedlearning techniques
- CO4: Tostudytheprobabilitybasedlearningtechniques
- CO5: Tounderstandgraphicalmodelsofmachinelearning algorithms

UNIT I

INTRODUCTION : Introduction to analytics an Machine Learning – Why Machine Learning – Framework for Developing Machine Learning Models – Why Python - Python Stack for Data Science. **DESCRIPTIVE ANALYTICS:** Working with Data Frames in Python – Handling Missing vales – Exploration of Data using Visualization- Exercises.

UNIT II

LINEAR REGREION: Simple Linear Regression – Steps in Building a Regression Model - Building Simple Linear Regression Model – Model Diagnostics – Multiple Linear Regression - Exercises. **CLASSIFICATION PROBLEM**: Classification – Binary Logistic Regression – Credit Classification - Decision Tree - Exercises

UNIT III

ADVANCED MACHINE LEARNING: Overview – Gradient r Algorithm – Scikit- Learn Library for Machine Learning – Advanced Regression Model – Advanced Machined Machine Learning Algorithm – Exercises.

UNIT IV

CLUSTERING: Overview – How does Clustering works – K-Means clustering -Creating Product Segments Using Clustering – Hierarchical Clustering. RECOMENDER SYSTEMS: Datasets – Association Rules – Collaborative Filtering – Matrix Factorization – Exercises.

UNIT V

TEXT ANALYTICS: Overview - Sentiment Classification – Naïve-Bayes Model for Sentiment Classification - Using Tf-IDF Vectorizer – Challenges – Exercises.

TEXT BOOK

Machine Learning using Python by ManaranjanPradhan and U.Dinesh Kumar Wiley publications.

REFERENCES:

Tom M. Mitchell, —Machine Learning||, McGraw-Hill Education (India) Private Limited, 2013.

LOCF MAPPING

Course code and title : MACHINELEARNING TEQUNIQUES											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	3	2	2	2	3	3	3	2	2.5
CO2	3	3	3	2	2	3	3	3	2	2	2.6
CO3	2	3	3	2	2	2	3	3	2	2	2.4
CO4	2	2	2	3	3	2	2	2	3	3	2.4
CO5	2	2	3	3	3	2	2	3	3	2	2.5
Average of CO's = 2.48(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

MODEL QUESTION

B.Sc (CBCS) DEGREE EXAQMINATION

Machine Learning Techniques

Semester: IV

TIME: Three hours Maximum:75 Mark

Section-A(10X1=10)

Answer all Questions

Choose the best answer

1. What is true about Machine Learning?

   A. Machine Learning (ML) is that field of computer science
   B.ML is a type of artificial intelligence that extract patterns out of raw data by using an algorithm or method.

   C. The main focus of ML is to allow computer systems learn from experience without being explicitly programmed or human intervention.

   D. All of the above

2. ML is a field of AI consisting of learning algorithms that?

   A. Improve their performance B. At executing some task
   C. Over time with experience D. All of the above

3. p → 0q is not a?

   A. hack clause B. horn clause
   C. structural clause D. system clause

4. The action _____ of a robot arm specify to Place block A on block B.

   A. STACK(A,B) B.LIST(A,B)
   C. QUEUE(A,B) D. ARRAY(A,B)

5. A_____ begins by hypothesizing a sentence (the symbol S) and successively predicting lower level constituents until individual preterminal symbols are written.

   A. bottow-up parser B. top parser
   C. top-down parser D. bottom parser

6. A model of language consists of the categories which does not include _____.

   A. System Unit B. structural units.
   C. data units D. empirical units

7. Different learning methods does not include?

A. Introduction B. Analogy
C. Deduction D. Memorization

8. The model will be trained with data in one single batch is known as ?

A. Batch learning B. Offline learning
C. Both A and B D. None of the above

9. Which of the following are ML methods?

A. based on human supervision B. supervised Learning
C. semi-reinforcement Learning D. All of the above

10. In Model based learning methods, an iterative process takes place on the ML models that are built based on various model parameters, called ?

A. mini-batches B. optimizedparameters
C. hyperparameters D. superparameters

PART B(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words

11 a. Explain Regression with Example Or

b. Difference between supervised and unsupervised learning

12 a, Explain feature selection method and feature extraction method. Or

b. Discuss about two approaches used in subset selection.

13 a. Define Hypothesis space & Version space Or

b. Explain the concept of correct learning

14 a.What is Perceptron? Explain its working Or

b. Discuss about issues in decision tree.

15 a. What is revolution problem? How it is solve Or

b. Compare K Means Clustering with hierarchical clustering

PART C -(5X8=40Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words

16 a. Explain how svm can be use for classification problem Or

b. Explain Hidden Markov Model

17 a. Explain K Means Clustering algorithm Or

b. Describe the concept on density based clustering

18 a.Describe the random forest algorithm Or

b. Explain Bootstrapping techniques in detail

19 a.Explain Association rules with example Or

b. Explain sentiment classification in text mining

20 a. Explain AR model Or

b. Explain collaborative filtering

MSU/ 2021-22 / UG-Colleges /Part-III (B.Sc. Software Engineering) / Semester – V / Core-7

SOFTWARE PROJECT MANAGEMENT

L T P C

4 0 0 4

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: To define the importance of software project management
- CO2: To outline the need for Software Project Management
- CO3: To highlight different techniques for software cost estimation and activity planning.
- CO4: To enhance Activity planning and risk management
- CO5: To develop project life cycle

Unit I -PROJECT EVALUATION AND PROJECT PLANNING

Importance of Software Project Management –Activities Methodologies –Categorization of Software Projects –Setting objectives –Management Principles –Management Control – Project portfolio Management –Cost-benefit evaluation technology –Risk evaluation – Strategic program Management –Stepwise Project Planning.(12L)

Unit II -PROJECT LIFE CYCLE AND EFFORT ESTIMATION

Software process and Process Models –Choice of Process models –mental delivery –Rapid Application development –Agile methods –Extreme Programming –SCRUM –Managing interactive processes –Basics of Software estimation –Effort and Cost estimation techniques –COSMIC Full function points –COCOMO II A Parametric ProductivityModel – Staffing Pattern.(12L)

Unit III –ACTIVITY PLANNING AND RISK MANAGEMENT

Objectives of Activity planning –Project schedules –Activities –Sequencing and scheduling – Network Planning models –Forward Pass & Backward Pass techniques –Criticalpath (CRM) method –Risk identification –Assessment –Monitoring –PERT technique –Monte Carlo simulation –Resource Allocation –Creation of critical patterns –Cost schedules. (12L)

Unit IV –PROJECT MANAGEMENT AND CONTROL

Framework for Management and control –Collection of data Project termination – Visualizing progress –Cost monitoring –Earned Value Analysis-Project tracking –Change control-Software Configuration Management –Managing contracts –Contract Management..(12L)

Unit V -STAFFING IN SOFTWARE PROJECTS

Managing people –Organizational behavior –Best methods of staff selection –Motivation – The Oldham-Hackman job characteristic model –Ethical and Programmed concerns – Working in teams –Decision making –Team structures –Virtual teams –Communications genres –Communication plans.(12L)

Text Book:

Bob Hughes, Mike Cotterell and Rajib Mall: Software Project Management –Fifth Edition, McGraw Hill, New Delhi, 2012

Reference Books:

1. Robert K. Wysocki “Effective Software Project Management” –Wiley Publication,2011.

2. Walker Royce: “Software Project Management”-Addison-Wesley, 1998.

3. Gopalaswamy Ramesh, “Managing Global Software Projects” –McGraw Hill Education (India), Fourteenth Reprint 2013.

LOCF Mapping

Course code and title : SOFTWARE PROJECT MANAGEMENT											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co’s
CO1	3	3	2	2	2	3	3	2	2	2	2.4
CO2	3	3	3	2	2	3	3	2	3	3	2.7
CO3	2	3	2	2	2	2	3	3	3	2	2.4
CO4	2	3	2	3	2	2	2	3	3	3	2.5
CO5	2	2	3	3	3	2	2	2	3	2	2.4
Average of CO’s = 2.48(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

MODEL QUESTION

B.Sc (CBCS) DEGREE EXAMINATION

Software Project Management

Semester:

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10 Marks)

Answer all Question

Choose the Correct Answer

1. Which of the following is not considered as a risk in project management?
   a) Specification delays b) Product competition
   c) Testing d) Staff turnover
2. The process each manager follows during the life of a project is known as
   a) Project Management b) Manager life cycle
   c) Project Management Life Cycle d) All of the mentioned
3. Which of the following is/are main parameters that you should use when computing the costs of a software development project?
   a) travel and training costs b) hardware and software costs
   c) effort costs (the costs of paying software engineers and managers)
   d) all of the mentioned
4. Quality planning is the process of developing a quality plan for
   a) team b) project
   c) customers d) project manager
5. Which of the following is incorrect activity for the configuration management of a software system?
   a) Internship management b) Change management
   c) Version management d) System management
6. Identify the sub-process of process improvement
   a) Process introduction b) Process analysis
   c) De-processification d) Process distribution

7. What are the features of Software Code?
   a) Simplicity b) Accessibility
   c) Modularity d) All of the above

8. _____ is a software development activity that is not a part of software processes.
   a) Validation b) Specification
   c) Development d) Dependence

9. Why do bugs and failures occur in software?
   a) Because of Developers b) Because of companies
   c) Because of both companies and Developers d) None of the mentioned

10. Attributes of good software is _____
   a) Development b) Maintainability & functionality
   c) Functionality d) Maintainability

PART B-(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)
Each answer should not exceed 250 words

11 a. List the characteristics of software projects. Or

b. What is contract management?

12 a. Difference between contract management and technical project management.Or

b.What is the difference between feasibility study and planning?

13 a.List the types of activity float?
Or

b. How to shorten the project duration?

14 a. What is Risk management? Or

b.What are the roles of configuration librarian's?

15 a.Write short notes on contract management? Or

b.Mention the different categories of decisions.

PART C-(5X8=40 Marks)

Answer all Questions, choosing either (a) or (b)
Each answer should not exceed 600 words

16 a.Give an outline of step wise planning activities for a project with neat diagram. or

b. List the Outline of stepwise project planning.

17 a.Explain in detail about the Amanda's decision tree. Or

b. Discuss cash flow forecasting.

18 a.Discus the network model represented by the CPM network. Or

b. How to formulate a network model in projects?

19 a.Explain the different stages in contract placement. Or

b. Explain the earned value analysis methods.

20 a.Discus in detail about the organizational structures. Or

b. Define motivation. Explain the theories of motivation.

PHP and mySQL

LTPC

4 0 0 4

COURSE OUTCOMES

On Successful completion of the course, the student will be able to

- CO1: To define and use open source database management system MySQL
- CO2: To explain dynamic web pages and websites.
- CO3: To identify web pages with database.
- CO4: To compare the concepts of open sources
- CO5: To assess the knowledge about Arrays

UNIT-I 12 Hours

Introduction: Introduction- Open source PHP – PHP history- features-variables- statements operators conditional statements-if-switch-nesting conditions-merging forms with conditional statements-loops- while-do-for – loop iteration with break and continue.

UNIT – II 12 Hours

Arrays and Functions: Arrays: Creating an array- modifying array-processing array-grouping form with arrays- using array functions- creating user defined functions- using files- sessions- cookies- executing external programs- Creating sample applications using PHP.

UNIT –III 12 Hours

File Handling Opening files using fopen - looping over a files content with feof- reading text from a file using fgets - closing a file- reading character with fgetc- reading whole file with file_get contents reading a fle into into an array with file-checking if a file exists-fscanf-parse_ini_file- Getting file information with stat-fseek- copying files with copy-deleting files-writing to a file-reading and writing binary files –locking files

UNIT-IV 12 Hours

MySQL: Effectiveness of MySQL -MySQL Tools-Prerequisites for MySQL connection-Databases and tables- MySQL data types-Creating and manipulating tables-Insertion-updation and deletion of rows in tables -Retrieving data- Sorting and filtering retrieved data -Advanced data filteringData manipulation functions-Aggregate functions -Grouping data- Sub queries- Joining Tables- Set operators-Full text searching.

UNIT-V 12 Hours

PHP with MySQL: Working MySQL with PHP-database connectivity- usage of MYSQLcommands in PHPprocessing result sets of queries- handling errors-debugging and diagnostic functionsvalidating user input through Database layer and Application layer- formatting query output with Character- Numeric- Date and time –sample

database applications.

Text Books:

1. VIKRAM VASWANI- “PHP and MySQL”- McGraw-Hill- 2005
2. BEN FORTA - ”MySQL Crash course “ SAMS- 2006.

3 . Steven Holzner , The Complete reference PHP, Tata McGraw Hill,2008

Reference Books:

Tim Converse- Joyce Park and Clark Morgan- ”PHP 5 and MySQL” -Wiley India reprint - 2008.

Robert Sheldon- Geoff Moes- ”Beginning MySQL”-Wrox- 2005

L OCF MAPPING

Course code and title : **PHP and mySQL**											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co’s
CO1	3	2	3	2	2	2	3	3	3	2	2.5
CO2	3	3	2	2	2	3	3	3	2	2	2.5
CO3	2	3	3	2	2	2	3	3	2	2	2.4
CO4	2	2	2	3	3	2	2	2	3	3	2.4
CO5	2	2	3	3	3	2	2	3	3	2	2.5
Average of CO’s = 2.46(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

B.Sc (CBCS) DEGREE EXAMINATION

PHP & My SQL

Semester: V

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10 Marks

Answer all Questions

Choose the correct answer

1. PHP stands for
   a. Pre Hypertext Processor b. Hypertext Pre Processor
   c. Post Hypertext Processor d. Hypertext Post Processor
2. PHP statements ends with
   a. semicolon b. full stop c. colon d. no punctuation
3. Associative array uses.
   a. indices b. enumeration c. keys d. none
4. How are functions in external files imported in PHP?
   a. import b. include c. extern d. none

5. Text-mode translation flag used in windows.

   a. n b. r c. w d. t

6. Function used to delete a file in PHP

   a. unlink b. delete c. del d. link

7. _____ displays status and version information about the connected server and client

   a. catalogs b. service control c. server information d. user administration

8. Which of the following is not an SQL aggregate function?

   a. AVG b. SUM c. MEAN d. MAX

9. PHP connects to databases using

   a. Connection objects b. Session objects

   c database objects d. HTML objects

10. Function used to display large numbers with comma and decimal separators.

    a. sprintf() b. number_format() c. printf() d. num()

PART B-(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words

11. (a) Explain the IF statement in PHP. **Or**

    (b) Describe how to merge forms with conditional statements.

12. (a) Explain how to modify an array in PHP. **Or**

    (b) With suitable example explain foreach() loop in PHP.

13. (a) Discuss how to read text from a file using fgets. **Or**

    (b) Explain how to check if a file exists.

14. (a) Explain the prerequisites for MySQL connection **Or**

    (b) Describe the set operators in MySQL.

15. (a) Describe error handling in PHP with MySQL . **Or**

    (b) Explain the different formats in date and time function of MySQL.

PART C-(5X8=40 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words

16 (a) Explain in detail the use of variables in PHP. Or

   (b) Describe how actions are repeated using loops.

17 (a) Explain in detail reading and writing files with example. Or

   (b) Explain Cookies in detail with example.

18 (a) Discuss reading and writing binary files with example. Or

   (b) Explain in detail the locking of files.

19 (a) Discuss manipulation of tables in MySQL. Or

   (b) Describe how to join tables.

20 (a) Explain processing result sets when querying with a MySQL database. Or

   (b) Describe validating user input at the Application layer

Practical-V

PHP

LTPC

0 0 4 2

COURSE OUTCOMES

On Successful completion of the course, the student will be able to

- CO1: To develop knowledge about basic PHP Programs.
- CO2: To evaluate PHP scripts and functions
- CO3: To develop arrays in PHP
- CO4: To design loops in PHP
- CO5: To compare the scripts and functions in PHP

1. Create a simple HTML form and accept the user name and display the name through PHP echo statement.
2. Write a PHP script to redirect a user to a different page.
3. Write a PHP function to test whether a number is greater than 30, 20 or 10 using ternary operator
4. Create a PHP script which display the capital and country name from the given array. Sort the list by the name of the country
5. Write a PHP script to calculate and display average temperature, five lowest and highest temperatures.
6. Create a script using a for loop to add all the integers between 0 and 30 and display the total.
7. rite a PHP script using nested for loop that creates a chess board.
8. Write a PHP function that checks if a string is all lower case.
9. Write a PHP script to calculate the difference between two dates. 10.Write a PHP script to display time in a specified time zone

LOCF MAPPING

Course code and title : **PHP Lab**											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	3	2	2	2	3	3	3	2	2.5
CO2	3	3	2	2	2	3	3	2	2	2	2.4
CO3	2	3	3	2	2	2	3	3	2	2	2.4
CO4	2	2	2	3	3	2	2	3	3	3	2.5
CO5	2	2	3	3	3	2	2	2	3	3	2.5
Average of CO's = 2.46(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

MSU/ 2021-22 / UG-Colleges /Part-III (B.Sc. Software Engineering**) / Semester – V /Major Practical-VI**

Machine learning lab

LTPC

0 0 4 2

On Successful completion of the course, the student will be able to

CO1: Apply the concepts and practical knowledge in analysis, design and Development of computing systems

CO2: To make use of applications to multidisciplinary problems.

CO3: To discuss the knowledge about various algorithms

CO4: To interpret the knowledge about various datasets

CO5: Develop data frames in Machine Leaning

Exercises

1. Find the standard deviation for speed of a cars using numpy
2. Find the percentile of a marks of students
3. Draw the histogram for Normal Distribution
4. Draw the scatter Plot

5. Polynomial Regression

6. Draw the decision tree.
7. Create Table and insert values using Python MySQL
8. Construct the query for retrieving relevant information from the table Python MySQL

9.Delete the records from the table.

10. Update the values from the table.

LOCF MAPPING

Course code and title : **Machine learning LAB**											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	3	2	2	2	3	3	3	2	2.5
CO2	3	3	2	2	2	3	3	3	2	2	2.5
CO3	2	3	3	2	2	2	3	3	2	2	2.4
CO4	2	2	2	3	3	2	2	3	3	3	2.5
CO5	2	2	3	3	3	2	2	3	3	3	2.6
Average of CO's = 2.5(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

LTPC

0 0 5 2

Green foot Lab

COURSE OUTCOMES

On Successful completion of the course, the student will be able to

CO1:.To know about the various Applications of Multimedia.

CO2: To develop two- dimensional graphical applications

CO3: To design multimedia animations

CO4:. To know the knowledge about video works in multimedia applications

CO5:. To implement interactive games.

Write the following program using Greenfoot :

1. To change the behaviour of an object.
2. For changing images
3. To make your own scenarios.
4. To create a new world subclass and compile the scenario
5. To add an Actor subclass instance to the scenario
6. To set up the scenario for gameplay
7. Program keyboard interaction
8. Using the playSound() method
9. To record sounds in Greenfoot
10. To changing the image of an instance summarized
11. To viewing the images stored in the scenario
12. To set an image using the image file name

LOCF MAPPING

Course code and title : GREEN FOOT LAB											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	2	2	2	2	3	2	2	2	2.2
CO2	2	3	2	3	3	2	3	2	3	3	2.6
CO3	2	2	3	3	3	2	2	3	3	3	2.6
CO4	2	3	2	3	2	2	2	3	3	3	2.5
CO5	2	3	3	3	3	2	2	2	3	3	2.6
Average of CO's = 2.5(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

LTPC
4 0 0 4

MOBILE APPLICATION DEVELOPMENT

Objective:

CO1: To recall the basics, field of computing sciences and Multidiciplinary of Mobile Applications

CO2: To build interactive applications

CO3: To develop multiple activities and indent in mobile applications

CO4: To understand Fragments of mobile application development

CO5: To develop mobile application development using Sqlite Database

Unit-I: 12 Hours

Getting Started: Diving in - Welcome to Android ville - The Android platform - Install Android Studio - How to build the app - Activities and layouts - first Android app - a complete folder structure - Useful files in your project - Edit code with the Android Studio editors - Run the app in the Android emulator -Creating an Android Virtual Device - Run the app in the emulator - watch progress in the console - What's in the layout? - activity_main.xml has two elements - Update the text displayed in the layout.

Building Interactive Apps: Apps that do something: building a Beer Adviser app - Create the project - a default activity and layout - A coser look at the design editor - Add a button using the design editor - activity_find_beer.xml has a new button - A closer look at the layout code - the app, test drive - Hardcoding text makes localization hard - Create the String resource - Use the String resource in your layout - The code for activity_find_beer.xml - Add values to the spinner - Add the string-array to strings.xml - Test drive the spinner - We need to make the button do something - Make the button call a method - The activity code - Add an onClickFindBeer() method to the activity - onClickFindBeer() needs to do something - Once you have a View, you can access its methods - Update the activity code - The first version of the activity - What the code does - Build the custom Java class.

UNIT-II: 12 Hours

Multiple Activities and Intents: State your intent - More than one activity in an app - the app structure - create the project - Update the layout - Create the second activity and layout - Android manifest file - An intent - What happens when you run the app - Pass text to a second activity - Update the text view properties - putExtra() method - Update the CreateMessageActivity code - Get ReceiveMessageActivity to use the information in the intent - What happens when the user clicks the Send Message button - send messages to other people How Android apps work - Create an intent that specifies an action - Change the intent to use an action - the intent filter - if users ALWAYS want to choose an activity - when createChooser() method is called - Change the code to create a chooser.

The Activity Lifecycle: Being an activity - How do activities really work? - The Stopwatch app - Add String resources - How the activity code will work - Add code for the buttons - The runTimer() method -The full runTimer() code - The full StopwatchActivity code -

Rotating the screen changes the device configuration - The states of an activity - The activity lifecycle: from create to destroy - The updated StopwatchActivity code - What happens when you run the app - There's more to an activity's life than create and destroy - The updated StopwatchActivity code - when the app is run - when an app is only partially visible - The activity lifecycle: the foreground lifetime - Stop the stopwatch if the activity's paused - Implement the onPause() and onResume() methods - The complete StopwatchActivity code - Your handy guide to the lifecycle methods.

UNIT-III: 12 Hours

Views and View Groups: Enjoy the view - Your user interface is made up of layouts and GUI components - LinearLayout displays - Add a dimension resource file - Using margins - change a basic linear layout - adding weight to a view - Values you can use with the android:gravity attribute - The full linear layout code - Frame layouts stack their views - Add an image to your project - The full code to nest a layout - FrameLayout: a summary - Playing with views - Editable text view - Toggle button - Switch - Checkboxes - Radio buttons - Spinner - Image view - Adding images to buttons - Scroll views - Toasts.

Constraint Layouts: Put things in their place - Nested layouts can be inefficient - the Constraint Layout the Constraint Layout Library - Add the String resources to strings.xml - Use the blueprint tool - Position views using constraints - Add a vertical constraint - Changes to the blueprint are reflected in the XML - center views - Adjust a view's position by updating its bias - change a view's size - align views - build a real layout.

UNIT-IV: 12 Hours

List views and Adapters: Getting organized - Every app starts with ideas - Use list views to navigate to data - The drink detail activity - The Starbuzz app structure - The Drink class - The top-level layout contains an image and a list - The full top-level layout code - Get list views to respond to clicks with a

listener - Set the listener to the list view - A category activity displays the data for a single category - Update activity_drink_category.xml - For nonstatic data, use an adapter - Connect list views to arrays with an array adapter - Add the array adapter to DrinkCategoryActivity - App review - How clicks are handled in TopLevelActivity - The full DrinkCategoryActivity code - Update the views with the data - The DrinkActivity code - when the app is run.

Fragments: Make it modular - Your app needs to look great on ALL devices - Your app may need to behave differently too - Fragments allow you to reuse code - The phone version of the app - Create the project and activities - Add a button to MainActivity's layout - How to add a fragment to your project - The fragment's onCreateView() method - Add a fragment to an activity's layout - Get the fragment and activity to interact - The Workout class - Pass the workout ID to the fragment - Get the activity to set the workout ID - The fragment lifecycle - Set the view's values in the fragment's onStart() method - How to create a list fragment - The updated WorkoutListFragment code - The code for activity_main.xml - Connect the list to the detail - The code for WorkoutListFragment.java - MainActivity needs to implement the interface - DetailActivity needs to pass the ID to WorkoutDetailFragment.

UNIT-V: 12 Hours

SQLite Databases: Fire up the database - Back to Starbuzz - Android uses SQLite databases to persist data - SQLite classes - The current Starbuzz app structure - change the app to use a database - The SQLite helper manages database - Create the SQLite helper - Inside a SQLite database - create tables using Structured Query Language (SQL) - Insert data using the insert() method - Insert multiple records

- The StarbuzzDatabaseHelper code - What the SQLite helper code does - What if changes to the database is needed? - SQLite databases have a version number - when the version number is changed - Upgrade your database with onUpgrade() - Downgrade your database with onDowngrade() - upgrade the database - Upgrade an existing database - Update records with the update() method - Apply conditions to multiple columns - Change the database structure - Delete tables by dropping them - The full SQLite helper code.

Basic cursors: Getting data out - The new Starbuzz app structure - change DrinkActivity to use the Starbuzz database - The current DrinkActivity code - Get a reference to the database - Get data from the database with a cursor - Return all the records from a table - Return records in a particular order - Return selected records - The DrinkActivity code so far - To read a record from a cursor, you first need to navigate to it - Navigate cursors - Get cursor values - The DrinkActivity code - The current

DrinkCategoryActivity code - Get a reference to the Starbuzz database - replace the array data in the list view - A simple cursor adapter maps cursor data to views - use a simple cursor adapter - Close the cursor and database - The DrinkCategoryActivity code.

Text Book:

1. Head First Android Development (Nov 2019) - Dawn Griffiths & David Griffiths, O'Reilly Media/Shroff Publishers & Distributors Pvt. Ltd.- ISBN: 9789352136063 (Chapters 1-7, 9, 15, 16)

Reference Books:

1. Beginning Android Programming with Android Studio (Wrox Beginning Guides) 4e, 2016 - J.

   F. DiMarzio - Wiley

2. Android Developer Fundamentals Course: 2017

   https://google-developer-training.github.io/android-developer-fundamentals-course-concepts/en/android-developer-fundamentals-course-concepts-en.pdf

3. Android Programming Unleashed, 1e, 2013 - B.W.Harwani – Pearson

LOCF MAPPING

Course code and title : **MOBILE APPLICATION DEVELOPMENT**											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	3	2	2	2	3	3	3	2	2.5
CO2	3	3	3	2	2	3	3	3	3	2	2.7
CO3	2	3	3	2	2	2	3	3	2	2	2.4
CO4	2	2	2	3	3	2	2	3	3	3	2.5
CO5	2	2	3	3	3	2	2	3	3	2	2.5
Average of CO's = 2.52(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

B.Sc (CBCS) DEGREE EXAMINATION

MOBILE APPLICATION DEVELOPMENT

Semester: V

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10 Marks
Answer all Question
Choose the Correct Answer

1. Choose the correct option related to Android.
   a.Android is a web browser b.Android is an Operating System
   c.Android is a web server d.None
2. What is an activity in android?
   a.android class b.android package
   c.A single screen in an application with supporting java code
   d.None of the above
3. Among the following options choose the one for which Android is based on a.Linux.
   b.Networking c.Portability d.Security
4. Among the below virtual machines choose the one which is used by the Android
   a.operating system
   b.Dalvik operating system c.JVM d.Simple virtual machine
5. Identify the language on which Android is based upon.
   a.Python b. C++ c. java d. None
6. All layout classes are the subclasses of
   a. android.widget b. android.view.View
   c. android.view.ViewGroup d. None
7. The full form of APK is

a. Android Page Kit b. Android Phone Kit

c. Android Package Kit d. Android Photo Kit

8. What is manifest XML in android?

a. it has information about layout in an application

b. It has all the information about an application

c. It has the information about activities in an application d. None

9. What is the use of a content provider in Android?

a. For sharing the data between applications

b. For storing the data in the database

c. For sending the data from an application to another application

d. None of the above

10 While developing android application developers can test their apps on

a. Emulators in Android SDK b. Android Phone

c. Third-Party Emulator d. All the above

PART B-(5X5=25 Marks)
Answer all Questions, choosing either (a) or (b)
Each answer should not exceed 250 words

11a. List out Android SDK features Or

b. What is the use of String XML

12a. What is the purpose of toggle buttons Or

b. Differentiate fragment and activity

13a. Explain intent filter Or

b. What is broadcast receiver?

14a. Define persistent storage. Explain Or

b. What are the use of shared preferences?

15a. Explain download manager in Android. Or

b. Explain Callback methods in detail

PART B-(5X5=25 Marks)
Answer all Questions, choosing either (a) or (b)
Each answer should not exceed 600 words

16a. How to create AVD Or

b. Discuss in detail about android application components

17a. How to use spinners in android? Or

b. Explain fragments life cycle.

18a. Explain about notifications in android Or

b. Discuss in detail about content providers

19a. Explain the challenges when we use the location based services Or

b. Describe the procedure to connect our device to internet resources

20a. Explain about time picker. Give its uses.

b. Develop an alarm application that rings every Sunday 5am

2.INTRODUCTION TO SECURITY IN COMPUTING

COURSE OUTCOMES

On Successful completion of the course, the student will be able to

- CO1: To relate the concepts of basic concepts in security in computing
- CO2: To explain about the various encryption and decryption security algorithms
- CO3: To enquire Number theory and key algorithms
- CO4:To list the authentication
- CO5: To identify the intruder of security in computing

UNIT-I 12 Hours

Model of network security – Security attacks, services and attacks –OSI security architecture – Classical encryption techniques – SDES – Block cipher PrinciplesDES

– Strength of DES – Block cipher design principles – Block cipher mode of operation

– Evaluation criteria for AES – RC4 - Differential and linear cryptanalysis – Placement of encryption function – traffic confidentiality.

UNIT-II 12 Hours

Number Theory – Prime number – Modular arithmetic – Euclid's algorithm - Fermet's Euler's theorem – Primality – Chinese remainder theorem – Discrete logarithm –Public key cryptography and RSA – Key distribution – Key management – Diffie Hellman key exchange – Elliptic curve cryptography.

UNIT-III 12 Hours

Authentication requirement – Authentication function – MAC – Hash function – Security of hash function and MAC – SHA - HMAC – CMAC - Digital signature and authentication protocols – DSS. NIT-IV

UNIT IV 12 Hours

Authentication applications – Kerberos – X.509 Authentication services - E-mail security – IP security - Web security

UNIT-V 12 Hours

Intruder – Intrusion detection system – Virus and related threats – Countermeasures – Firewalls design principles – Trusted systems – Practical implementation of cryptography and security

Text Book:

1. William Stallings, "Cryptography & Network Security", Pearson Education,Fourth Edition 2010.

Reference Books:

1. Charlie Kaufman, Radia Perlman, Mike Speciner, "Network Security,

Private communication in public world", PHI Second Edition, 2002.

2. Bruce Schneier, Neils Ferguson, "Practical Cryptography", Wiley Dreamtech India Pvt Ltd, First Edition, 2003.
3. Douglas R Simson "Cryptography – Theory and practice", CRC Press, First Edition, 1995.

LOCF MAPPING

Course code and title : INTRODUCTION TO SECURITY IN COMPUTING											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	3	2	2	2	3	3	3	2	2.5
CO2	3	3	3	2	2	3	3	3	2	2	2.6
CO3	2	3	3	2	2	2	3	3	2	2	2.4
CO4	2	2	2	3	3	2	2	3	3	3	2.5
CO5	2	2	3	3	3	2	2	3	3	3	2.6
Average of CO's = 2.52(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

B.Sc (CBCS) DEGREE EXAMINATION

Introduction to security in Computing

Semester: V

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10 Marks

Answer all Questions

Choose the correct answer

1)_____ computing has network architecture in which each computer has a equivalent capabilities And responsibilities

a) cloud b) personal c) peer-to-peer d) All the above

2) In cloud computing _____ doesn't need a CD or DVD drive

a) peer-to-peer b) client c) personal computer d)workstation

3)_____ place your E-mail inbox in the cloud

a) Gmail b) hotmail c) yahoo mail d) All the above

4) Enterprise level budgeting application is ____

a) Google spreadsheet b) consolidated spread sheet c) host budget d) All the above

5) Event management works on _____ database

a) single b) double c) triple d) multiple

6) In conference.com the function of email manager is to ---- emails

a) broadcast b) receive c) send d) all the above

7) Online groupware has

a) web calendar b) project manager

c) message boards d) all the above

8) A blog is

a) private b) public c) linked d) customized

9) Microsoft office live workspace keeps -- documents

a) office b) pictures c) videos d) Text

10) Web based desktop gives --- computing environment

a) personalized b) networked c) client server d) peer to peer

PART B-(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words

11(a). Explain information security breach. Or

(b). Describe various access control threats in information.

12(a). Give the impact of virus attack. Or

b). State and explain the qualities of good backup.

13.a. Write short note on digital signature. Or

b. Explain the benefits of risk management.

14.a. Give the rules and regulations of password policy Or

b. What is IDS? Explain any one type of IDS.

15.a. Define honey pots. Explain any one type present. Or

b. Give the role of auditor in a security system.

PART C -(5X8=40Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16(a).Explain the goals of information security. Or

(b) Give an account of various types of threats to information security.

17(a). Give an account of virus threat. Or

(b) Describe various types of cryptography.

18(a). Explain in detail biometric authentication methods. Or

(b). Explain in detail challenges in risk management.

19.a. State and explainthe components of security policy. Or

b. Give an account of the key security policy.

20.a. Explain various types of intrusion in the information. Or

b. Give an account of firewalls.

3.CLOUD COMPUTING

L T P C
4 0 0 4

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: To introduce , history and fundamentals of Cloud computing
- CO2: To acquire Cloud computing Architecture
- CO3: To understand SOA
- CO4:To enhanced Service oriented Architecture in Cloud computing
- CO5: To understand cloud computing networks

UNIT I:

Introduction to cloud computing- History of cloud computing. Fundamentals of the cloud computing ecosystem. Cloud computing characteristics. Technical characteristics of cloud computing Basic characteristics of cloud computing- Advantages and disadvantages of cloud computing. Comparison of traditional and cloud computing paradigms. Cluster computing- Grid computing.. Cloud computing- Evaluating the cloud's business impact and economics Business drivers of cloud computing adoption. Future of the cloud (FoC).

Cloud Services and Deployment Models. Objectives. Cloud deployment models. Public (external) cloud. Private/Internal/Corporate cloud. Hybrid cloud. Cloud Service Models- Infrastructure-as-a-Service (laas) Platform-as-a-Service (Paas). Software as a-Service (Saas) Cloud infrastructure mechanisms Logical network perimeter (LNP) Virtual server. Cloud storage devices (CSD) Cloud usage monitor -Resource replication. Ready-made environment. Cloud service management.(15L)

UNIT II:

Cloud Computing Architecture.. Objectives. Cloud computing architecture design principles.. Cloud computing life cycle (CCLC). Phase 1- Architect. Phase 2- Engage Phase 3- Operate.. Phase 4- Refresh .Cloud computing reference architecture Load balancing approach Mobile cloud computing (MCC). Mobile computing features.. Challenges.. Mobile cloud computing architecture.

Virtualization Technology. Objectives. Understanding virtualization Adopting virtualization. Techniques of virtualization. How virtualization works? XEN- Kernel-based virtual machine (KVM). VMware. Virtual Box –Citrix.Types of Virtualization Data virtualization-Desktop virtualization -CPU virtualization Network virtualization. Storage virtualization -Server virtualization. Virtualization in Cloud (15L)

UNIT III:

Service oriented Architecture Objectives SOA foundation.. Web Services and SOA .SOA communication. SOA components. SOA Infrastructure. Need of SOA. Business Process Management (BPM).Business Process Management Platform as a Service - BPM PaaS Business Process as a Service-BPaaS.

Cloud Security and Privacy... Objectives. Cloud security - Cloud CIA security model.. Data confidentiality Data integrity.. Data availability., Cloud computing security architecture Service provider security issues. Security issues in virtualization. Cloud legal issues . Performance monitoring and management of cloud services Legal issues in cloud computing Data security in cloud .The cloud risk management framework. Risk management process for cloud consumers- Requirement for risk management in ISO/IEC 27001- Data privacy risks in the cloud. Availability risks. Service provisioning risks . (15L)

UNIT IV:

Business continuity and disaster recovery Disaster recovery requirements... Mechanisms for cloud disaster recovery. Disaster recovery as a service. The cloud disaster recovery

architecture. Challenges of the cloud disaster recovery. Threats in cloud. Security techniques for threats protection. Cloud service level agreements (SLA) practices Components of a cloud SLA. Types of SLAS. Cloud vendors. Issues of Quality of Cloud Services. Techniques for providing QoS to the cloud applications. Migration of a local server into cloud.. Preliminary checklist/planning for migration. Migration steps. Types of migration for cloud-enabled applications.. Trust management. Trust management evaluation attributes. Cloud trust management techniques

Cloud Computing Applications.. Objectives. Introducing cloud computing applications Google App Engine. Google Apps. Gmail. Google Docs.. Google Calendar Google Drive. Google Cloud Data store. Drop box Cloud. Apple iCloud Microsoft Windows Azure Cloud. Amazon Web Services (AWS) Amazon Elastic Compute Cloud (Amazon EC2) Amazon Simple Storage Service (S3). (15L)

UNIT V:

Cloud Computing Technologies, Platforms and Services. Objectives. High-performance computing with cloud technologies. Message Passing Interface (MPI).. Map Reduce programming model. Dryad and DryadLINQ.. Eucalyptus cloud platform. Components of Eucalyptus OpenNebula cloud platform. Layers of OpenNebula Features of OpenNebula. OpenStack cloud platform.. OpenStack components Benefits of Open Stack.. Nimbus Cloud Computing Platform Features of Nimbus. The Apache Hadoop ecosystem

Architecture of IHladoop Major components of Hadoop. Hadoop and cloud..

Adoption of Cloud Computing. Objectives. Adoption of cloud computing in the current era Factors affecting cloud computing adoption. Technological factors. Organizational factors Environmental factors.. Cloud computing existing areas of application.. Cloud computing in education. Cloud computing in healthcare. Cloud computing in politics. Cloud computing in business. Cloud computing in agriculture. Case studies Cloud computing adoption in Sub-Saharan Africa. Cloud computing adoption in India. Cloud computing certifications Google Cloud Certifications.. IBM Cloud Certifications.. Amazon Web Services (AWS) Cloud Certifications.(15L)

TEXT BOOK:

Cloud Computing, Kamal Kant Hiran,RuchiDosai, TemitayoFagbola,MehulMahrishi, BPB publication, First edition 2019.

REFERENCE BOOK:

1. Cloud Computing, V. K. Pachghare, PHI Learning Pvt Ltd, 2016

2. 2 Cloud Computing, Anthony T.Velte, Toby J.Velte, PobertElsenpeter, TMH, 2010

3. Cloud Computing Bible, Barrie Sosinsky, Wiley Publishing, Inc.

LOCF MAPPING

Course code and title : CLOUDCOMPUTING											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	3	2	2	2	3	3	2	2	2.4
CO2	3	3	3	2	2	3	3	2	2	2	2.5
CO3	2	3	3	2	2	2	3	3	3	2	2.5
CO4	2	2	2	3	3	2	2	2	3	3	2.4
CO5	2	2	2	3	3	2	2	3	3	2	2.4
Average of CO's = 2.44(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

B.Sc (CBCS) DEGREE EXAMINATION

Cloud Computing

Semester: VI

TIME: Three hours Maximum:75 Marks

SECTION– A (10x1 = 10 Marks)

1. _____ is a collection of computers and servers that are publicly accessible via the internet.

   (a) Intranet (b) Server (c) Cloud (d) Web

2. _____ is the most important subsets of the P2P model.

   (a) Distributed Computing (b) Collaborative Computing

   (c) Client/Server Computing (d) Automatic Computing

3. The web-based calendar for Yahoo is

   (a) Calendar Yahoo! (b) Yahoo! Calendar

   (c) Calendar Yahoo# (d) Yahoo# Calendar

4. CRM Means

   (a) Customer Resource Management (b) Customer Related Management

   (c) Customer Resource Manager (d) Custom Resource Management

5. _____ is a scheduling tool that is not limited to a single company.

   (a) Diarised (b) Jotlet (c) Jiffle (d) Presdo

6. Which is used to schedule aircraft, flight training and similar services?

   (a) Schedulebook Aviation (b) Schedulebook Office

   (c) Schedulebook Professional (d) Schedulebook Timer

7. Which web provide unlimited web based e-mail services?

   (a) Microsoft (b) Yahoo (c) Google (d) Amazon

8. _____ which lets the presenter ask questions of the audience.

   (a) Annotation (b) Polling (c) Quizzes (d) Whiteboard

9. Which provides two levels of membership called Lite & Pro?

   (a) Flickr (b) DotPhoto (c) DPHOTO (d) Fotki

10. g.ho.st stands for

    (a) globally hosted operating system (b) globally hosting operating semaphore

    (c) global hosted operating system (d) global hiring operating system

SECTION– B (5x5 = 25 Marks)

11. a). Discuss about peer-to-peer computing

    (or)

    b) Write the advantages of Cloud development

12. a) Explain about collaborating on Budgets

    (or)

    b) Write in detail about community group schedules

13. a) Explain about exploring online scheduling applications

    (or)

b) Discuss about contact management & CRM applications

14. a) Explain about the instant messaging services

(or)

b) Evaluating wikis for collaboration

15. a) Write in detail about online bookmarking services

(or)

b) Explain about photo sharing communities

SECTION– C (5x8 = 40 Marks)

16. a) Explain How Cloud computing works?

(or)

b) Explain the types of Cloud services

17. a) Discuss about Cloud computing for the Family

(or)

b) Explain about Managing projects in Cloud

18. a) Write in detail about collaboration of Spreadsheets

(or)

b) Discuss about exploring web based databases

19. a) Discuss about web conferencing tools

(or)

b) Collaborating via social networks & groupware

20. a) Evaluate online file storage and sharing services

(or)

b) Explain about the photo sharing communities

OPERATING SYSTEM

L T P C
4 0 0 4

COURSE OUTCOMES

On Successful completion of the course, the student will be able to

- CO1: To acquire the fundamental knowledge of the operating system architecture and components and to know the various operations performed by the operating system.
- CO2: Understand the basic working process of an operating system.
- CO3: Understand the importance of process and scheduling.
- CO4: To explain the issues in synchronization and memory management.
- CO5: To discuss about mass storage structures

UNIT I 12 Hours

Introduction: What Operating system do? – Computer System Organization – Computer System Architecture – Operating System Structures- Operating System Operation. **System Structures:** Operating System Services – System Calls – System Programs – Operating System Design and Implementation- Operation System Generation- System Boot.

UNIT II 12 Hours

Process Concept: Process Concept- Process Scheduling –Operation on Processes- Inter Process Communication- Example of IPC System – Communication in Client – Server system. **Process Scheduling :** Basic concept-Scheduling criteria- Scheduling algorithm-Thread scheduling- Multiple Processor Scheduling-Real Time CPU Scheduling-Operating system example- Algorithm evaluation.

UNIT III 12 Hours

Synchronization: Background - The Critical section problem-Peterson's solution - Semaphores – Classic problems of Synchronization. **DeadLocks:** System model-Deadlock Characterization- Methods for handling deadlocks- Deadlock Prevention-Deadlock Avoidance-Deadlock detection - Recovery from deadlock.

UNIT IV 12 Hours

Memory Management: Background – Swapping - Contiguous Memory allocation – Segmentation – paging. **Virtual Memory Management :** Background - Demand paging - Copy and Write-page replacement-Allocation of Frames - Thrashing.

UNIT V 12 Hours

File System : File Concept-Access Method-Directory and Disk Structure--File Sharing-Protection**. Implementing File System:** File System Structure - File System implementation- Directory implementation-Allocation Methods - Free Space

Management**. Mass Storage Structure:** Overview of Mass Storage Structure-Disk Structure - Disk Scheduling - Disk Management.

TEXT BOOK:

Operating System Concepts – Abraham Silberscartz, Peter Baer Galvin, and Greg Gange. Addision Wesley Publishing Company – Ninth Edition.

REFERENCE BOOKS:

1. Operating System: Internal and Design Principles – Fifth Edition, William Stalling ,PHI Learning Private Limited.
2. Understanding Operating Systems: Ida M.Flynn ,Ann MclverMcHoes.

LOCF MAPPING

Course code and title : **OPERATING SYSTEM**											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	3	2	2	2	3	3	2	2	2.5
CO2	3	3	2	2	2	3	3	3	3	2	2.6
CO3	2	3	3	2	2	2	3	3	2	2	2.4
CO4	2	2	2	3	3	2	2	3	3	3	2.5
CO5	2	2	3	3	2	2	2	3	3	2	2.4
Average of CO's = 2.48(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

B.Sc (CBCS) DEGREE EXAMINATION
OPERATING SYSTEM
Semester: VI

TIME: Three hours Maximum:75 Mark

PART A-(10X1=10 Marks)
Answer all Questions
Choose the correct answer

1. -----system guarantees that critical tasks be completed in time

   a. soft real time b. Hard real time

   c .hand held d. Job consult Language

2._____maintains a list of authorized users.

   a. System administrator b) programs c. DTP operator d.Manager

3. _____ is a collection of processors

   a. time sharing b. distributed system c. interactive system d. none

4. The protocols that can be used to communicate web server & web browser

   a. FTP b. HTTP c. NFS d. none

5. The advantage of multikernal approach is

   a. ease of extending the OS b. ease of accessing c. flexibility d.none

6. A ready queue header contain _____ to the first & last PCB_s in the list.

   a. buffer b. pointer c. register d. none

7. Free BSD is an example of

a. multiprogramming b. time sharing c. multitasking d. none

8. _____ is the number of processes completed per unit time.

a. CPU utilization b. threads c. throughput d. none

9. If the time quantum is very small , then the RR approach is called as

a. multitasking b. processor sharing c. time sharing d.none

10. _____ Scheduling allows process to move between queues.

a. multilevel queue scheduling b. multilevel feedback queue scheduling

c. multiple processor scheduling d. none

PART B(5X5=25 Marks)
Answer all Questions, choosing either (a) or (b)
Each answer should not exceed 250 words.

11(a). Explain about operating system components (Or)

(b). List the advantages of multiprocessor system.

12(a). Explain OS services in detail. (Or)

(b). Explain categories system program in detail.

13(a). Explain state process in detail. (Or)

(b). Explain PCB and its functions in detail.

14(a). Explain about deadlocks and starvation. (Or)

(b). Explain binary semaphores in detail.

15(a). Explain multiple processor scheduling . (Or)

(b). Explain in detail the memory hierarchy.

PART C -(5X8=40Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words

16(a). Explain various system components and its functions. (Or)

(b). Explain layered approach to system design.

17(a). Explain virtual machines in detail. (Or)

(b). Explain System calls in detail.

18(a). Explain Cooperating process in detail. (Or)

(b). Explain interprocess communication in detail.

19(a). Explain about single contiguous allocations. (Or)

(b). Give an account of page replacement methods.

20(a). Explain in detail the paged memory management (Or)

(b). Explain various file allocation methods.

MSU/ 2021-22 / UG-Colleges /Part-III (B.Sc. Software Engineering) / Semester – VI / Core-9

OBJECT ORIENTED SOFTWARE ENGINEERING

L T P C
4 0 0 4

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: To introduce Software engineering development
- CO2: To provide an in-depth knowledge of the Software Life cycle
- CO3: To develop an Object Oriented approach.
- CO4: To evaluate software methodology
- CO5:To develop how to draw UML diagrams

Unit-I

Introduction to Software Engineering: Software Engineering Development, Software Engineering Development, Software Life Cycle Models, Standards for developing life cycle models.

Unit-II

Object Methodology & Requirement Elicitation: Introduction to Object Oriented Methodology, Overview of Requirements Elicitation, Requirements Model-Action & Use cases, Requirements Elicitation Activities, Managing Requirements Elicitation

Unit-III

Architecture: Model Architecture, Requirements Model, Analysis Model, Design Model, Implementation Model, Test Model

Modeling with UML: Basic Building Blocks of UML, A Conceptual Model of UML, Basic Structural Modeling, UML Diagrams

Unit-IV

System Analysis: Analysis Model, Dynamic Modelling& Testing

System Design: Design concepts & activities, Design models, Block design, Testing

Unit-V

Testing Object Oriented Systems: Introduction, Testing Activities & Techniques, The Testing Process, Managing Testing -Case Studies

Text Books:

1. Stephen R. Scach, “Classical & Object Oriented Software Engineering with UML and Java”, McGraw Hill, 1999.

LOCF MAPPING

Course code and title : OBJECT ORIENTED SOFTWARE ENGINEERING											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	2	2	2	3	3	2	2	2	2.3
CO2	2	3	2	2	2	2	3	2	3	3	2.2
CO3	2	2	3	2	2	2	2	3	3	3	2.4
CO4	2	3	2	3	3	2	2	3	3	3	2.6
CO5	2	3	3	3	3	2	2	2	3	3	2.5
Average of CO's = 2.4(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

MODEL QUESTION

B.Sc (CBCS) DEGREE EXAMINATION

Object Oriented Software Engineering

Semester:VI

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10 Marks)

Answer all Questions

Choose the correct answer

1. Customers are known as _____.

   (a) Users (b) Clients (c) Developers (d) Managers

2. A _____ is a place where we can put the data.

   (a) variable (b) object (c) attribute (d) association

3. _____ is an effective way to gather information from a group of people.

   (a) Observation (b) Interviewing (c) Brainstorming (d) Informal Use Case Analysis

4. The _____ rule is called the Pareto principle.

   (a) 50-50 (b) 60-40 (c) 70-30 (d) 80-20

5. A _____ diagram shows the sequence of messages exchanged by the set of objects performing a certain task.

   (a) Sequence (b) Class (c) State (d) Collaboration

6. A _____ diagram is another way of expressing dynamic information about a system.

   (a) Sequence (b) Class (c) State (d) Collaboration

7. _____ design is the design of computational mechanisms.

   (a) Class (b) Database (c) Algorithm (d) Protocol

8. The _____ principle is an extension of the divide and conquer principle.

   (a) Cohesion (b) Portability (c) Testability (d) Abstraction

9. A _____ is a situation where two or more threads are stopped waiting for each other to do something

   (a) Deadlock (b) live lock (c) critical race(d) none

10. _____ is the process of deciding in sequence a set of activities will be performed, as well as when they should start and be completed.

(a) Scheduling (b) Tracking (c) Designing (d) Testing

PART B-(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words

11. (a) What are most important attributes of software quality? Explain. Or

(b) Explain difficulties and risks in Software Engineering as a whole.

12. (a) Write notes on the starting point for software projects. Or

(b) How will you manage changing requirements? Explain.

13. (a) Describe Associations and Multiplicity. Or

(b) Explain the Activity diagrams.

14. (a) What are techniques for making good design decisions? Explain. Or

(b) How to write a good design document?

15. (a) Write notes on deadlock and livelock. Or

(b) What is project management? What are the specific activities often done by a project manager?

PART C -(5X8=40Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words

16. (a) List and explain the activities common to software projects. Or

(b) Explain in detail about example of classes for representing geometric points.

17. (a) What are the two major types of requirements? Explain. Or

(b) Explain the various techniques for gathering and analyzing requirements.

18. (a) Explain detailed example of a class diagram genealogy. Or

(b) What are the two types of UML interaction diagrams? Explain.

19. (a) Explain Software architectures for high level design. Or

(b) List and explain the design principles leading to a good design.

20. (a) Explain Quality Assurance in general. Or

(b) Explain Project Scheduling and Tracking.

COMPUTER GRAPHICS AND VISUALIZATION

LTPC

3 1 0 4

COURSE OUTCOMES

On Successful completion of the course, the student will be able to

- CO1: To understand the overview of the graphics visualization
- CO2: To acquire the fundamental knowledge of Computer Graphics and Visualization.
- CO3: To understand the Algorithms in Computer Graphics
- CO4: To acquire the transformation technique in Graphics
- CO5: To understand the Interactive methods easily

Unit I — 12 Hours

Overview of Graphics System: Video Display Devices – Input Devices - Hard Copy Devices – Graphics Software. **Output Primitives**: Points and Lines –Line drawing algorithms – DDA algorithm- Bresenham's line algorithm- Circle drawing algorithms: properties of circles – Midpoint Circle algorithm – Filled Area primitives.

Unit II — 12 Hours

Attributes of Output Primitives: Line attributes – Curve attributes – Character attributes. **Two- Dimensional Geometric Transformation**: Basic Transformations – Matrix Representations and homogenous coordinates – Composite and other Transformations.

Unit III — 12 Hours

Two-Dimensional Viewing: The viewing pipeline, Viewing co-ordinate reference frame – Window to view port co-ordinate transformation – Two-dimensional viewing function. **Clipping Operations**: Point clipping – Line clipping (only Cohen-Sutherland line clipping) – Polygon Clipping (only Sutherland-Hodgeman polygon clipping).

Unit-IV 12 Hours

Interactive Input Methods: Input of graphical data – Input functions – Three dimensional display methods.

Three Dimensional Geometric and Modeling Transformations: Translation - Rotation - Scaling

Unit-V 12 Hours

Three Dimensional Viewing: Viewing Pipeline, Projections. **Visible-surface deduction methods**: Back-face Detection - Depth buffer method. **Color Models and Color Applications** – RGB color model – YIQ color model – CMY color model – HSV color model.

Text Book:

Computer Graphics C version, Second Edition, Donald Hearn, M.Pauline Baker, Pearson Publications

Reference Books

1. Computer Graphics, Multimedia and Animation - Malay K. Pakhira – PHI.
2. Computer Graphics - Udit Agarwal - S. K. Kataria & Sons, 2009.
3. Express Learning - Computer Graphics and Multimedia-ITL Education Solution Ltd.
4. Computer Graphics-A programming Approach 2/e-Steven Harrington-Mc Graw Hill Education Private Limited.

LOCF MAPPING

Course code and title : COMPUTER GRAPHICS AND VISUALIZATION											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	3	2	2	2	3	3	2	2	2.4
CO2	3	3	2	2	2	3	3	3	2	2	2.5
CO3	2	3	3	2	2	2	3	3	2	2	2.4
CO4	2	2	2	3	3	2	2	3	3	3	2.5
CO5	2	2	2	3	3	2	2	3	3	2	2.4
										Average of CO's = 2.44(high)	

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

B.Sc (CBCS) DEGREE EXAQMINATION

Computer Graphics and Visualization

Semester: VI

TIME: Three hours Maximum:75 Mark

PART A-(10X1=10 Marks)

Answer all Questions

Choose the correct answer

1. In Raster-Scan Display Picture Definition is stored in memory area called

   (a) Frame Buffer (b) CRT (c) DVST (d) Plasma Panel

2. ---------- is a device that can provide six degrees of freedom.

   (a) Mouse (b) Joystick (c) Trackball (d) Spaceball

3. ---------- are correctly clipped by Sutherland Hodgeman algorithm.

   (a) curves (b) convex polygons (c) concave polygons (d) circles

4. A world coordinate area selected for display is called

   (a) viewport (b) clipping (c) window (d) viewport position

5. A device for specifying scalar values is

   (a) VALUATOR (b) CHOICE (c) STROKE (d) LOCATOR

6. Scenes displayed using _____ projections appear more realistic.

   (a) Parallel (b) Perspective (c) Diagonal (d) none

7. ---------- is the most common form of packaging multimedia products.

   (a) floppy disk (b) hard disk (c) RAM (d) CD-ROM

8. A Picture stored as a set of pixels that correspond to the grid of dots on a Computer screen is

   (a) Clip art (b) Digitized Pictures (c) Bitmap (d) Hyper Pictures.

9. The sound waves have a recurring pattern called _____ wave pattern.

   (a) analog (b) digital (c) multiple (d) none

10. MIDI stands for

    (a) Musical Instrument Digital Interface

    (b) Musical Instrument Device Interface

    (c) Musical Interface Digital Instrument

    (d) Musical Instant Digital Interface

PART B(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words

11. (a) Explain the operation of Refresh Cathode-Ray Tubes. Or

    (b) Explain briefly about graphics functions and different co-ordinate representations used in graphics..

12. (a) Describe the Color and Grayscale Levels. Or

    (b) Explain the window-To-Viewport Coordinate Transformation.

13. (a) Explain about the following devices.

    (i) Locator Devices.

    (ii) Stroke Devices.

    (iii) String Devices.

    (iv) Valuator Devices. Or

    (b) Explain the Back-Face Detection Method.

14. (a) Explain about the CD – ROM. Or

    (b) Explain about the Text in multimedia.

15. (a) Discuss about audio file formats in multimedia Or

    (b) Explain the steps involved in animating an image.

PART C -(5X8=40Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words

16. (a) Discuss about the graphics Software. Or

    (b) Explain the DDA Algorithm in detail.

17. (a) Discuss the Line Attributes. Or

    (b) Explain the Cohen-Sutherland Line Clipping procedure in detail.

18. (a) Explain the Graphical Input Functions in detail. Or

    (b) Explain the Depth Buffer Method.

19. (a) What is Multimedia? Explain the Hardware components. Or

    (b) Explain the Graphics in Multimedia Elements.

20. (a) Discuss digitized video in multimedia Or

    (b) Explain the Issues and Trends in Multimedia

MSU/2021-22/UG-Colleges/Part – III (B.Sc. Software Engineering)/Senester – VI / Major Practical VIII

COMPUTER GRAPHICS LAB

L T P C
0 0 4 2

COURSE OUTCOMES

On Successful completion of the course, the student will be able to

CO1: To illustrate skills in programming computer graphics

CO2: To apply multimedia concepts

CO3:To compile the algorithms to draw line,circle etc

CO4:To develop image using Scaling, Rotating and translation technique

CO5: To demonstrate the image using random and bouncing balls

Each exercise should be completed within two hours.

It is compulsory to complete all the exercises given in the list in the stipulated time.

1. Write a program to draw a line using DDA algorithm
2. Write a program to draw a circle using Bresenham‟s algorithm.
3. Write a program to draw a line using Bresenham‟s algorithm.
4. Write a program to scale an image.
5. Write a program to rotate an image.
6. Write a program to translate an image.
7. Write a program for bouncing a ball and moving with sound effect.
8. Write a program to display as many balls in the frame in random position.
9. Write a program to display an image as tiled and cascaded according to the user's option.
10. Write a program so that it should first display the image as the size of applet then it should be reduced and again it should reduced and so on and finally the image should disappear

LOCF MAPPING

Course code and title : **COMPUTER GRAPHICS LAB**											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	3	2	3	2	3	3	3	2	2.6
CO2	3	3	3	2	2	3	2	2	3	3	2.6
CO3	2	3	3	2	3	2	3	3	2	2	2.5
CO4	2	2	2	3	3	2	2	3	3	3	2.5
CO5	2	2	3	3	3	2	2	3	3	3	2.6
Average of CO's = 2.56(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

ORACLE

L T P C

0 0 4 2

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: Toacquire skillsinSQL statementswithvariousconstructs
- CO2:Toutilize PL/SQLProgramming
- CO3:To develop tables using SQL queries
- CO4:Evaluate Using PL/SQL find the functions and procedures
- CO5: Implement Retrieve the information from the table

Each exercise shouldbecompletedwithintwo hours.

Itis compulsorytocompletealltheexercisesgiveninthelistinthestipulatedtime.

1. Create an employee database with tables department, employee details, address, pay details andproject details.Alter thetablesandaddconstraints relevant tothefieldsinthetables.Insertrecordsintoallthetables.
2. Create queriesto retrieverelevantinformationfromatable.
3. Create atablefromtheexistingtables.
4. Develop queriesto retrieve informationfrommorethan onetable.
5. Develop summaryqueriestoretrieverelevantinformationfrom thetables.
6. WriteaPL/SQLprogram to printmultiplicationtable
7. Writea PL/SQL programtocheckwhether givenstringis palindrome ornot
8. Write a PL/SQLprogramtofindfactorial ofnumbersusingfunctionandprocedure.

LOCF MAPPING

Course code and title : ORACLE											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	2	2	2	2	2	2	3	2	2	3	2.2
CO2	2	3	2	3	3	2	3	2	3	3	2.6
CO3	2	2	3	3	3	2	2	3	3	3	2.6
CO4	2	3	2	3	2	2	2	3	3	3	2.5
CO5	2	3	3	3	3	2	2	2	3	3	2.6
Average of CO's = 2.5(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

1.INTERNET OF THINGS

L T P C
4 0 0 4

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: To define the fundamentals of IOT
- CO2: To give a brief idea about IOT working
- CO3: To make the students understand the Architecture of IOT
- CO4: To interpret Programming Framework for IOT
- CO5: To discuss IOT Applications

UNIT I:

Fundamentals of Internet of Things: Introduction – Characteristics of IoT – The Physical Design of IoT – Iot Architecture an Components – Logical design of IoT – Communication Models – IoT Communication API – IoT Architecture and Protocols – Introduction –Fog based Architecture of IoT – Near Field Communication – Wireless Sensor Networks – IoT Network protocol stack – IoT technology stack – Blue tooth – Zig Bee – and 6LowPAN.(12L)

UNITII:

Programming Framework for IoT: Interoperability – Programming Paradigm – Assembly – Introduction to Arduino Programming – Introduction to Python Programming – Introduction to Raspberry Pi . Virtualization: Introduction – Types – Virtualization and IoT – Embedded Virtualization.(12L)

UNIT III:

IoT Application Area: Introduction – Homes – Health care – Agriculture – Military applications – Politics – Constructions – Other application areas . Cloud an IoT : Introduction – Cloud – IoT – Difference between cloud and IoT – Cloud IoT architecture – challenges.(12L)

UNIT IV:

Smart City using IoT: Introduction – Concept – The emergence – Dimensions and Components – Design strategies – Factors affecting automation – IoT applications in smart cities – Education – E-governance – Industry . IoT Use Cases: Industrial IoT Use Case – IoT and smart energy – Smart transportation – Smart health – Smart home – Smart Education system – Governance use case – Smart cities.(12L)

UNIT V:

Network Security for IoT and M2M communications: Introduction – Network Technologies for IoT and M2M – Security for IoT and M2M Technologies – Securities in IETF M2M network Technologies – Security in ETSI M2M Network Technologies – Other M2M standard Efforts.(12L)

Text Books:

1. Internet of Things – Principles, Paradigms and Applications of IoT by Dr.KamleshLakhwani, Dr.Hemant Kumar Gianey, Joseph Kofi Wireko, Kamal Kant Hiran (BPB publication First Edition 2020)
2. Internet of Things(IoT) Systems and Applications By Jamil Y . Khan & Mehmet R.Yuce Jenny Stanford Publishing.

Reference Book

1. Jan Holler, VlasiosTsiatsis, Catherine Mulligan, Stefan Avesand, StamatisKarnouskos, David Boyle, "From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence**",** 1st Edition, Academic Press, 2014

LOCF MAPPING

Course code and title : . INTERNET OF THINGS											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	3	2	2	2	3	3	2	2	2.4
CO2	3	3	3	2	2	3	3	3	2	2	2.6
CO3	2	3	3	2	2	2	3	3	2	2	2.4
CO4	2	2	2	3	3	2	2	3	3	3	2.5
CO5	2	2	3	3	3	2	2	3	3	2	2.5
Average of CO's = 2.48(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

B.Sc (CBCS) DEGREE EXAMINATION

Internet of Things

Semester: VI

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10 Marks)

Answer all Questions

1. What is the full form of IoT?
   a) Internet of Technology b) Incorporate of Things
   c) Internet of Things d) Incorporate of Technology
2. What is IoT?
   a) network of physical objects embedded with sensors
   b) network of virtual objects
   c) network of objects in the ring structure d) network of sensors
3. Who coined the term "Internet of Things"?
   a) Kevin Aston b) John Wright
   c) Edward Jameson d) George Garton
4. When was the actual term "Internet of Things" coined?
   a) 1998 b) 1999 c) 2000 d) 2002
5. Which of the following is not an IoT device?
   a) Table b) Laptop c) Arduino d) Tablet
6. Which of the following is false about IoT devices?
   a) IoT devices use the internet for collecting and sharing data
   b) IoT devices need microcontrollers
   c) IoT devices use wireless technology
   d) IoT devices are completely safe

7. Which of the following is not an IoT platform?
   a) Amazon Web Services b) Microsoft Azure
   c) Salesforce d) Flipkart

8. Which of the following is not an application of IoT?
   a) BMP280 b) Smart home c) Smart city d) Self-driven cars

9. Which of the following is not a fundamental component of an IoT system?
   a) Sensors b) Connectivity and data processing
   c) User interface d) Transformer

10. What is the full form of IIOT?

a) Index Internet of Things b) Incorporate Internet of Things

c) Industrial Internet of Things d) Intense Internet of Things

PART B-(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words

11 A. Write a summary of cellular M2M market situation Or

B. Explain the various emerging IoT applications

12 A. Explain various trend in Information and communication technologies and its impact on IoT. Or

B. Compare the main characteristics of M2M and IoT.

13 A. Explain the IoT industrial structure Or

B. Describe how a solution is designed for a particular problem by making use applied architecture in M2M/IoT.

14 A. Discuss the design objectives of IoT architecture needed to target ahorizontal system of real-world services Or

B. Explain the functional layers and capabilities of an IoT solution with a neat diagram.

15 A. Identify the key characteristics of M2M data. Also, explain the data generation, data acquisition, data validation steps in M2M data management. Or

B. Explain data storage, data processing, data analysis steps in M2M data management

PART C -(5X8=40Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16 A. Explain ETSI M2M Functional architecture with a neat diagram Or

B. Discuss various standards and technologies that enables Adhoc connectivity between devices that forms the basis of IoT

17 A . Explain how cloud of things acts as an enabler for new value added services and applications with a neat diagram. Or

B. Illustrate ETSI M2M High Level architecture with a neat diagram.

18 A. Explain ETSI M2M service capabilities in detail with a neat diagram. Or

B.Discuss IETF Working Groups and Specifications Scope.

19 A. Explain OGC functional architecture and interactions with a neat diagram.
Or

B. Describe the information flow process when utilizing the IoT service resolution FC with a neat diagram.

20 A. Explain the flow of information through a context enrichment process in IoT
Or

B. Explain the deployment and operational view, resources, services, virtual entities, users in an IoT system by considering a Parking lot example.

2.SOFTWARE AGENTS

L T P C
4 0 0 4

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- To define the basic concepts of software agents
- To identify intelligent agents, Mobile agents, agent security and simple construction tools.
- To develop agent communication Languages
- To categorize software agents
- To discuss the security issues

Unit I

AGENTS - OVERVIEWAgent Definition - Agent Programming Paradigms - Agent Vs Object - Abstract and concrete Architecturesfor Intelligent Agents - Mobile Agents.(12L)

Unit II

MULTIAGENT SYSTEMS AND SOCIETIES OF AGENTSIntroduction - Agent Communications - Agent Interaction Protocols - Societies of Agents - Learning:Introduction - Learning and Activity Coordination - Learning about and from other Agents - Learning andCommunication.(12L)

Unit III

AGENT COMMUNICATION LANGUAGESAgent Knowledge representation - KQML - KIF - Agent adaptability - Belief Desire Intention -BDIArchitecture. (12L)

Unit IV

AGENTS AND SECURITYAgent Security Issues - Mobile Agents Security - Protecting Agents against malicious hosts - UntrustedAgent - Black Box Security - Authentication for agents - Security issues.(12L)

Unit V

AGENT CONSTRUCTIONMobile agent with java: Agent characteristics of java - Aglet model - Aglet package - Anatomy of an Agent- Agent Design Pattern: classification - Master Slave Pattern - Itinerary pattern.(12L)

Text Books

1.Gerhard Weiss, "Multiagent Systems: A Modern Approach to Distributed Artificial Intelligence", MITPress, USA, 2012.

2.Bradshaw, "Software Agents", MIT Press, USA, 2010.

LOCF MAPPING

Course code and title : SOFTWARE AGENTS											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	3	2	2	2	3	3	2	2	2	2.4
CO2	3	3	2	2	2	2	3	2	3	3	2.3
CO3	2	2	3	2	2	2	2	3	3	3	2.4
CO4	2	3	2	3	3	2	2	3	3	3	2.6
CO5	2	3	3	3	3	2	2	2	3	3	2.5
Average of CO's = 2.44(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

MODEL QUESTION

B.Sc (CBCS) DEGREE EXAMINATION

Software Agents

Semester: VI

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10 Marks)

Answer all Questions

Choose the correct answer

1. A fault simulation testing technique is

   A) Mutation testing (B) Stress testing (C) Black box testing (D) White box testing

2. Alpha and Beta Testing are forms of

   (A) Acceptance testing (B) Integration testing (C) System Testing (D) Unit testing

3. The main purpose of integration testing is to find

   (A) design errors (B) analysis errors (C) procedure errors (D) interface errors

4. Pseudocode can replace

   (A) flowcharts (B) structure charts (C) decision tables (D) cause-effect grap

5. The testing that focuses on the variables is called

   (A) black box testing (B) white box testing (C) data variable testing (D) data flow testing

6. Site for Alpha Testing is

   (A) Software Company (B) Installation place (C) Any where (D) None of the above

7. Which of the mentioned properties of the Utility-based AI agent differentiates it from the rest of the AI agents?

   A .Responding and providing solution to the problem

   b. Meeting the preference of the user

   c. Meeting the goal d.All of the above

8. Which of the following is considered as the most powerful AI agent?

   a. Simple based reflex agent b. Model based reflex agent

   C. Goal based agent d. Utility based agent

9. What are Agent?
   A. An agent is anything that can perceive its environment through sensors
   B. An agent is anything that can change its environment through sensors
   C. An agent is anything that can control its environment through
   D. None of the Above

10. What is the full form of PEAS?
    a. perceptual measure, environment, actuators, and sensors
    b. performance measure, environment, actuators, and sensors
    c. performance measure, entity, actuators, and sensors
    d. Performance Measure, Environment, Agent Function, and Sensors

PART B-(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words

11 a. What Is The Difference Between Functional Requirement And Non-Functional Requirement?

b. What Is Smoke Testing And What Is Sanity?

12 a. How would you Test a Service Oriented Architecture (SOA) Web Application?Or
b .Explain Load Testing On websites.?

13 a.Explain Boundary Value Analysis? Or

b.What is Adhoc Testing?

14 a. List out the roles of Quality Assurance engineer? Or

b.What is a Test case template?

15 a.Why Does Software Have Bugs? Or

b.What Is Globalization Testing?

PART C-(5X8=40 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words

16. a Explain in detail the structure of different types of agents. Or
b. Explain satisfaction problem with an example.

17. a Explain unification algorithm. Or
b. Explain partial order planning approach with an example.

18 a. Explain the method of acting with uncertainty using Bayesiannetwork.
Or

b.Why the axioms of probability are reasonable? Explain

19 a. Explain the concept of inference in temporal models. Or
b .Explain in detail on different types of statistical learning methods.

20 a. Explain the various stages involved in analyzing a sentence in Natural Language Processing. Or
b. Explain indetail about SQA Architecture.

3.NETWORK SECURITY

L T P C

4 0 0 4

COURSE OBJECTIVES

On Successful completion of the course, the student will be able to

- CO1: To list the model of network security
- CO2: To illustrate enhance block cipher principles
- CO3: To develop keys using algorithms of cryptography
- CO4: To develop authentication process to secure data
- CO5: Todiscuss about intruded the data

Unit-I

Modelofnetworksecurity–Securityattacks,servicesandattacks– OSIsecurity architecture – Classical encryption techniques – SDES – Block cipherPrinciplesDES–StrengthofDES–Blockcipherdesign principles – Blockcipher mode of operation – Evaluation criteria for AES – RC4 - Differential andlinearcryptanalysis–Placementofencryptionfunction– trafficconfidentiality.(12L)

Unit-II

NumberTheory–Primenumber–Modulararithmetic–Euclid'salgorithm-Fermet'sandEuler'stheorem–Primality– Chinese remainder theorem –Discrete logarithm – Public key cryptography and RSA – Key distribution – Keymanagement–DiffieHellmankeyexchange–Ellipticcurvecryptography.(12L)

Unit-III

Authentication requirement – Authentication function – MAC – Hash function – Security of hash function and MAC – SHA - HMAC – CMAC - Digital signatureandauthenticationprotocols–DSS.(12L)

Unit-IV

Authentication applications – Kerberos – X.509 Authentication services - E-mailsecurity–IPsecurity-Websecurity(12L)

Unit-V

Intruder–Intrusiondetectionsystem–Virusandrelatedthreats–Countermeasures – Firewalls design principles – Trusted systems – Practicalimplementationofcryptographyandsecurity(12L)

Text Book:

1. WilliamStallings,"Cryptography&NetworkSecurity",PearsonEducation,FourthEdition2010.

Reference Books:

1. CharlieKaufman,RadiaPerlman,MikeSpeciner,"NetworkSecurity,Privatecommunicationinpublicworld",PHISecondEdition,2002.
2. BruceSchneier,NeilsFerguson,"PracticalCryptography",WileyDreamtechIndiaPvtLtd,FirstEdition,2003.
3. DouglasRSimson"Cryptography–Theoryandpractice",CRCPress,FirstEdition,1995.

LOCF MAPPING

Course code and title : NETWORK SECURITY											
CO/PO	PO					PSO					
	1	2	3	4	5	1	2	3	4	5	% of co's
CO1	3	2	2	2	2	3	3	2	2	2	2.3
CO2	2	3	2	2	2	2	3	2	3	3	2.2
CO3	2	2	3	2	2	2	2	3	3	3	2.4
CO4	2	3	2	3	3	2	2	3	3	3	2.6
CO5	2	3	3	3	3	2	2	2	3	3	2.5
Average of CO's = 2.4(high)											

Strongly correlated -3 Moderately correlated -2 weakly correlated-1 No correlation -0

MODEL QUESTION

B.Sc (CBCS) DEGREE EXAMINATION

Network Security

Semester:VI

TIME: Three hours Maximum:75 Marks

PART A-(10X1=10 Marks)

Answer all Questions

Choose the correct answer

1. Number of phases in the handshaking protocol?
   a) 2 b) 3 c) 4 d) 5
2. In the Handshake protocol action, which is the last step of the Phase 2 : Server Authentication and Key Exchange?
   a) server_done b) server_key_exchange c) certificate_request
   d) crtificate_verify
3. Which is the key exchange algorithm used in CipherSuite parameter?
   a) RSA b) Fixed Diffie-Hellman c) Ephemeral Diffie-Hellman
   d) Any of the mentioned
4. The certificate message is required for any agreed-on key exchange method except _____
   a) Ephemeral Diffie-Hellman b) Anonymous Diffie-Hellman
   c) Fixed Diffie-Hellman d) RSA
5. In the Phase 2 of the Handshake Protocol Action, the step server_key_exchange is not needed for which of the following cipher systems?
   a) Fortezza b) Anonymous Diffie-Hellman
   c) Fixed Diffie-Hellman d) RSA
6. The DSS signature uses which hash algorithm?
   a) MD5 b) SHA-2 c) SHA-1 d) Does not use hash algorithm
7. The RSA signature uses which hash algorithm?
   a) MD5 b) SHA-1 c) MD5 and SHA-1 d) None of the mentioned.
8. What is the size of the RSA signature hash after the MD5 and SHA-1 processing?
   a) 42 bytes b) 32 bytes c) 36 bytes d) 48 bytes

9. The certificate_request massage includes two parameters, one of which is-
   a) certificate_extension b) certificate_creation
   c) certificate_exchange d) certificate_type

10. The client_key_exchange message uses a pre master key of size –
   a) 48 bytes b) 56 bytes c) 64 bytes d) 32 bytes

PART B-(5X5=25 Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 250 words

11 a. With a neat diagram, explain network access security model Or

b. Classify and explain different types of attacks

12 a. Explain single round DES along with the key penetration Or

b. Discuss the final evaluation criteria of AFS

13 a. Write RSA algorithm

Or

b. List out the requirement and explain the digital signature technique

14 a. Explain the key requirements and features of SET . Or

b. Explain password selection strategies

15 a. Give the taxonomy of malicious programs. Or

b. What is Firewall? Explain the various firewalls configurations.

PART C -(5X8=40Marks)

Answer all Questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16 a. Explain the techniques used for intrusion Or

b. Write short notes on honey pots.

17 a. Explain about Trogen horses Or

b. Explain the various phases that the virus undergoes during its lifetime.

18 a. List and explain the different attacks on packet filtering routers along with appropriate counter measures.

b. Explain

i. antivirus approaches

ii. Digital immune system

19 a.Define an intruder? Give the classifications of intruder. Or

b. Explain with neat diagram SSL Protocol stack and SSL recod protocol operation.

20 a. Explain the concept of trusted system with the neat diagram Or

b. Discuss abut the important advanced antivirus techniques