P.R. GOVT. COLLEGE (A)

KAKINADA

Affiliated to Adikavi Nannaya University

Rajamahendravaram

DEPARTMENT OF COMPUTER SCIENCE

CBCS(CLUSTER PATTERN)

BOARD OF STUDIES

2020-2021

P R GOVERNMENT COLLEGE [AUTONOMOUS] KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

BOARD OF STUDIES 2020-2021

The sixteenth meeting of Board of Studies ***COMPUTER SCIENCE*** has been conducted in the Department of Computer Science on _19 june, 2020 to discuss the following.

AGENDA

1. Department activities for 2019-20 academic year.
2. Organizing National/State level Seminars / Workshops / Conferences / /Training programmes etc., with topics and other details
3. Plan for utilization of funds for Autonomous/CPE/other grants available for arranging guest lecturers, faculty improvement programmes, study tours, equipping laboratories, reference books & other necessary teaching-learning material.
4. Plan for organizing subject oriented community outreach programmes & allocation of necessary funds.
5. Institution of new medals/incentives/prizes etc., from alumni, philanthropists, parents, faculty etc.,
6. Any other programme that enhances the learning capacity of students and their employable & knowledge skills.
7. Suggest panel of examiners / paper setters & other experts / nominees for BOS deliberations.
8. Pedagogy implementation w.e.f admitted batch 2019-20.
9. Internal Assessment weightage 40%.
10. End Semester Examinations 2hrs .30 min and for 60 Marks, and Mid Semester Examinations 1 hr 30 min for 40 marks w.e.f admitted batch 2020-21.
11. Conduct practical examination semester wise for three years.
12. For I BSc(CS) syllabus as per the APSCHE Syllabus and guidelines
13. Encounrage students to takeup certified courses from IIT Bombay Spoken Tutorial
14. IOT syllabus may be followed as framed

RESOLUTIONS

1) The Seventeenth meeting of Board of Studies ***COMPUTER SCIENCE*** has been conducted in the Department of Computer Science on 19 June, 2020 to discuss the following.
2) Department action plan 2020-21 submitted in annexure.
3) Pedagogy implementation w.e.f admitted batch 2020-21.
4) Resolved to approve panel of names for appointment of examiners/ paper setters annexed to these resolutions.
5) Resolved to conduct End Semester Examinations 2hrs .30 min and for 60 Marks, and Mid Semester Examinations 1 hr 30 min for 40 marks w.e.f admitted batch 2020-21.
6) Resolved to conduct practical examination semester wise for all Three years
7) Resolved to follow I Year Syllabus as per APSCHE
8) Resolved to encourage students to takeup certified courses from IIT Bombay Spoken Tutorial
9) Resolved to Follow IOT syllabus as framed

MEMBERS PRESENT

1	Mr. G.B.V.Padmanadh Lecturer In-charge (Computers Science) P. R. Govt College (A) Kakinada	Chair man
2	Smt. Dr.M. Kamala Kumari Associate Professor Dept of Computer Science AKNU Rajahmundry	University Nominee
3	Smt .N.Naga Subrahmanyesweri Lecturer In Computer Science AS D Women's College Kakinada	Subject Expert
4	Dr. N. Sreenivas Lecturer in Zoology P R Govt (A) College Kakinada	Member
5	R . N. Raghu Ram Lecturer in Computer Science P R Govt (A) College Kakinada	Member
6	G. Aneetha Lecturer in Computer Science P R Govt (A) College Kakinada	Member
7	G. V.N.Kishore Lecturer in Computer Science P R Govt (A) College Kakinada	Member
8	N.Havilah Lecturer in Computer Science P R Govt (A) College Kakinada	Member

STUDENT REPRESENTATIVES

1. T Tom Teja — III MCCS, 85%
2. M R Ch K Sivani — III MCCS, 80%
3. S Sravani — III MPCS, 80%
4. P.Jagadeesh — III MECS, 80%
5. SK.Gousia — III MPCS, 84%
6. A Bindhu Madhavi — III MCCS, 83%

PANEL OF NAMES FOR APPOINTMENT OF EXAMINERS/PAPERSETTERS

2020-21

S.No	NAME & DESIGNATION	COLLEGE	EXPERIENCE	Address
1.	**Sri M A Sayeed**	Ideal College, Kakinada 0884-2384382	27 Years	C/o college
2.	**Sri L. Diwakar Rao**	Aditya College, Kakinada 0884-2376665	16 Years	C/o college
3.	**Sri M. Satyanarayana**	V.S.Laxmi Degree college, Kakinada 08842300200 7893365011	14 Years	C/o college
4.	**Smt K. Surekha**	V.S.M.College, Ramachandrapuram 08851242309	16 Years	C/o college
5.	**Sri M. Kameshwara Rao**	Chaitanya PG & Degree college, Chaitanya Nagar, Kakinada 0884-2344444	14 Years	C/o college
6.	**Sri D. V. Mahesh**	V.S.Lakshmi Degree college, Sasikanth Nagar, Kakinada 0884 - 2300228	14 Years	C/o college
7.	**Sri Ch. Venkata Veerendra**	Suryaraya Degree College, Pithapuram, East Godavari District-533450 0884-5592875	9 Years	C/o college
8.	**Smt V Naga Mani**	VSL Womens College	8 Years	C/o college
9.	**Smt. R. Monica Shirin**	Ideal College, Kakinada 0884-2384382	10 Years	C/o college
10.	**Ch Tulasi Bhavani**	ASD Womens College, Kakinada	6 Years	C/o college

I B.Sc(CS)

I B.Sc. – Computer Science / Semester- I (W.E.F. 2020-2021)
COURSE: PROBLEM SOLVING IN C
COURSE CODE: C1
Total Hrs. of Teaching-Learning: 60 @ 4 h / Week Total Credits: 03

Objective: This course aims to provide exposure to problem-solving through programming. It introduces the concepts of the C Programming language.

Outcome: Upon successful completion of the course, a student will be able to:

1. Understand the evolution and functionality of a Digital Computer.
2. Apply logical skills to analyse a given problem
3. Develop an algorithm for solving a given problem.
4. Understand 'C' language constructs like Iterative statements, Array processing, Pointers, etc.
5. Apply 'C' language constructs to the algorithms to write a 'C' language program.

MODULE--I: 12hr

a) **General Fundamentals:** Introduction to computers: Block diagram of a computer, characteristics and limitations of computers, applications of computers, types of computers, computer generations.

b) **Introduction to Algorithms and Programming Languages**: Algorithm – Key features of Algorithms, Flow Charts, Programming Languages – Generations of Programming Languages – Structured Programming Language- Design and Implementation of Correct, Efficient and Maintainable Programs.

MODULE--II: 10hr

a) **Introduction to C:** Introduction – Structure of C Program – Writing the first C Program File used in C Program – Compiling and Executing C Programs – Using Comments Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C- Operators in C- Programming Examples.

b) **Decision Control and Looping Statements:** Introduction to Decision Control Statements– Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Goto Statement

MODULE –III: 12hr

a) **Arrays**: Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array– Operations on Arrays – one dimensional, two dimensional and multi- dimensional arrays, character handling and strings.

MODULE—IV: 18hr

a) **Functions**: Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive functions.

b) **Structure, Union, and Enumerated Data Types:** Introduction – Nested Structures – Arrays of Structures – Structures and Functions– Union – Arrays of Unions Variables – Unions inside Structures – Enumerated Data Types.

MODULE—V: 18hr

a) **Pointers:** Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers - Passing Arguments to Functions using Pointer – Pointer and Arrays – Memory Allocation in C Programs – Memory Usage – Dynamic Memory Allocation – Drawbacks of Pointers

b) **Files:** Introduction to Files – Using Files in C – Reading Data from Files – Writing Data to Files – Detecting the End-of-file – Error Handling during File Operations – Accepting Command Line Arguments.

Reference Books:

1. E Balagurusamy – Programming in ANSIC – Tata McGraw-Hill publications.
2. Brain W Kernighan and Dennis M Ritchie - The 'C' Programming language" - Pearson publications.
3. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publications.
4. YashavantKanetkar - Let Us 'C' – BPB Publications.
5.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)

2. Student seminars (on topics of the syllabus and related aspects (individual activity))

3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))

4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity))

B. General

1. Group Discussion

2. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),

2. Closed-book and open-book tests,

3. Programming exercises,

4. Practical assignments and laboratory reports,

5. Observation of practical skills,

6. Individual and group project reports.

7. Efficient delivery using seminar presentations,

8. Viva voce interviews.

9. Computerized adaptive testing, literature surveys and evaluations,

10. Peers and self-assessment, outputs form individual and collaborative work

I B.Sc. – Computer Science / Semesters- I / Paper-I Syllabus
Practical Paper - I:
COURSE NAME:PROBLEM SOLVING IN C Lab
Course Code: C1

Practical/Laboratory-I
DATA STRUCTURE USING IN C **Marks:50**

1. Write a program to check whether the given number is Armstrong ornot.
2. Write a program to find the sum of individual digits of a positive integer.
3. Write a program to generate the first n term soft he Fibonacci sequence.
4. Write a program to find both the largest and smallest number inalis to fintegervalues
5. Write a program to demonstrate refection of parameters in swapping of two integer values using **Call by Value** &**Call by Address**
6. Write a program that uses functions to add two matrices.
7. Write a program to calculate factorial of given integer value using recursive functions
8. Write a program for multiplication of two NXN matrices.
9. Write a program to perform various string operations.
10. Write a program to search an element in a given list of values.
11. Write a program to sort a given list of integer sin ascending order.
12. Write a program to calculate the salaries of all employees using ***Employee(ID,Name,Designation,BasicPay,DA,HRA,GrossSalary,Deduction,NetSalary)***structure.
    a. DAis30%of Basic Pay
    b. HRAis15%ofBasic Pay
    c. Deductionis10%of(Basic Pay+DA)
    d. Gross Salary= Basic Pay+DA+HRA
    e. Net Salary= Gross Salary- Deduction
13. Write a program to illustrate pointer arithmetic.

14. Write a program to read the data character by character from a file.
15. Write a program to create ***Book(ISBN,Title,Author,Price,Pages,Publisher)*** structure and store book details in a file and perform the following operations
    a. Add book details
    b. Search a book details for a given ISBN and display book details, if available
    c. Update a book details using ISBN
    d. Delete book details for a given ISBN and display list of remaining Books

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA

MODEL BLUE PRINT FOR THE YEAR 2020-2021

I B.SC (CS) 2020-2023 BATCH

COMPUTER SCIENCE COURSE: PROBLEM SOLVING IN C

COURSE CODE:C1

Time : 2.30 Hrs. **SEMESTER-I** **Max. Marks: 60**

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Very Short Questions	**5**	**1**	**5**	**5**	**1**	**5**
2	Section-B Short Questions	**6**	**5**	**30**	**3**	**5**	**15**
3	Section-C Essay Questions	**8**	**10**	**80**	**4**	**10**	**40**
TOTAL		**19**		**115**	**TOTAL MARKS**		**60**

Percentage of choice given = $\frac{115 - 60}{115} \times 100 = \frac{55}{115} \times 100 = 47.82\%$

P.R.GOVT.COLLEGE (AUTONOMOUS), KAKINADA
MODEL PAPERS FOR THE YEAR 2020-2021
I B.Sc (CS) 2020-2023 BATCH
COMPUTER SCIENCE COURSE: PROBLEM SOLVING IN C
COURSE CODE:C1

Time : 2.30 Hrs. **SEMESTER-I** **Max. Marks: 60**

SECTION-I

Answer All Questions **(Very Short answer questions)** **(5x1=5M)**

1. Define Computer?
2. What is a keyword in C?
3. Define function?
4. What is Pointer?
5. Define Array?

SECTION-II

Answer any Three Questions **(Short answer questions)** **(3x5=15M)**

6. Write the characteristics of computers
7. Explain the generations of computers.
8. Explain various data types in C.
9. Explain about Array?
10. Distinguish between Structures and Unions.
11. Write about File operations in C?

SECTION-III

Answer All Questions **(4x10=40M)**

12. a) Explain the Logical Organization of a Digital Computer with the help of Block Diagram?

    (or)

    b) Write about the classification of computer in detail?

13. a) Explain various Conditional Control Statements in 'C' with examples?

    (or)

    b) Explain various Conditional Looping Statements in 'C' with examples?

14. a) Explain the difference different types Array?

    (or)

    b) Explain various String handling Functions in C?

15. a) Explain different types of Functions in C?

    (or)

    b) Explain about different types of Pointers in C?

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
MODEL BLUE PRINT FOR THE YEAR 2020-2021
I B.SC (CS) 2020-2023 BATCH

Computer Science Course: PROBLEM SOLVING IN C

COURSE CODE:C1

Time : 2.30 Hrs. **SEMESTER-I** **Max. Marks: 60**

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Very Short Questions 1 Marks	Marks allotted to the chapter
MODULE -I	2	2	2	32
MODULE -II	2	2	1	31
MODULE -III	2	1	1	26
MODULE – IV,V	2	1	1	26
Total No. of questions	8	8	5	
Total Marks Including choice				115

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
I B.SC (CS) 2020-2023 BATCH
SEMESTER-I
COURSE CODE: C1

COURSE NAME : PROBLEM SOLVING IN C

MODULE--I

Essay Questions:

1. Draw a block diagram to illustrate the basic organization of a computer system and explain the functions of various units?
2. Write about the classification of computer in detail?
3. How many Generations of Computers are there till date? Explain in each Generation in detail.

Short Answer Question:

1. Write the characteristics of Computer?
2. Explain the Generations of Computer?
3. Explain Applications of Computer?
4. Explain Programming Languages?
5. Explain about Algorithms, and Flow chart?

Very short Answer Questions:

1. Define Computer?
2. Write any two applications of Computer?
3. Define Algorithm?
4. Define Flow chart?

MODULE-II

Essay Questions:

1. Explain various Operators in C with example.
2. Explain various Conditional Control Statements in C with example.
3. Explain various Conditional Looping statements in C with example?

Short Answer Question:

1. Write the importance of C language
2. Explain about various constants in C.
3. Explain various data types in C.
4. Explain Structure of C language?

Very short Answer Questions:

1. What is a keyword in C?
2. What is the use of go to statement give the syntax of it?
3. Write the syntax for switch statement?

MODULE-III

Essay Questions

1. Explain different types of Arrays in C?
2. Explain various String handling Functions in C.
3. Explain multi- dimensional arrays in C?

Short Answer Question

1. Explain two dimensional arrays to functions.
2. Explain how to pass arrays to functions.
3. Write any three String handling functions in C

Very short Answer Questions

1. Define an Array?
2. Define an String?

MODULE-IV

Essay Questions

1. Explain different types of Functions in C
2. What is Structure? Give declaration of structures. Explain structure within structure.
3. What is Union? Explain in detail.
4. Explain the Storage classes in c?

Short Answer Question

1. Write the difference between structure and union?

2. Write about Storage classes in C.
3. Write about Structure arrays give example?

Very short Answer Questions

1. Define structure and union?
2. Define Function?
3. What is extern variable?.
4. What is call by value?
5. What is call by reference?

MODULE-V

Essay Questions

1. Explain about Pointers in detail?
2. Explain about basic File operators in C?
3. Explain about pointer to functions with an example?
4. Explain about different types of Pointers in C?

Short Answer Question

1. Write about Pointers to arrays in C?
2. What is Dynamic Memory allocation?
3. Explain Read and Write data to file?

Very short Answer Questions

1. Write the file opening and closing functions?
2. What is pointer?

Life Skills – 1

P R GOVT COLLEGE (A):: KAKINADA
DEPARTMENT OF COMPUTER SCIENCE
BASIC COMPUTER APPLICATIONS (BCA) SEMESTER-I (W.E.F 2020-21)

I B.A/B.Sc/B.Com (Common for All Degree)

I - Semester
(30 Hours of Teaching)

Objectives:

This course aims at providing exposure to students in skill development towards basic office applications.

Course Learning Outcomes:

After successful completion of the course, student will be able to:

1. Demonstrate basic understanding of computer hardware and software.
2. Apply skills and concepts for basic use of a computer.
3. Identify appropriate tool of MS office to prepare basic documents, charts, spreadsheets and presentations.
4. Create personal, academic and business documents using MS office.
5. Create spreadsheets, charts and presentations.
6. Analyze data using charts and spread sheets.

Unit-I: (08 hrs)

Basics of Computers: Definition of a Computer - Characteristics of computers, Applications of Computers – Block Diagram of a Digital Computer – I/O Devices, hardware, software human ware, application software, system software, Memories - Primary, Auxiliary and Cache Memory.

MS Windows : Desktop, Recycle bin, My Computer, Documents, Pictures, Music, Videos, Task Bar, Control Panel.

Unit-II: (08 hrs)

MS-Word : Features of MS-Word - MS-Word Window Components - Creating, Editing, Formatting and Printing of Documents – Headers and Footers – Insert/Draw Tables, Table Auto format – Page Borders and Shading – Inserting Symbols, Shapes, Word Art, Page Numbers, Mail Merge.

Unit-III: (10 hrs)

MS-Excel : Overview of Excel features – Creating a new worksheet, Selecting cells, Entering and editing Text, Numbers, Inserting Rows/Columns –Changing column widths and row heights, Formulae, Referencing cells , Changing font sizes and colors, Insertion of Charts, Auto fill, Sort.

MS-PowerPoint: Features of PowerPoint – Creating a Presentation - Inserting and Deleting Slides in a Presentation – Adding Clip Art/Pictures -Inserting Other Objects, Audio, Video - Resizing and scaling of an Object – Slide Transition – Custom Animation.

RECOMMENDED CO-CURRICULAR ACTIVITIES: (04 hrs)

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside
   a. the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz, Group Discussion
4. Solving MCQ's available online.
5. Suggested student hands on activities:
   - Create two folders, Rename the folder, create two files each using notepad and paint, move the files from one folder to another folder, delete a file you have created, copy and paste text within notepad.
   - Create a letter head for your college with watermark, your resume, visiting card, brochure for your college activity, organization chart for your college, any advertisement, Prepare your Class time table.
   - Prepare your mark sheet, Prepare your class time table, Prepare a salary bill for an organization, Sort the bill as per the alphabetical order of the names, Get online weather data and analyze it with various charts.
   - Create a PowerPoint presentation for a student seminar.

REFERENCE BOOKS:

1. Working in Microsoft Office – Ron Mansfield - TMH.
2. MS Office 2007 in a Nutshell –Sanjay Saxena – Vikas Publishing House.
3. Excel 2020 in easy steps-Michael Price – TMH publications

P.R. GOVT COLLEGE (AUTONOMOUS), KAKINADA
MODEL PAPER (W.E.F. 2020-21)
I B.A/B.Sc/B.Com (Common for All Degree)

SEMESTER –I

Sub: BASIC COMPUTER APPLICATIONS (BCA) **Paper: I**
Time: 2 hrs **Marks: 50**

SECTION – A

Answer any FOUR questions the following **4 x 5= 20 M**

1. Write about characteristics of Computer.
2. Explain Primary and Secondary memory devices.
3. Explain Desktop and Recycle bin.
4. Explain feature of MS-Word.
5. Explain header and Footer in MS-Word.
6. Explain feature of MS-Excel.
7. How to inserting Rows and Columns in MS-Excel
8. Explain features of MS-Power point.

SECTION – B

Answer any THREE questions the following **3 x 10= 30 M**

9. Draw and explain block diagram of Computer in details.
10. Explain various input and output devices.
11. Describe the features of MS Windows.
12. What is Mail-Merge? Explain Mail-Merge concept in MS-Word.
13. Explain the procedure how to create worksheets in MS Excel.
14. Explain Types of Views in MS-Power point.

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P.R. GOVT COLLEGE (AUTONOMOUS), KAKINADA
QUESTION BANK (W.E.F. 2020-21)
I B.A/B.Sc/B.Com (Common for All Degree)

BASIC COMPUTER APPLICATIONS (BCA)

SEMESTER-I

QUESTION BANK

----UINT-I

Short Answer Questions:

1. Write about characteristics of Computer?
2. Explain various Applications of Computers?

Essay Answer Questions:

3. Discuss block diagram of Computer in details?
4. Explain various input and output devices?

UINT-II

Short Answer Questions:

1. Explain Primary and Secondary memory devices?
2. Explain Desktop and Recycle bin?

Essay Answer Questions:

3. Explain How to Creating Table in MS-Word?
4. What is Mail-Merge? Explain Mail-Merge concept in MS-Word?.

UINT-III

Short Answer Questions:

1. Explain feature of MS-Powerpoint?
2. How to inserting Rows and Columns in MS-Excel ?

Essay Answer Questions:

3. Explain the procedure how to create worksheets in MS Excel?
4. Explain how to create a presentation in MS Powerpoint?

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P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA

MODEL BLUE PRINT (W.E.F. 2020-21)
I B.A/B.Sc/B.Com (Common for All Students)

BASIC COMPUTER APPLICATIONS (BCA)

SEMESTER -I

SUBJECT: BCA **Time: 2 Hrs**
PAPER- I **Marks: 50**

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Short Questions	**8**	**5**	**40**	**4**	**5**	**20**
2	Section-B Essay Questions	**5**	**10**	**60**	**3**	**10**	**30**
TOTAL MARKS				**100**	**TOTAL MARKS**		**50**

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
MODEL BLUE PRINT (W.E.F. 2019-20)
I B.A/B.Sc/B.Com (Common for All Degree)

BASIC COMPUTER APPLICATIONS (BCA)

SEMESTER- I

SUBJECT: BCA **Time: 2 Hrs**
PAPER- I **Marks :50**

Model Blue print for the question paper setter

Chapter Name	**Essay Questions** **10 Marks**	**Short Questions** **5 Marks**	**Marks allotted to the chapter**
UNIT-I	**2**	**3**	**35**
UNIT-II	**2**	**3**	**35**
UNIT-III	**2**	**2**	**30**
Total No. of questions	**6**	**8**	
Total Marks Including choice			**100**

I B.Sc. – Computer Science / Semester- II (W.E.F. 2020-2021)

Course: DATA STRUCTURES USING C

Course Code:C2

Total Hrs. of Teaching-Learning: 60 @ 4 h / Week **Total Credits: 03**

Objectives – To introduce the fundamental concept of data structures and to emphasize the

importance of various data structures in developing and implementing efficient algorithms.

Outcomes: Upon successful completion of the course, a student will be able to:

1. Understand available Data Structures for data storage and processing.
2. Comprehend Data Structure and their real-time applications - Stack, Queue, Linked List, Trees and Graph
3. Choose a suitable Data Structures for an application
4. Develop ability to implement different Sorting and Search methods
5. Have knowledge on Data Structures basic operations like insert, delete, search, update and traversal
6. Design and develop programs using various data structures
7. Implement the applications of algorithms for sorting, pattern matching etc

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MODULE I: 12Hrs

a) **Introduction to Data Structures:** Introduction to the Theory of Data Structures, Data Representation, Abstract Data Types, Data Types, Primitive Data Types, Data Structure and Structured Type, Atomic Type, Difference between Abstract Data Types, Data Types, and Data Structures, Refinement Stages

b) **Principles of Programming and Analysis of Algorithms:** Software Engineering, Program Design, Algorithms, Different Approaches to Designing an Algorithm, Complexity, Big 'O' Notation, Algorithm Analysis, Structured Approach to Programming, Recursion, Tips and Techniques for Writing Programs in 'C'

MODULE II: 12Hrs

a) **Arrays:** Introduction to Linear and Non- Linear Data Structures, One- Dimensional Arrays, Array Operations, Two- Dimensional arrays, Multidimensional Arrays, Pointers and Arrays, an Overview of Pointers

b) **Linked Lists:** Introduction to Lists and Linked Lists, Dynamic Memory Allocation, Basic Linked List Operations, Doubly Linked List, Circular Linked List, Atomic Linked List, Linked List in Arrays, Linked List versus Arrays

MODULE -III: HRS: 10

a) **Stacks:** Introduction to Stacks, Stack as an Abstract Data Type, Representation of Stacks through Arrays, Representation of Stacks through Linked Lists, Applications of Stacks, Stacks and Recursion

b) **Queues:** Introduction, Queue as an Abstract data Type, Representation of Queues, Circular Queues, Double Ended Queues- Deques, Priority Queues, Application of Queues

MODULE -IV: HRS: 12

a) **Binary Trees:** Introduction to Non- Linear Data Structures, Introduction Binary Trees, Types of Trees, Basic Definition of Binary Trees, Properties of Binary Trees, Representation of Binary Trees, Operations on a Binary Search Tree, Binary Tree Traversal, Counting Number of Binary Trees, Applications of Binary Tree

MODULE -V: HRS: 12

a) **Searching and sorting:** Sorting – An Introduction, Bubble Sort, Insertion Sort, Merge Sort, Searching – An Introduction, Linear or Sequential Search, Binary Search, Indexed Sequential Search.

b) **Graphs:** Introduction to Graphs, Terms Associated with Graphs, Sequential Representation of Graphs, Linked Representation of Graphs, Traversal of Graphs, Spanning Trees, Shortest Path, Application of Graphs.

Prescribed Books:

1. “Data Structures using C”, ISRD group Second Edition, TMH
2. “Data Structures through C”, YashavantKanetkar, BPB Publications
3. “Data Structures Using C” Balagurusamy E. TMH

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity))

B. General

1. Group Discussion
2. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Programming exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports.
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work

I B.Sc. – Computer Science / Semesters- II / Paper-II Syllabus
Practical Paper - II:
COURSE NAME:DATA STRUCTURE USING IN C
Course Code: C2

Practical/Laboratory-II
DATA STRUCTURE USING IN C **Marks:50**

1. Write a program to read 'N' numbers of elements into an array and also perform the following operation on an array

a. Add an element at the begging of an array

b. Insert an element at given index of array

c. Update a element using a values and index

d. Delete an existing element

2. Write a program using stacks to convert a given

a. postfix expression to prefix

b. prefix expression to postfix

c. infix expression to postfix

3. Write Programs to implement the Stack operations using an array

4. Write Programs to implement the Stack operations using Liked List.

5. Write Programs to implement the Queue operations using an array.

6. Write Programs to implement the Queue operations using Liked List.

7. Write a program for arithmetic expression evaluation.

8. Write a program for Binary Search Tree Traversals

9. Write a program to implement dequeue using a doubly linked list.

10. Write a program to search an item in a given list using the following Searching Algorithms

a. Linear Search

b. Binary Search.

11. Write a program for implementation of the following Sorting Algorithms

a. Bubble Sort

b. Insertion Sort

c. Quick Sort

12. Write a program for polynomial addition using single linked list

13. Write a program to find out shortest path between given Source Node and Destination Node in a given graph using Dijkstrar's algorithm.

14. Write a program to implement Depth First Search graph traversals algorithm

15. Write a program to implement Breadth First Search graph traversals algorithm

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
MODEL BLUE PRINT FOR THE YEAR 2020-2021
I B.SC (CS) 2020-2023 BATCH

Course: DATA STRUCTURES USING C

Course Code:C2

Time : 2.30 Hrs. **SEMESTER-II** **Max. Marks:60**

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Very Short Questions	**5**	**1**	**5**	**5**	**1**	**5**
2	Section-B Short Questions	**6**	**5**	**30**	**3**	**5**	**15**
3	Section-C Essay Questions	**8**	**10**	**80**	**4**	**10**	**40**
TOTAL		**19**		**115**	**TOTAL MARKS**		**60**

Percentage of choice given = $\frac{115-60}{115} \times 100 = \frac{55}{115} \times 100 = 47.82\%$

P.R.GOVT.COLLEGE (AUTONOMOUS), KAKINADA
MODEL PAPERS FOR THE YEAR 2020-2021
I B.Sc (CS) 2020-2023 BATCH

Computer Science Course: DATA STRUCTURES USING C

Course Code:C2

Time : 2.30 Hrs. **SEMESTER-II** **Max. Marks: 60**

SECTION – I

Answer all Questions **5×1 = 5M**

1. What is ADT?
2. Define Array.
3. Define Stack.
4. What is BST?
5. What is Graph?

SECTION – II

Answer any THREE Questions **3 x 5 = 15M**

6. Explain the Primitive Data Structures.
7. Explain Stack operations.
8. Explain about Tree implementations and applications.
9. Explain Minimal Spanning Trees?
10. Explain about Binary Searching.
11. Explain Insertion Sort.

SECTION – III

Answer all the Questions **4 x 10 = 40 M**

12. A. What are the goals of data structure? Write note on linear and Non Linear data structure with examples.

OR

B. What is Array? Explain about types of Arrays with syntax and suitable examples

13. A. What is a stack? Explain the algorithm to create and delete items In stack.

OR

B. What is a queue? Explain the algorithms to create and delete Items in a circular queue.

14. A. Write an algorithm to delete operation in any binary search tree.

OR

B. Explain applications of binary trees?

15. A. Explain Merge sort algorithm with an example?

OR

B. What is a graph? Explain different representations of graph ?

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
MODEL BLUE PRINT FOR THE YEAR 2020-2021
I B.SC (CS) 2020-2023 BATCH

Course: DATA STRUCTURES USING C

Course Code:C2

Time : 2.30 Hrs. **SEMESTER-II** **Max. Marks: 60**

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Very Short Questions 1 Marks	Marks allotted to the chapter
MODULE -I	**2**	**2**	**2**	**32**
MODULE -II	**2**	**2**	**1**	**31**
MODULE -III	**2**	**1**	**1**	**26**

MODULE -IV	**2**	**1**	**1**	**26**
Total No. of questions	**8**	**8**	**5**	
Total Marks Including choice				**115**

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
MODEL BLUE PRINT FOR THE YEAR 2020-2021
I B.SC (CS) 2020-2023 BATCH

Course: DATA STRUCTURES USING C

Question Bank(W.E.F.2020-2021)

Course Code:C2

Subject: Data Structures Using C **Max.Marks:60**

MODULE I

Very Short Questions:

1. What is ADT?
2. What is a Data Structure?
3. What is Big O notation
4. What is recursion

Short Answer Questions

1. Explain asymptotic notation
2. Explain recursion in detail

Essay Questions:

1. What are the goals of data structure? Write note on linear and Non Linear data structure with examples.
2. Explain tips and techniques for writing programs in c

MODULE II

Very Short Questions:

1. Define array
2. Define pointer
3. What is a linked list
4. What is a circular linked list

Short Answer Questions

1. Explain Multi dimensional arrays
2. Explain Dynamic memory allocation
3. Write the advantages and disadvantages of array and linked list.
4. Explain basic linked list operations

Essay Questions:

1. Explain double linked list implementation in C
2. Explain circular list implementation in C

Module III

Very Short Questions:

1. What is a stack?
2. Define queue?
3. What is priority queue
4. What is circular queue

Short Answer Questions

1. Explain Stack ADT
2. Explain Queue ADT
3. Explain Priority Queues?
4. Explain applications of queues?

Essay Questions:

1. What is a stack?Explain the algorithm to insert and delete items in a stack.
2. What is a queue?Explain the algorithm to create and delete items in aqueue.
3. Explain the applications of stack?

Module IV

Very Short Questions:

1. What is a Binary Tree?
2. What is Binary Search Tree?
3. Representation of a Binary Tree?
4. Mention one application of Binary Tree?

Short Answer Questions

1. Explain about representation of a Binary Tree?.
2. Explain Properties of a Binary Trees?
3. Briefly explain Binary Tree Traversals?
4. Explain Operations on a BST?

Essay Questions:

1. Explain applications of Binary Tree?
2. Write an algorithm for delete operation on a BST?
3. Explain BST Traversals?

Module V

Very Short Questions:

1. Define Sorting?
2. Define Searching?
3. What is Merge Sort
4. What is a Graph
5. What is a spanning Tree

Short Answer Questions

1. Explain about Binary Searching.
2. Explain Insertion Sort.
3. Explain about Bubble Sort
4. Explain about Binary Search

Essay Questions:

1. Explain Merge sort algorithm with an example?
2. What is a Graph? Explain representations of a Graph
3. Briefly Explain linear and binary search algorithms?

P.R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
I BSC (CS) 2020– 2023 BATCH
COURSE NAME: DATA STRUCTURES USING IN C
Course Code: C2
I B.Sc (CS) SEMESTER-II

SCHEME OF VALUATION (W.E.F. 2020-2021)

Time: **2** Hrs Marks: 100

Practical/Laboratory – II

1. Internal Practicals 40 Marks
2. External Practicals 60 Marks

Life Skills – 2

P R GOVT COLLEGE (A):: KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

INFORMATION & COMMUNICATION TECHNOLOGY (ICT)

SEMESTER-II (W.E.F 2020-21)

Common for all Degree Programmes

(INTERNET FUNDAMENTALS AND WEB TOOLS)

II Semester

(30 Hours of Teaching)

Objectives:

This course aims at acquainting the students with basic ICT tools which help them in their day to day and life as well as in office and research.

Course outcomes: After completion of the course, student will be able to;

1. Understand the literature of social networks and their properties.
2. Explain which network is suitable for whom.
3. Develop skills to use various social networking sites like twitter, flickr, etc.
4. Learn few GOI digital initiatives in higher education.
5. Apply skills to use online forums, docs, spreadsheets, etc for communication, collaboration and research.
6. Get acquainted with internet threats and security mechanisms.

UNIT-I: (08 hrs)

Fundamentals of Internet: What is Internet?, Internet applications,Internet Addressing – Entering a Web Site Address, URL–Components of URL, Searching the Internet, Browser

–Types of Browsers,Introduction to Social Networking: Twitter, Tumblr, LinkedIn, Facebook, flickr, Skype, yahoo, YouTube, WhatsApp .

UNIT-II:(08 hrs)

E-mail: Definition of E-mail -Advantages and Disadvantages –User Ids, Passwords, Email Addresses, Domain Names, Mailers, Message Components, MessageComposition, Mail Management.

G-Suite: Google drive, Google documents, Google spread sheets, Google Slides and Google forms.

UNIT-III:(10 hrs)

Overview of Internet security: E-mail threats and secure E-mail, Viruses and antivirus software, Firewalls, Cryptography, Digital signatures, Copyright issues.

What are GOI digital initiatives in higher education? (SWAYAM, SwayamPrabha, National Academic Depository, National Digital Library of India, E-Sodh-Sindhu, Virtual labs, e-acharya, e-Yantra and NPTEL).

RECOMMENDED CO-CURRICULAR ACTIVITIES: (04 hrs)

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

1. Assignments(in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))

Quiz and Group Discussion

3. Slip Test
4. Try to solve MCQ's available online.
5. Suggested student hands on activities :
    a. Create your accounts for the above social networking sites and explore them, establish a video conference using Skype.
    b. Create an Email account for yourself- Send an email with two attachments to another friend. Group the email addresses use address folder.
    c. Register for one online course through any of the online learning platforms like NPTEL, SWAYAM, Alison, Codecademy, Coursera. Create a registration form for your college campus placement through Google forms.

Reference Books :

1. In-line/On-line : Fundamentals of the Internet and the World Wide Web, 2/e – by Raymond Greenlaw and Ellen Hepp, Publishers : TMH
2. Internet technology and Web design, ISRD group, TMH.
3. Information Technology – The breaking wave, Dennis P.Curtin, Kim Foley, Kunai Sen and Cathleen Morin, TMH.

P.R. GOVT COLLEGE (AUTONOMOUS), KAKINADA
MODEL PAPER (W.E.F. 2020-21)
I B.A/B.Sc/B.Com (Common for All Degree)

SEMESTER –II

Sub: INFORMATION & COMMUNICATION TECHNOLOGY (ICT) **Paper: II**

Time: 2 hrs **Marks: 50**

SECTION – A

Answer any FOUR questions the following **4 x 5= 20 M**

1. Explain various application of internet.
2. What is a Browser? Explain the different types of browsers
3. Explain about WhatsApp
4. Describe about E-mail address and Domain Names.
5. Explain about Google Spread sheets .
6. Explain about URL and its components.
7. What are firewalls.
8. Explain about SwayamPrabha.

SECTION – B

Answer any THREE questions the following **3 x 10= 30 M**

9. What is Social Networking? Explain with various examples .
10. Discuss in detail about various components of G-Suite.
11. Explain about different types of Viruses and Anti-Virus software.
12. What is an E-Mail? List the advantages and disadvantages of E-mail
13. What are various GOI Digital Initiatives in Higher Education.

* * *

P.R. GOVT COLLEGE (AUTONOMOUS), KAKINADA
QUESTION BANK (W.E.F. 2020-21)
I B.A/B.Sc/B.Com (Common for All Degree)

INFORMATION & COMMUNICATION TECHNOLOGY (ICT)

SEMESTER-II

QUESTION BANK

UINT-I

Short Answer Questions:

5. Explain about Website Addressing?
6. Explain various application of internet?

Essay Answer Questions:

7. Explain various application of internet?
8. What is Social Networking? Explain with various examples?

UINT-II

Short Answer Questions:

5. Explain about Google documents?
6. What is Mail management?

Essay Answer Questions:

7. Discuss in detail about various components of G-Suite?
8. What is an E-Mail? List the advantages and disadvantages of E-mail?.

UINT-III

Short Answer Questions:

5. What is Internet security?
6. What are firewalls ?

Essay Answer Questions:

7. Explain about different types of Viruses and Anti-Virus software?
8. What are various GOI Digital Initiatives in Higher Education?

* * *

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA

MODEL BLUE PRINT (W.E.F. 2020-21)
I B.A/B.Sc/B.Com (Common for All Students)
INFORMATION AND COMMUNICATION TECHNOLOGY

SEMESTER -II

SUBJECT: ICT **Time: 2 Hrs**
PAPER- II **Marks: 50**

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Short Questions	**8**	**5**	**40**	**4**	**5**	**20**
2	Section-B Essay Questions	**5**	**10**	**60**	**3**	**10**	**30**
TOTAL MARKS				**100**	**TOTAL MARKS**		**50**

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
MODEL BLUE PRINT (W.E.F. 2020-21)
I B.A/B.Sc/B.Com (Common for All Degree)

INFORMATION AND COMMUNICATION TECHNOLOGY(ICT

SEMESTER- II

SUBJECT:ICT **Time: 2 Hrs**
PAPER- II **Marks :50**

Model Blue print for the question paper setter

Chapter Name	Essay Questions	Short Questions	Marks allotted

	10 Marks	5 Marks	to the chapter
UNIT-I	**2**	**3**	**35**
UNIT-II	**2**	**3**	**35**
UNIT-III	**2**	**2**	**30**
Total No. of questions	**6**	**8**	
Total Marks Including choice			**100**

I BSC (IOT)

P R GOVT COLLEGE (A), KAKINADA

I B.Sc –MEIOT / Semester- I (W.E.F. 2021-2022)

Course: Fundamentals of Computer and C-Programming

Total Hrs. of Teaching-Learning: 52 @ 4 Hrs / Week **Credits: 03**

Course Objectives:

1. To explore basic knowledge on computers
2. Learn how to solve common types of computing problems.
3. Learn basic constructs of computer programming languages
4. Learn data types and control structures of C
5. Learn to map problems to programming features of C.
6. Learn to write good portable C programs.

Course Outcomes

Upon successful completion of the course, a student will be able to:

1. Appreciate and understand the working of a digital computer
2. Analyze a given problem and develop an algorithm to solve the problem
3. Improve upon a solution to a problem
4. Use the 'C' language constructs in the right way
5. Design, develop and test programs written in 'C'

UNIT-I

Introduction to computers - Characteristics and limitations of computer, Block diagram of computer, types of computers, computer generations. Number systems: binary, hexadecimal and octal numbering system. Input and output devices: Keyboard and mouse, inputting data in other ways

Types of Software: system software, Application software, commercial, open source, domain and free ware software, Memories: primary, secondary and cache memory.

UNIT-II

Problem Analysis and its Tools: Problem solving technique and Program Development Life Cycle, Problem Definition, Algorithm, Flow Charts, Types of Errors, Testing and Debugging.

Basics of C: Historical development of C Language, Basic Structure of C Program, C Character Set, Identifiers and Keywords, constants, variables, Data types.

Operators and expressions: Arithmetic, Relational, Logical, Assignment, Unary, Conditional and Bitwise operators.Type conversions. Input and output statements: getchar( ), getch( ), getche( ), putchar( ), printf( ), scanf( ), gets( ), puts( )

UNIT-III

Control statements: Decision making statements: if, if else, else if ladder, switch statements. Loop control statements: while loop, for loop and do-while loop. Jump Control statements: break, continue and goto.

Arrays: one dimensional Array, two dimensional arrays.

UNIT-IV

Strings: Input/ Output of strings, string handling functions, table of strings

Functions: Function Prototype, definition and calling. Return statement. Nesting of functions. Categories of functions. Recursion, Parameter Passing by address & by value. Local and Global variables. Storage classes: automatic, external, static and register.

UNIT-V

Pointers: Pointer data type, Pointer declaration, initialization, accessing values using pointers. Pointer arithmetic. Pointers and arrays, pointers and functions.

Structures and Unions : Using structures and unions, use of structures in arrays and arrays in structures. Comparison of structure and Union.

Text Books:

1. E. Balagurusway, "Programming in C", Tata McGrwal Hill.
2. Computer fundamentals and c programming in c by Reemathareja, oxford university press

Reference Books

1. Introduction to C programming by REEMA THAREJA from OXFORD UNIVERSITY PRESS
2. E Balagurusamy: ―COMPUTING FUNDAMENTALS & C PROGRAMMING – Tata McGraw-Hill, Second Reprint 2008, ISBN 978-0-07-066909-3.
3. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publ, 2002.
4. Henry Mullish&HuubertL.Cooper: The Spirit of C An Introduction to modern Programming, Jaico Pub. House,1996.
5. Y kanithkar, let us C BPB, 13 th edition-2013, ISBN:978-8183331630,656 pages.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Problem-solving exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports like "Creating Text Editor in C".
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
MODEL BLUE PRINT(W.E.F. 2021-2022)

I B.Sc (MEIOT)
SEMESTER-I

Course: Fundamentals of Computer and C -Programming **Time: 2.30Hrs**

Marks: 50

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Marks allotted to the chapter
Module-1	2	2	30
Module-2	1	2	20
Module-3	1	1	15
Module-4	1	1	15
Module-5	1	1	15
Total No. of questions	6	7	
Total Marks Including choice			95

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
MODEL BLUE PRINT(W.E.F. 2021-2022)

I B.Sc (MEIOT)
SEMESTER-I

Course: Fundamentals of Computer and C -Programming
Time: 2.30Hrs

Marks: 50

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Short Questions	**7**	**5**	**35**	**4**	**5**	**20**
2	Section-B Essay Questions	**6**	**10**	**60**	**3**	**10**	**30**
TOTAL		**13**		95	**TOTAL MARKS**		**50**

Percentage of choice given = $\frac{95 - 50}{95} \times 100 = \frac{45}{95} \times 100 = 47.36\%$

P R GOVT COLLEGE (A), KAKINADA

I B.Sc –MEIOT / Semester- I (W.E.F. 2021-2022)

Course: Fundamentals of Computer and C –Programming

Time: 2:30hrs **SEMISTER – I** **Max. Marks: 50**

Section – I

Answer any 4 Questions (Short answer questions) **(4x5=20M)**

1) Types of Software?

2) What is Identifier? Explain with example.

3) What is switch statement? Write its syntax?

4) Explain about Break and continue?

5) What are the different storage classes?

6) What is dynamic memory allocation?

7) Explain about pointer datatypes?

Section – II

Answer Any Four Questions **(3x10=30M)**

8) A) Explain about various components of computer and draw the blockdiagram?

(OR)

B) What are the generations of computers?

9) A) What is operator? Explain different types of operators in C?

(OR)

B) Explain about conditional control statements in C?

10) A) explain about functions in details?

(OR)

B) What is a pointer? Explain the types of pointers?

P R GOVT COLLEGE (A), KAKINADA

I B.Sc –MEIOT / Semester- I(W.E.F. 2021-2022)

Course: Hardware and C Programming Lab

Practical /Laboratory-I

Time: 2 Hrs Marks: 50

Practical/Laboratory – IV

1. Internal Practicals 20 Marks
2. External Practicals 30 Marks

Semester	Course Code	Course Title	Hours	Credits
I	C1-P	Hardware and C Programming Lab	30	1

SEMESTER-I

Hardware Lab:

1. Identify various Memory components of the Computer.
2. Identify Various Cables and their uses
3. Identify various Network Devices.
4. Assembling and Disassembling of Computers.

C Programming Lab

1. Find the biggest of three numbers using C.
2. Write a c program to find the sum of individual digits of a positive integer.
3. A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence.
4. Write a c program to check whether a number is Armstrong or not.
5. Write a program to perform various string operations.(palindrom)
6. Write a c program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.
7. Write a c program that uses functions to perform the following: Multiplication of two matrices.
8. Write a c program that implements searching of given item in given list.
9. Write a c program to sort a given list of integers in ascending order.
10. Write a c program to perform various operations using pointers.
11. Write a c program to read data of 10 employees with a structure of 1.employee id 2.aadar no, 3.title, 4.joined date, 5.salary, 6.date of birth, 7.gender, 8.department.
12. Write a program for concatenation of two strings.
13. Write a program for length of a string
14. Write a program for Swapping of three values using functions
15. **Accept an integer and reverse it**

P R GOVT COLLEGE (A), KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

I B.Sc –MEIOT / Semester- I (W.E.F. 2021-2022)

Course: Fundamentals of Computer and C -Programming

Computer fundamentals and C Language Important Questions

Module – I

1) Explain about Machine and Assembly levellanguage?
2) Explain about system software and applicationsoftware?
3) Explain about bits andbytes?
4) Explain about various components of computer and draw the blockdiagram?
5) What are the generations of computers?
6) Types of Software
7) Types of Memory.

Module - II

8) Define Keyword?
9) State any four types of statements in C.
10) Define Variable? Give example.
11) What is Identifier? Explain with example.
12) Explain about different types of data types inC?
13) What is operator? Explain different types of operators in C?
14) What is type conversion? Explain about type conversions in C?

Module- III :

15) Explain about two way selection statements and multi way selection statements withexamples?
16) What are iterative statements explain with syntax andexamples?
17) Explain the difference between while and do-while with an example?
18) Write a C program to find the sum of the digits in a given number?

19) Differentiate counter controlled and conditional controlled loops with examples?

20) Explain about Break and continue?

21) Write a C program to find whether a given number is Palindrome or not?

22) Define Actual Parameters and Formal Parameter. What is meant by Global and Local variable? Explain with anexample.

23) Write a C Program demonstrating of parameter passing in Functions and returningvalues.

24) What are the different storage classes? Explain with suitableexamples.

25) Write C program that use both recursive and non-recursive function to find the factorial of a giveninteger.

26) Write a Program to exchange the values of two variables using Functionsconcept.

Module – IV :

27) Explain about the following

(i)One dimensional array , (ii)Two dimensional arrays (iii)Array Initialization

28) Write a C program to find the sum of elements of a two dimensionalarray.

29) What is a string? How to declare and initialize thestring?

30) Explain different string manipulation (string handling) functions withexamples.

31) Write a program to multiply two matrices and print theresult.

Module – V :

32) Define pointer. Write a program to explain the usage of pointer .List the troubles in usingpointers?

33) What is dynamic memory management? Explain about various functions used forit?

34) Explain the followingoperations

i. fseek()
ii. ftell()
iii. rewind()
iv. ferror() and feof()

35) List the differences between structure and union. Describe structure declaration, initialization and accessingelements.

36) Write a program using structure to accept and display structure name, roll number, mobile number?

II B.Sc(CS)

P R GOVT COLLEGE(A), KAKINADA
DEPARTMENT OF COMPUTER SCIENCE
II B.Sc (CS) - Semester- III (W.E.F. 2020-2021)
Paper-II – OBJECT ORIENTED PROGRAMMING USING JAVA
Course code: CP3204

Total Hrs. of Teaching-Learning: 52 @ 4 h / Week **Total Credits: 03**

Objective:

To develop proficiency in the specification, representation, and implementation of OOPS Concepts.

Outcomes: After completion of this course, student can able to understand:

1. The basic structure of Java Programming.
2. Object Oriented Programming features.

Module-1: **12 Hrs**

FUNDAMENTALS OF OBJECT – ORIENTED PROGRAMMING: Introduction, Object Oriented paradigm, Basic Concepts of OOP, Benefits of OOP, Application's of OOP. OVERVIEW OF JAVA LANGUAGE: Introduction, java features Simple Java program structure, difference between C, C++ and java, java and internet, Java tokens, Java Statements, Implementing a Java Program, Java Virtual Machine, Command line arguments.

CONSTANTS, VARIABLES & DATA TYPES: Introduction, Constants, Variables, Data Types, Declaration of Variables, Giving Value to Variables, Scope of variables, Symbolic Constants, Type casting, Getting Value of Variables, Standard Default values;

Module-2 **10 Hrs**

OPERATORS AND EXPRESSIONS : Arithmetic operators Relational operators, logical operators, Assignment operators, Increment and decrement operators, Conditional operators, Bitwise operators, Special operators, Arithmetic operators, Precedence of Arithmetic operators.

DECISION MAKING & BRANCHING: Introduction, Decision making with if statement, Simple if statement, if Else statement, Nesting of if else statements, the else if ladder, the switch statement, the conditional operator.

DECISION MAKING & LOOPING: Introduction, The While statement, the do-while statement, the for statement, Jumps in loops. CLASSES, OBJECTS & METHODS: Introduction, Defining a class, Adding variables, Adding methods, Creating objects, Accessing class members, Constructors, Method overloading, Static members, Nesting of methods, visibility controls.

Module-3: **10 Hrs**

INHERITANCE: inheritance and types of inheritances, Extending a class, Overloading methods, Final variables and methods, Final classes, Abstract methods and classes.

ARRAYS, STRINGS AND VECTORS: Arrays, One-dimensional arrays, Creating an array, Two – dimensional arrays, Strings, Vectors, Wrapper classes.

INTERFACES: MULTIPLE INHERITANCE: Introduction, Defining interfaces, Extending interfaces,

Implementing interfaces, Assessing interface variables;

Module-4: **10 Hrs**

MULTITHREADED PROGRAMMING: Introduction, Creating Threads, Extending the Threads, Stopping and Blocking a Thread, Lifecycle of a Thread, Using Thread Methods, Thread Exceptions, Thread Priority, Synchronization, Implementing the 'Runnable' Interface.

MANAGING ERRORS AND EXCEPTIONS: Types of errors: Compile-time errors, Run-time errors, Exceptions, Exception handling, Multiple Catch Statements, Using finally statement.

Module-5: **10 Hrs**

APPLET PROGRAMMING: local and remote applets, difference between Applets and Applications, Building Applet code, Applet Life cycle: Initialization state, Running state, Idle or stopped state, Dead state, Display state Designing web page, adding applet to HTML file, Running the Applet.

PACKAGES: Introduction, Java API Packages, Using System Packages, Naming conventions, Creating Packages, Accessing a Package, using a Package, Adding class to a package, Hiding classes, static Import.

Prescribed Book:

1. E .Balaguru swamy, Programming with JAVA, A primer, 3e, TATA McGraw-Hill Company.
Reference Books: 1. John R. Hubbard, Programming with Java, Second Edition, Schaum's outline Series, TMH.

2. Deitel &Deitel. Java TM: How to Program, PHI (2007)

3. Java Programming: From Problem Analysis to Program Design- D.S Mallik

4. Object Oriented Programming Through Java by P. Radha Krishna, Universities Press (2008)

5. Java complete reference.

Reference Books:

1. Java for Programmers, P.J.Deital and H.M.Deital, Pearson Education
2. Object Oriented Programming Through Java, P.Radha Krishna, Universities Press.

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
MODEL BLUE PRINT (W.E.F. 2020-2021)
II B.Sc (CS) SEMESTER-III
Course code: CP3204

SUBJECT: OBJECT ORIENTED PROGRAMMING USING JAVA **Time: 2½ Hrs**
PAPER- II **Marks: 60**

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	**Marks allotted to each question**	**Total Marks**	**No. of Questions**	**Marks allotted to each question**	**Total Marks**
1	Section-A Very Short Questions	**5**	**1**	**5**	**5**	**1**	**5**
2	Section-B Short Questions	**6**	**5**	**30**	**3**	**5**	**15**
3	Section-C Essay Questions	**8**	**10**	**80**	**4**	**10**	**40**
TOTAL MARKS				**115**	**TOTAL MARKS**		**60**

Percentage of choice given = $\frac{115 - 60}{115} \times 100 = \frac{55}{115} \times 100 = 47.82\%$

P.R.GOVT.COLLEGE (AUTONOMOUS), KAKINADA
MODEL PAPER (W.E.F. 2020-2021)
II B.Sc (CS) Course code: CP3204

SUBJECT: OBJECT ORIENTED PROGRAMMING USING JAVA Time: 2½ Hrs
PAPER-II Marks: 60

SEMESTER-III

Section – I

Answer any all questions **5 x 1 = 5M**

1. Define JVM.
2. Define Constant.
3. What is an Operator?
4. Define class and Object.
5. Define Interface.

Section –II

Answer any 3 questions **3 x 5 =15M**

6. What are the data types supported by Java?
7. Explain the Conditional Statements in Java.
8. Discuss Abstract classes and Methods.
9. Discuss Method Overloading.
10. Explain about Final variables and Methods.
11. How can you implement Interfaces?

Section –III

Answer all the questions **4 x 10 = 40M**

12. A. Explain the features of Object Oriented Programming.

(OR)

B. What is an Operator? Explain the Types of Operators in Java.

13. A. Explain the Decision Making and Looping Statements in Java.

(OR)

B. How is Multiple Inheritance handled in Java Programming?

14. A..Explain how handling Exceptions in Java?

(OR)

B. Explain about Life cycle of a Thread?.

15. A. Explain about Life cycle of an Applet?

(OR)

B. What is a Package? Explain the creation of Package in Java.

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
MODEL BLUE PRINT (W.E.F. 2020-2021)
II B.SC (CS) SEMESTER-III
Course code: CP3204

SUBJECT: OBJECT ORIENTED PROGRAMMING USING JAVA Time: 2½ Hrs

PAPER-II **Marks: 60**

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Very Short Questions 1 Marks	Marks allotted to the chapter
Module-1	2	2	1	31
Module-2	1	1	1	16
Module-3	1	1	1	16
Module-4	2	1	1	26
Module-5	2	1	1	26
Total No. of questions	8	6	5	
Total Marks Including choice				115

P R GOVERNMENT (AUTONOMOUS) COLLEGE, KAKINADA
QUESTION BANK (W.E.F. 2020-2021)
II B.Sc (CS) Course code: CP3204
SEMESTER-III
Subject: OBJECT ORIENTED PROGRAMMING USING JAVA Max.Marks:60
Paper-II

Question Bank
Module I

Very Short Questions: (1M)

1. What is Internet?
2. What is WWW?
3. What is Web Browser?
4. Define Token.
5. Define JVM.
6. Define Constant.
7. What is a Variable?
8. Define Data type in Java.

Short Questions: (5M)

1. What are the Applications of OOPS?
2. Give the Structure for Java Program.
3. Explain the Declaration of variables and giving values to variables.
4. What are the data types supported by Java?

Essay Questions: (10M)

1. Explain the features of Object Oriented Programming.
2. Explain the features of Java Programming.
3. What is a token?List and explain the various types of tokens supported by java?
4. Explain about JVM in details.

Module II

Very Short Questions: (1M)

1. What is an Operator?
2. Define Expression.
3. Mention any three relational operators.
4. Define class and Object.
5. What is Constructor?

Short Questions: (5M)

1. Explain the Evaluation of Expressions.
2. Explain the Conditional Statements in Java.
3. Discuss Abstract classes and Methods.
4. Explain about Final variables and Methods.

Essay Questions: (10M)

1. What is an Operator? Explain the Types of Operators in Java.
2. Explain the Decision Making and Looping Statements in Java.
3. Explain the Decision Making and Branching Statements in Java

Module III

Very Short Questions: (1M)

1. Define Interface.
2. What is Inheritance?
3. Write any two string methods?
4. What is a vector?

Short Questions: (5M)

1. Discuss Method Overloading.

2. Discuss Method Overriding.
3. How can you implement Interfaces?
4. Discuss the types of Polymorphism.

Essay Questions: (10M)

1. What is Inheritance? Explain the Types of Inheritance that are supported by java.
2. How is Multiple Inheritance handled in Java Programming?
3. What is an array? Explain the process of declaration and initialization of one dimensional and two dimensional arrays in java?
4. Explain any five string methods with examples?

Module IV

Very Short Questions: (1M)

1. What is a Thread?
2. What is Compile time error?
3. What is exception handling?
4. What is synchronization?

Short Questions: (5M)

1. Explain types of errors?
2. Explain thread priority?
3. Explain syncrnization in java ?
4. Explain the Thread methods yield(),sleep() and stop()?

Essay Questions: (10M)

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1. Explain how handling Exceptions in Java?
2. Explain about Life cycle of a Thread?
3. Explain about Life cycle of an Applet?
4. Explain thread priorities in java with an example?

Module V

Very Short Questions: (1M)

1. What is an applet?
2. What is a package?
3. Write the syntax for creating a package?
4. What is an applet tag?.

Short Questions: (5M)

1. Explain the process of creating an executable Applet?
2. Explain the process of adding Applet to HTML file?
3. Write any three Java API packages and briefly explain them?

Essay Questions: (10M)

1. What is a Package? Explain the creation of Package in Java.
2. Explain the life cycle of applet?
3. Discuss the various levels of access protection available for packages and their implementation?
4. Discuss the steps involved in developing and running a local applet?

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA

PRACTICALS (W.E.F. 2020—2021)

II B.Sc (CS) SEMESTER-III

PRACTICAL SYLLABUS

OBJECT ORIENTED PROGRAMMING USING JAVA

OBJECT ORIENTED PROGRAMMING USING JAVA LAB

Course code: CP3204P

1. Write a program to perform various String Operations
2. Write a program on class and object in java
3. Write a program to illustrate Function Overloading & Function Overriding methods in Java
4. Write a program to illustrate the implementation of abstract class
5. Write a program to implement Exception handling
6. Write a program to create packages in Java
7. Write a program on interface in java
8. Write a program to Create Multiple Threads in Java
9. Write a program to Write Applets to draw the various polygons
10. Write a program which illustrates the implementation of multiple Inheritance using interfaces in Java
11. Write a program to assign priorities to threads in java

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
SYLLABUS PAPER (W.E.F. 2020-2021)
II B.Sc/B.Com/B.A (Common for All UG Programs)
INFORMATION & COMMUNICATION TECHNOLOGY –2 (ICT-2)

INTERNET FUNDAMENTALS AND WEB TOOLS

(30 Hours of Teaching Learning including Lab)
SEMESTER-III

Total hrs. Of teaching-learning: 30 @ 2 Hrs / week Total credits: 02

Module -I:
Fundamentals of Internet : Networking Concepts, Data Communication – Types of Networking, Internet and its Services, Internet Addressing – Internet Applications – Computer Viruses and its types – Browser –Types of Browsers.

Module -II: Internet applications: Using Internet Explorer, Standard Internet Explorer Buttons, Entering a Web Site Address, Searching the Internet – Introduction to Social Networking: Twitter, Linkedin, Facebook, Flickr, Skype, Yahoo!, Google+, Youtube, WhatsApp, etc.

Module -III: E-mail :Definition of E-mail - Advantages and Disadvantages – User Ids, Passwords, Email Addresses, Domain Names, Mailers, Message Components, Message Composition, Mail Management, Email Inner Workings.

Module -IV:
WWW- Web Applications, Web Terminologies, Web Browsers, URL – Components of URL, Searching WWW – Search Engines and Examples

Module -V:
Basic HTML: Basic HTML – Web Terminology – Structure of a HTML Document – HTML, Head and Body tags – Semantic and Syntactic Tags – HR, Heading, Font, Image and Anchor Tags –Different types of Lists using tags – Table Tags, Image formats – Creation of simple HTML Documents.

Reference Books:

1. In-line/On- line: Fundamentals of the Internet and the World Wide Web, 2/e - by Raymond Greenlaw and Ellen Hepp, Publishers: TMH

P. R. GOVT. COLLEGE (AUTONOMOUS), KAKINADA
MODEL BLUE PRINT (W.E.F. 2020-2021)
II B.Sc/B.Com/B.A (Common for All UG Programs)
INFORMATION & COMMUNICATION TECHNOLOGY –2 (ICT-2)

INTERNET FUNDAMENTALS AND WEB TOOLS
(30 Hours of Teaching Learning including Lab)
SEMESTER-III

Time: 2 Hrs
PAPER- II **Marks: 50**

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Short Questions	8	5	40	4	5	20
2	Section-B Essay Questions	6	10	60	3	10	30
TOTAL MARKS				100	TOTAL MARKS		50

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
MODEL BLUE PRINT (W.E.F. 2020-21)
II B.Sc/B.Com/B.A (Common for All UG Programs)
INFORMATION & COMMUNICATION TECHNOLOGY –2 (ICT-2)

INTERNET FUNDAMENTALS AND WEB TOOLS
(30 Hours of Teaching Learning)
SEMESTER-III

SUBJECT: INFORMATION & COMMUNICATION TECHNOLOGY –2 (ICT-2)

Time: 2 Hrs **Marks: 50**

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Marks allotted to the chapter
Module-I	2	2	30
Module-II	1	2	20
Module-III	1	1	15
Module-IV	1	1	15
Module-V	1	2	20
Total No. of questions	6	8	100

P.R.COLLEGE (AUTONOMOUS), KAKINADA
MODEL PAPER (W.E.F 2020-21)
II B.Sc/B.Com/B.A (Common for All UG Programs)
INFORMATION & COMMUNICATION TECHNOLOGY –2 (ICT-2)

INTERNET FUNDAMENTALS AND WEB TOOLS
(30 Hours of Teaching Learning including Lab)
SEMESTER-III

Sub: ICT- II **Paper: II**
Time: 2 hrs **Marks: 50**

SECTION – A

Answer any FOUR questions the following **4 x 5= 20 M**

1. What is a Browser? Explain the different types of browsers?
2. Explain various application of internet.
3. Explain the Procedure for composing an E-mail.
4. Explain about WhatsApp.
5. Explain the procedure for searching in WWW.
6. Explain about WWW, Web Server, Website, and URL?
7. Explain about heading tag in HTML.
8. Discuss about Font, Image tags in HTML.

SECTION – B

Answer any THREE questions the following **3 x 10= 30 M**

1. What is a Network? Explain the different types of Networks.
2. What is a Computer Virus? Explain types of viruses and its effects.
3. What is Social Networking? Explain about its advantages and disadvantages
4. What is an E-Mail? List the advantages and disadvantages of E-mail.
5. What is a Search Engine? List some of the popular search engines? What are various types of Search Engines? Explain
6. What is HTML? What is the structure of an HTML document? Create a simple web page using HTML tags.

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
QUESTION BANK (W.E.F. 2020-21)
II B.Sc/B.Com/B.A (Common for All UG Programs)
INFORMATION & COMMUNICATION TECHNOLOGY –2 (ICT-2)

INTERNET FUNDAMENTALS AND WEB TOOLS
(30 Hours of Teaching Learning)
SEMESTER-III

QUESTION BANK

MODULE-I

Short Answer Questions:

1. What is a Browser? Explain the different types of Browsers?
2. Explain Internet and Its services.
3. Define Internet? Difference between Internet and Intranet
4. Explain different types of networking.

Essay Answer Questions:

5. What is a Network? Explain the different types of Networks.
6. What is a Computer Virus? Explain types of viruses and its effects.
7. What is a Browser? Explain the different types of Browsers?

MODULE-II

Short Answer Questions:

1. Explain various Applications of Internet?
2. Explain about WhatsApp?
3. Explain about Social Networking sites with an example.

Essay Answer Questions:

4. What is Social Networking? Explain about its advantages and disadvantages

MODULE-III

Short Answer Questions:

1. Explain the Procedure for composing an E-mail?

Essay Answer Questions:

2. What is an E-Mail? List the advantages and disadvantages of E-mail.
3. Explain the Procedure for composing and sending an E-mail.

MODULE-IV

Short Answer Questions:

1. Explain the procedure for searching in WWW?
2. Explain about WWW, Web Server, Website, and URL?

Essay Answer Questions:

3. What is a Search Engine? List some of the popular search engines? What are various types of Search Engines? Explain.

MODULE-V

Short Answer Questions:

1. Explain about heading tag in HTML?
2. Discuss about Font, Image tags in HTML.
3. Explain about Multimedia tags in HTML

Essay Answer Questions:

4. What is HTML? What is the structure of an HTML document? Create a simple web page using HTML tags.
5. Discuss about Font, Image and Anchor tags in HTML.

P R GOVT COLLEGE(A), KAKINADA
DEPARTMENT OF COMPUTER SCIENCE
II B.Sc (CS) SYLLABUS PAPER (W.E.F. 2020-2021)
Course Code: CP4204
SEMESTER-IV

Course: Data Structures **Paper: II**
Total Hrs. of Teaching-Learning: 52 @ 4 h / Week **Total Credits: 03**

Course Objectives

To introduce the fundamental concept of data structures and to emphasize the importance of data structures in developing and implementing efficient algorithms.

Course Outcomes

After completing this course satisfactorily, a student will be able to:

1. Describe how arrays, records, linked structures, stacks, queues, trees, and graphs are representedin memory and used by algorithms
2. Describe common applications for arrays, records, linked structures, stacks, queues, trees, andgraphs.
3. Write programs that use arrays, records, linked structures, stacks, queues, trees, and graphs
4. Demonstrate different methods for traversing trees
5. Compare alternative implementations of data structures with respect to performance
6. Compare and contrast the benefits of dynamic and static data structures implementations
7. Describe the concept of recursion, give examples of its use, describe how it can be implemented using a stack .
8. Discuss the computational efficiency of the principal algorithms for sorting, searching, and hashing.

SEMESTER – IV

Module-1 **12 Hrs**

Concept of Abstract Data Types (ADTs)-
Data Types, Data Structures, Primitive and Nonprimitive Data Structures, Linear and Non-linear Data Structures. Linear Lists– ADT, Array and Linked representations, Pointers.

Arrays:
One Dimensional-Two Dimensional-Multi Dimensional-Operations-Sparse Matrices. Linked Lists: Single Linked List, Double Linked List, Circular Linked List , applications

Module-2 **10 Hrs**

Stacks:
Definition, ADT, Array and Linked representations, Implementations and Applications

Queues: Definition, ADT, Array and Linked representations, Circular Queues, Dequeues, Priority Queues, Implementations and Applications. UPDATED.

Module-3: **10 Hrs**

Trees:
Binary Tree, Definition, Properties, ADT, Array and Linked representations, Implementations and Applications.

Binary Search Trees (BST) –
Definition, ADT, Operations and Implementations, BST Applications. Threaded Binary Trees, Heap trees.

Module-4: **10 Hrs**

Graphs –
Graph and its Representation, Graph Traversals, Connected Components, Basic Searching Techniques, Minimal Spanning Trees

Module-5: **10 Hrs**

Sorting and Searching:
Selection, Insertion, Bubble, Merge, Quick, Heap sort, Sequential and Binary Searching.

REFERENCE BOOKS

1. D S Malik, Data Structures Using C++, Thomson, India Edition 2006.
2. Sahni S, Data Structures, Algorithms and Applications in C++, McGraw-Hill, 2002.
3. SamantaD, Classic Data Structures, Prentice-Hall of India, 2001.
4. Heilman G I,.Data Structures and Algorithms with Object-Oriented Programming, Tata McGraw-l lill. 2002. (Chapters I and 14).
5. Tremblay P, and Sorenson P G, Introduction to Data Structures with Applications, Tata McGraw-Hill,

Student activity: 1. Create a visible stack using C-graphics
2. Create a visible Queue using C-graphics

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
MODEL BLUE PRINT (W.E.F. 2020-2021)
II B.SC (CS)
SEMESTER-IV

Course Code: CP4204

SUBJECT: Data Structures **Time: 2½ Hrs**
PAPER- II **Marks: 60**

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	**Marks allotted to each question**	**Total Marks**	**No. of Questions**	**Marks allotted to each question**	**Total Marks**
1	Section-A Very Short Questions	**5**	**1**	**5**	**5**	**1**	**5**
2	Section-B Short Questions	**6**	**5**	**30**	**3**	**5**	**15**
3	Section-C Essay Questions	**8**	**10**	**80**	**4**	**10**	**40**
TOTAL MARKS				**115**	**TOTAL MARKS**		**60**

$$\text{Percentage of choice given} = \frac{115 - 60}{115} \times 100 = \frac{55}{115} \times 100 = 47.82\%$$

P. R. GOVT COLLEGE (AUTONOMOUS), KAKINADA

MODEL PAPER (W.E.F. 2020-2021)

II B.SC (CS)

SEMESTER –IV

Course Code: CP4204

Subject: Data Structures **Paper: IV**

Time: 2½ hrs **Marks: 60**

SECTION – I

Answer all Questions **5×1 = 5M**

1. What is ADT?
2. Define Array.
3. Define Stack.
4. What is BST?
5. What is Graph?

SECTION – II

Answer any THREE Questions **3 x 5 = 15M**

6. Explain the Primitive Data Structures.
7. Explain Stack operations.
8. Explain about Tree implementations and applications.
9. Explain Minimal Spanning Trees?
10. Explain about Binary Searching.
11. Explain Insertion Sort.

SECTION – III

Answer all the Questions **4 x 10 = 40 M**

14. A. What are the goals of data structure? Write note on linear and Non Linear data structure with examples.

OR

B. What is Array? Explain about types of Arrays with syntax and suitable examples

15. A. What is a stack? Explain the algorithm to create and delete items In stack.

OR

B. What is a queue? Explain the algorithms to create and delete Items in a circular queue.

16. A. Write an algorithm to delete operation in any binary search tree.

OR

B. Explain the below: i) Binary search tree ii) Heaps

17. A. What is Minimal Spinning tree? Write about breadth first search Technique?

OR

B. What is a graph? How a graph can be represented in memory? Write an algorithm to delete an edge from a graph.

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA

MODEL BLUE PRINT FOR THE YEAR 2020-2021

II B.SC (CS)

SEMESTER-IV

Course Code: CP4204

SUBJECT: Data Structures **Time: 2½ Hrs**
PAPER-II **Marks: 60**

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 3 Marks	Very Short Questions 1 Marks	Marks allotted to the chapter
Module-1	2	2	1	31
Module-2	1	1	1	16
Module-3	1	1	1	16
Module-4	2	1	1	26
Module-4	2	1	1	26
Total No. of questions	8	6	5	
Total Marks Including choice				115

P. R. GOVT COLLEGE (AUTONOMOUS), KAKINADA

QUESTION BANK (W.E.F. 2020-2021)

II B.SC (CS)

SEMESTER –IV

Course Code: CP4204

QUESTION BANK

Subject: Data Structures **Max.Marks:60**

Paper-II

Module I

Very Short Questions:

1. What is ADT?
2. Define Array.
3. What is sparse matrix?
4. Define single linked list.

Short Answer Questions

1. Explain the Primitive Data Structures.
2. Write a java Program to add two matrices.
3. Distinguish primitive and Non-primitive Data Structure. Give an example for each.
4. Write the advantages and disadvantages of array and linked list.

Essay Questions:

1. What are the goals of data structure? Write note on linear and Non Linear data structure with examples.
2. What is Array? Explain about types of Arrays with syntax and suitable examples
3. What is the importance of sparse matrix? Write an algorithm to Transpose a given matrix in sparse form.
4. What is a single linked list? Explain the algorithm to insert and delete items in a single linked list.

Module II

Very Short Questions:

1. Define Stack.
2. Define Queue
3. Define circular queue
4. Define priority

Short Answer Questions

1. Explain Stack operations.
2. Explain Priority Queue.
3. Write the advantages and disadvantages of array and linked list.
4. Write a note on stacks and its applications.

Essay Questions:

1. What is a stack? Explain the algorithm to create and delete items In stack.
2. What is a queue? Explain the algorithms to create and delete Items in a circular queue.
3. Explain the implementation and applications of stack?.

Module III

Very Short Questions:

1. What is BST?
2. Define Tree?
3. What is Heap Trees
4. What is Binary Tree?

Short Answer Questions

1. Explain about Tree implementations and applications.
2. Write a neat diagram explain the linked storage representation of a Binary tree.
3. Write a note on threaded binary trees?
4. Write a note on heap trees?

Essay Questions:

1. Write an algorithm to delete operation in any binary search tree.
2. Explain the below: i) Binary search tree ii) Heaps.
3. Write about implementation and applications of BST?

Module IV

Very Short Questions:

1. What is Graph?
2. What is minimal spanning tree?
3. What are connected components?
4. What is a simple Graph?

Short Answer Questions

1. Write the matrix representation of a Graph?.
2. Explain Minimal Spanning Trees?
3. Write about connected components?
4. Explain Basic searching techniques in graph?

Essay Questions:

1. What is Minimal Spinning tree? Write about breadth first search Technique.
2. What is a graph? How a graph can be represented in memory? Write an algorithm to delete an edge from a graph?
3. What is a Graph?Briefly Graph traversal techniques?

Module V

Very Short Questions:

1. Define Sorting?
2. Define Searching?
3. What is Merge Sort
4. What is Quick sort

Short Answer Questions

1. Explain about Binary Searching.
2. Explain Insertion Sort.
3. Explain about Bubble Sort
4. Explain about selection sort

Essay Questions:

1. Explain Merge sort algorithm with an example?
2. Explain Quick sort algorithm with an example?

3. Briefly Explain linear and binary search algorithms?

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
II B.Sc (CS) SEMESTER-IV
Course Code: CP4204P

SCHEME OF VALUATION (W.E.F. 2020-2021) – PAPER II

Time: **2** Hrs Marks: 100

Practical/Laboratory – II

3.	Internal Practicals	40 Marks
4.	External Practicals	60 Marks

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
PRACTICALS (W.E.F. 2020-2021)
II B.Sc (CS) **Course Code: CP4204P**

SEMESTER-IV

DATA STRUCTURES USING JAVA LAB

1. Write a Program to implement the Linked List operations

2. Write a Program to implement the Stack operations using an array.

3. Write Programs to implement the Queue operations using an array.

4. Write Programs to implement the Stack operations using a singly linked list.

5. Write Programs to implement the Queue operations using a singly linked list.

6. Write a program for arithmetic expression evaluation

7. Write a program to implement Double Ended Queue using a doubly linked list.

8. Write a program to search an item in a given list using Linear Search and Binary Search

9. Write a program for Quick Sort

10. Write a program for Merge Sort

11. Write a program on Binary Search Tree operations(insertion, deletion and traversals)

12. Write a program for Graph traversals.

III B.Sc (CS)

PR GOVT COLLEGE (A)::KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

III B.Sc (CS)-SEMESTER-V

Paper- III: Data Base Management System

Course Objective:

Design & develop database for large volumes & varieties of data with optimized data processing techniques.

Course Outcomes

On completing the subject, students will be able to:

1. Design and model of data in database.
2. Store, Retrieve data in database.

UNIT I

Overview of Database Management System: Introduction, file-based system, Drawbacks of file-Based System ,Data and information, Database, Database management System, Objectives of DBMS, Evaluation of Database management System, Classification of Database Management System, DBMS Approach, advantages of DBMS, data models, Components and Interfaces of Database Management System. Database Architecture, Situations where DBMS is not Necessary.

UNIT II

Entity-Relationship Model: Introduction, the building blocks of an entity relationship diagram, classification of entity sets, attribute classification, relationship degree, relationship classification, reducing ER diagram to tables, enhanced entity-relationship model (EER model), generalization and specialization, **IS A** relationship and attribute inheritance, multiple inheritance, constraints on specialization and generalization, aggregation and composition, entity clusters, connection types, advantages of ER modelling.

UNIT III

Relational Model: Introduction, CODD Rules, relational data model, concept of key, relational integrity, relational algebra, relational algebra operations, advantages of relational algebra, limitations of relational algebra, relational calculus, tuple relational calculus, domain relational Calculus (DRC). QBE

UNIT IV

Structured Query Language: Introduction, History of SQL Standard, Commands in SQL, Data Types in SQL, Data Definition Language, Selection Operation, Projection Operation, Aggregate functions, Data Manipulation Language, Table Modification Commands, Table Truncation, Imposition of Constraints, Join Operation, Set Operation,

View, Sub Query, Embedded SQL,

UNIT V

PL/SQL: Introduction, Shortcoming in SQL, Structure of PL/SQL, PL/SQL Language Elements, Data Types, Operators Precedence, Control Structure, Steps to Create a

PL/SQL, Program, Iterative Control, Cursors, Steps to create a Cursors, Procedure, Function, Packages, Exceptions Handling, Database Triggers, Types of Triggers.

Reference Books

1. "Database System Concepts" by Abraham Silberschatz, Henry Korth, and S. Sudarshan, McGrawhill, 2010, 9780073523323
2. "Database Management Systems" by Raghu Ramakrishnan, McGrawhill, 2002,
3. Fundamentals of Relational Database Management Systems by S. Sumathi, S. Esakkirajan, Springer Publications
4. "An Introduction to Database Systems" by Bipin C Desai
5. "Principles of Database Systems" by J. D. Ullman
6. "Fundamentals of Database Systems" by R. Elmasri and S. Navathe

Student Activity:

1. **Create your college database for placement purpose.**
2. **Create faculty database of your college with their academic performance scores**

PR GOVT COLLEGE (A)::KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

III B.Sc(CS)-SEMESTER-V

Paper-V: Data Base Management System

Time: 2 $^{1/2}$ Hrs **Marks:60**

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Very Short Questions	**5**	**1**	**5**	**5**	**1**	**5**
2	Section-B Short Questions	**6**	**5**	**30**	**3**	**5**	**15**
3	Section-C Essay Questions	**8**	**10**	**80**	**4**	**10**	**40**
TOTAL MARKS				**115**	**TOTAL MARKS**		**60**

PR GOVT COLLEGE (A)::KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

III B.Sc(CS)-SEMESTER-V

Paper-III: Data Base Management System

Time:$2^{1/2}$Hrs **Max. Marks:60**

SECTION - I

Answer ALL questions **5 x 1M= 5 M**

1. Define DBMS
2. Define an entity set
3. Define foreign key
4. Define Sub Query
5. Define Cursor

SECTION - II

Answer ANY THREE questions **3 x 5M= 15M**

6. Write about objectives of DBMS
7. Write about Data Independance
8. Write about attribute classification in ER Model
9. Explain about relational model
10. Explain about different datatypes in SQL
11. Write about cursor statement in PL/SQL

SECTION - III

Answer ALL questions **4 x 10M = 40M**

12. a) Explain about advantages and disadvantages of DBMS

(OR)

b) Explain about components and interfaces of DBMS

13. a) What is E-R diagram? What are the building blocks of E-R diagram

(OR)

b) Explain about relational operators in relational algebra

14. a) Explain about DDL,DML,DCL statements in SQL

(OR)

b) Explain about views in details

15. a) Explain about loop control structures in PL/SQL?

(OR)

b) What is meant by a cursor? Explain about implicit and explicit cursors with examples

PR GOVT COLLEGE (A)::KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

III B.Sc(CS)-SEMESTER-V

Paper- III: Data Base Management System

Time: 2 1/2Hrs **Max. Marks: 60**

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Very Short Questions 1 Marks	Marks allotted to the chapter
Module-1	2	2	1	31
Module-2	1	1	1	16
Module-3	1	1	1	16
Module-4	2	1	1	26
Module-5	2	1	1	26
Total No. of questions	8	6	5	
Total Marks Including choice				115

PR GOVT COLLEGE (A)::KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

III B.Sc(CS)-SEMESTER-V
Paper- III : Data Base Management System

QUESTION BANK

LONG ANSWER QUESTIONS:

UNIT-I

1. Explain about characteristics of file-based system? Write about drawbacks of file-based systems?
2. Explain about advantages and disadvantages of DBMS?
3. Explain about of classification of DBMS?
4. Explain about components and interfaces of DBMS?
5. Explain the three-level architecture of data base system?

UNIT-II

1. What do you mean by E-R-Model? Explain the degree of relationship in E-R-Model?
2. Write about generalization, specialization in E-R-Model?
3. What is E-R Diagram? What are the building blocks of E-R Diagram?

UNIT-III

1. Explain about codd's relational data base rules ?
2. Explain about relational operators in relational algebra?
3. What is meant by a key? What are the different types of keys available in relational model?

UNIT-IV

4. Explain DDL, DML, DCL in SQL?

1. Write about different joins in SQL?
2. Explain about views in SQL in detail?

UNIT-V

1. Explain about PL/SQL block structure in detail.
2. Explain about loop control structures in PL/SQL.
3. What is meant by a cursor? Explain implicit and explicit cursors with examples.

SHORT ANSWERS

UNIT-I

1. write about objectives of DBMS ?
2. write about roles and responsibilities of SBMS ?
3. write about data Independence ?
4. write about classification of entity sets ?

UNIT-II

1. write about hierarchical data model ?
2. write about attribute classification in E-R model ?

UNIT-III

1. explain about relation model ?
2. what is Normalization ? when it is used in RDBMS ?
3. what is a constrains? Explain different types of constrains in relational model ?

UNIT-IV

1. Explain about different datatypes in SQL ?
2. Write about select statement with example ?
3. Write about aggregate function in SQL ?

UNIT-V

1. Write about trigger?

VERY SHORT ANSWERS QUESTIONS

UNIT-I

1. Define DBMS ?
2. Define DBA ?

UNIT-II

1. Define an entity ?
2. Define an attribute ?

UNIT-III

1. Define constraint ?
2. Define foreign key ?
3. Define normalization ?

UNIT-IV

1. Define a relation ?
2. Define Join ?

UNIT-V

1. Define cursor ?
2. Define trigger ?
3. Define PL/SOL ?

PR GOVT COLLEGE (A)::KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

III B.Sc(CS)-SEMESTER-V

DATABASE MANAGEMENT SYSTEMS LAB

a. Draw ER diagrams for train services in a railway station
b. Draw ER diagram for hospital administration
c. Creation of college database and establish relationships between tables
d. Write a view to extract details from two or more tables
e. Write a stored procedure to process students results
f. Write a program to demonstrate a function
g. Write a program to demonstrate blocks, cursors & database triggers.
h. Write a program to demonstrate Joins
i. Write a program to demonstrate subqueries
j. Write a program to demonstrate of Aggregate functions
k. Creation of Reports based on different queries
l. Usage of file locking table locking, facilities in applications.

P. R. GOVT. COLLEGE (AUTONOMOUS), KAKINADA
SYLLABUS PAPER W.E.F.2020-2021

III B.Sc.(CS) V SEMESTER

SOFTWARE ENGINEERING - PAPER- IV

Course Objectives

The Objective of the course is to assist the student in understanding the basic theory of software engineering, and to apply these basic theoretical principles to a group software development project.

Course outcomes
1. Ability to gather and specify requirements of the software projects.
2. Ability to analyze software requirements with existing tools
3. Able to differentiate different testing methodologies
4. Able to understand and apply the basic project management practices in real life projects
5. Ability to work in a team as well as independently on software projects

MODULE-I

INTRODUCTION: Software Engineering Process paradigms - Project management - Process and Project Metrics – software estimation - Empirical estimation models - Planning - Risk analysis - Software project scheduling.

MODULE-II

REQUIREMENTS ANALYSIS : Requirement Engineering Processes – Feasibility Study – Problem of Requirements – Software Requirement Analysis – Analysis Concepts and Principles – Analysis Process – Analysis Model

MODULE-III

SOFTWARE DESIGN: Software design - Abstraction - Modularity - Software Architecture

- Effective modular design - Cohesion and Coupling - Architectural design and Procedural design - Data flow oriented design.

MODULE-IV

USER INTERFACE DESIGN AND REAL TIME SYSTEMS : User interface design - Human factors - Human computer interaction - Human - Computer Interface design - Interface design - Interface standards.

MODULE-V

SOFTWARE QUALITY AND TESTING : Software Quality Assurance - Quality metrics - Software Reliability - Software testing - Path testing – Control Structures testing - Black Box testing - Integration, Validation and system testing - Reverse Engineering and Re- engineering.

CASE tools –projects management, tools - analysis and design tools – programming tools - integration and testing tool - Case studies.

REFERENCE BOOKS

1. Roger Pressman S., “Software Engineering: A Practitioner's Approach”, 7th

Edition, McGraw Hill, 2010.

2. Software Engineering Principles and Practice by Deepak Jain Oxford University Press

2. Sommerville, “Software Engineering”, Eighth Edition, Pearson Education, 2007

3. Pfleeger, “Software Engineering: Theory & Practice”, 3rd Edition, Pearson

Education, 2009

4. Carlo Ghazi, Mehdi Jazayari, Dino Mandrioli, “Fundamentals of Software

Engineering”, Pearson Education, 2003

Student Activity:

1. **Visit any financial organization nearby and prepare requirement analysis report**
2. **Visit any industrial organization and prepare risk chart.**

III YEAR V SEMESTER

Software Engineering Lab

1. Studying various phases of Water-Fall Model.

2. Prepare SRS for Banking or On line book store domain problem

3. Using COCOMO model estimate effort for Banking or on line book store domain problem.

4. Calculate effort using FP oriented estimation model

5. Analyze the Risk related to the project and prepare RMMM plan.

6. Develop Time-line chart and project table using PERT or CPM project scheduling methods.

7. Draw E-R diagram, DFD, CFD and STD for the project.

8. Design of the test cases.

9. Prepare FTR. Version control and change control for software configuration item.

PROJECT & VIVA-VOCE

The objective of the project is to motivate them to work in emerging/latest technologies, help the students to develop ability, to apply theoretical and practical tools/techniques to solve real life problems related to industry, academic institutions and research laboratories.

The project is of 3 hours/week for V & VI semester duration and a student is expected to do planning, analyzing, designing, coding, and implementing the project. The initiation of project should be with the project proposal. The synopsis approval will be given by the project guides.

The project proposal should include the following:

- Title
- Objectives
- Input and output
- Details of modules and process logic
- Limitations of the project
- Tools/platforms, Languages to be used
- Scope of future application

The Project work should be either an individual one or a group of not more than three members and submit a project report at the end of the semester. The students shall defend their dissertation in front of experts during viva-voce examinations.

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
MODEL BLUE PRINT FOR THE YEAR 2020-2021
III B.SC (CS) 2020-2023 BATCH
Course Code: CP6207

SEMESTER-V

SUBJECT: SOFTWARE ENGINEERING

Time: 2 1/2 Hrs

PAPER- IV **Max. Marks: 60**

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Very Short Questions	**5**	**1**	**5**	**5**	**1**	**5**
2	Section-B Short Questions	**6**	**5**	**30**	**3**	**5**	**15**
3	Section-C Essay Questions	**8**	**10**	**80**	**4**	**10**	**40**
TOTAL		**19**		**115**	**TOTAL MARKS**		**60**

Percentage of choice given = $\frac{115 - 60}{115} \times 100 = \frac{55}{115} \times 100 = 47.82\%$

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
III B.SC (CS) 2020-2023 BATCH
(Model paper W.E.F 2020-2021)

Subject: Software Engineering Time: 2 1/2 Hrs
Paper: IV Max. Marks: 60
SEMESTER – V

SECTION - I

Answer ALL questions **5 x 1= 5 M**

1. What is Software Engineering process?
2. Define Feasibility Study?
3. Define Software Design?
4. Explain about Re-engineering?
5. Define Integration Testing?

SECTION - II

Answer THREE questions **3 x 5= 15 M**

6. Explain about Software Project Scheduling?
7. Explain about Problem of Requirements?
8. Explain about Analysis Model?
9. What is Cohesion and Coupling?
10. Write about Interface Standards?
11. Explain about Black Box testing?

SECTION - III

Answer ALL questions **4 x 10= 40 M**

12. a) Explain Software Project Process and .Metrics in detail

(OR)

(OR)

b) Discuss in detail about Software Requirement Analysis.

13. a) Explain in detail about the Software Architecture

(OR)

b) Discuss the Data Flow oriented design.

14. a) Describe the Human Computer Interaction and Computer Interface design.

(OR)

b) Explain in detail about Quality Assurance and Quality metrics.

15. a) Explain the importance Validation and System Testing.

(OR)

b) Explain about Programming tools and Testing tools.

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA

MODEL BLUE PRINT FOR MODULE_WISE FOR THE YEAR 2020-21
III B.SC (CS) 2020-2023 BATCH

Computer Science Course: Software Engineering

Time : 2.30 Hrs. **SEMESTER-V** **Max. Marks: 60**

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Very Short Questions 1 Marks	Marks allotted to the chapter
MODULE -I	2	2	2	32
MODULE -II	2	2	1	31
MODULE -III	2	1	1	26
MODULE – IV,V	2	1	1	26
Total No. of questions	8	8	5	
Total Marks Including choice				115

P.R. GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA

QUESTION BANK FOR THE YEAR 2020-2021

III B.SC (CS)

SEMESTER-V

Subject: SOFTWARE ENGINEERING

Essay Questions

MODULE-I

1. Describe about the Project Management.
2. Explain Software Project Process and .Metrics in detail.

MODULE-II

3. Discuss in detail about Software Requirement Analysis.
4. Explain in detail about the Software Architecture.

MODULE-III

5. Discuss the Data Flow oriented design.

MODULE-IV

6. Describe the Human Computer Interaction and Computer Interface design.
7. Explain about Computer Interface Design Interface Standards.

MODULE-V

8. Explain about the Software Quality and Testing.
9. Discuss in detail about CASE tools in Software Engineering.
10 Explain the importance Validation and System Testing.
11 Explain about Programming tools and Testing tools .

Short Questions

MODULE-I

1. Explain about Software Project Scheduling.

MODULE-II

2. Describe about Analysis Process.
3. Explain about Problem of Requirements.
4. Explain about Software Requirement processes

MODULE-III

5. What is Cohesion and Coupling.
6. Explain the Architectural design.

MODULE-IV

7. Write about Interface Standards.
8. Explain about Computer Interface Design
9. Describe various Human factors.

MODULE-V

10. Explain about Re-engineering
11. Explain about Black Box testing
12. Explain about Analysis Model

Very Shot Questions.

MODULE-I

1. What is Software Estimation
2. What is Software Engineering process

MODULE-II

3. Define Feasibility Study
4. Define System Analysis

MODULE-III

5. Define Data Flow Diagram

MODULE-IV

6. Define User Interface Design.

MODULE-V

7. Define Testing.
8. Define Verification.
9. Define Path Testing
10. Define Software Reliability.
11. Define Integration. Testing

P.R.GOVERNMENT COLLEGE (AUTONOMOUS), KAKINADA

III B.SC (CS) 2020-21
Course Code: CP6207

SEMESTER-V

Subject: Software Engineering Credits: 02

Project Work : 50Marks

Internal Viva 15 Marks

External Viva 35 Marks

P.R.GOVT COLLEGE (A) KAKINADA
DEPARTMENT OF COMPUTER SCIENCE
BSC(CS)
(Cluster C) Paper-VIII: Elective –C-2

Paper-VIII: Advanced Java Script (JQUERY /AJAX / JSON / Angular JS)

Course Objective:

To impart knowledge in designing a webpage in a structured way by using advanced java script ie., using different scripting languages.

Course Outcomes

On completing the subject, students will be able to: create a dynamic website using advanced features of JavaScript and create a website with good and attractive design

UNIT I

JQuery – Basics: String, Numbers, Boolean, Objects, Arrays, Functions, Arguments, Scope, Built-in Functions. jQuery – Selectors: CSS Element Selector, CSS Element ID Selector, CSS Element Class Selector, CSS Universal Selector, Multiple Elements E, F, G Selector, Callback Functions. jQuery – DOM Attributes: Get Attribute Value, Set Attribute Value. jQuery – DOM Traversing : Find Elements by index, Filtering out Elements, Locating Descendent Elements, JQuery DOM Traversing Methods.

UNIT II

jQuery – CSS Methods : Apply CSS Properties, Apply Multiple CSS Properties, Setting Element Width & Height, JQuery CSS Methods. jQuery – DOM Manipulation Methods: Content Manipulation, DOM Element Replacement, Removing DOM Elements, Inserting DOM elements, DOM Manipulation Methods. jQuery – Events Handling: Binding event handlers, Removing event handlers, Event Types, The Event Object, The Event Attributes. jQuery – Effects: JQuery Effect Methods, jQuery Hide and Show, jQuery Toggle, jQuery Slide – slideDown, slideUp, slideToggle, jQuery Fade – fadeIn, fadeOut, fadeTo, jQuery Custom Animations

UNIT III

Introduction to jQuery UI: Need of jQuery UI in real web sites, Downloading jQuery UI, Importing jQuery UI, Draggable, Droppable, Resizable, Selectable, Sortable, Accordion, Auto Complete, Button Set , Date Picker, Dialog, Menu, Progress Bar, Slider, Spinner, Tabs, Tooltip. Intro to jQuery validation plug-in, Using jQuery validation plug-in, regular expressions.

UNIT IV

Introduction to AJAX: Need of AJAX in real web sites, Getting database data using jQuery-AJAX, Inserting, Updating, Deleting database data using jQuery-AJAX Grid Development using jQuery-AJAX

Introduction to JSON: JSON syntax, Need of JSON in real web sites, JSON object, JSON array, Complex JSON objects, Reading JSON objects using jQuery.

UNIT V

Introduction to AngularJS: Need of AngularJS in real web sites, Downloading

AngularJS, AngularJS first example, AngularJS built-in directives, AngularJS expressions, AngularJS modules, AngularJS controllers, AngularJS scope, AngularJS registration form and login form, AngularJS CRUD operations, AngularJS Animations, AngularJS validations.

Reference Books

1. jQuery UI 1.8: The User Interface Library for jQuery by Dan Wellman
2. jQuery Fundamentals by Rebecca Murphey
3. Ajax: The Complete Reference by Thomas A. Powell
4. Pro AngularJS by Adam Freeman Kindle Edition

Student Activity:

1. Creation of website for a small scale company
2. Creation of website for a student database

P R Government College(A), Kakinada
III B.Sc / Semester- VI

SUBJECT: Advanced Java Script (Elective-C-2) **Time: 3 Hrs**
PAPER- VIII **Max. Marks: 70**

SECTION - I

Answer ALL questions **5 x 1M= 5 M**

1. Explain the structure of java script program.
2. Write advantage of function in java script.
3. What are variables list rules for variable declaration?
4. Explain the syntax of function in java script with example.
5. Explain break statement in java script.

SECTION - II

Answer ANY FIVE questions **5 x 5M= 25M**

6. What is meant by control structure? Explain if ….else statement in java script.
7. Explain various data types used in Java Script.
8. Explain Document object in JavaScript with its properties and methods.
9. Explain Form object in JavaScript with its properties and methods.
10. Explain Navigation object in JavaScript with its properties and methods.
11. Explain Array object in JavaScript with its properties and methods.
12. Explain Date object in JavaScript with its properties and methods.
13. Explain Math object in JavaScript with its properties and methods.

SECTION - III

Answer ALL questions **4 x 10M = 40M**

14. a) Explain about functions with and without parameters in java script with an example.

(OR)

b) Explain about various looping statements used in java script with an example each.

15. a) Explain about the validating the submitted data in java script with an example.

(OR)

b) Explain about manipulating with strings with an example each.

16. a) Write a java script to manipulate array. Explain about using arrays in java script with an example each.

(OR)

b) Write a script to demonstrate the use of Date object. Explain about various Date objects available in java script with an example each.

17. a) Explain about handling exceptions and errors in java script. Write a HTML program to demonstrate error handling with ONERROR.

(OR)

b) Java script for simple form processing.

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
MODEL BLUE PRINT FOR THE YEAR 2020-2021
III B.Sc Semester- VI

SUBJECT: Advanced Java Script (Elective-C-2)
Time: 3Hrs
PAPER- III **Marks: 70**

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Very Short Questions 1 Marks	Marks allotted to the chapter
Module-1	2	2	1	31
Module-2	2	2	1	31
Module-3	1	2	1	21
Module-4	1	1	1	16
Module-5	2	1	1	26
Total No. of questions	8	8	5	
Total Marks Including choice				125

PR GOVT COLLEGE (A)::KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

III B.Sc(CS)-SEMESTER-VI
Paper-VII: Advanced Java Scrip(Elective-C-2)

Time: 3 Hrs **Marks:70**

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Very Short Questions	**5**	**1**	**5**	**5**	**1**	**5**
2	Section-B Short Questions	**8**	**5**	**40**	**5**	**5**	**25**
3	Section-C Essay Questions	**8**	**10**	**80**	**4**	**10**	**40**
TOTAL MARKS				**125**	**TOTAL MARKS**		**70**

PR GOVT COLLEGE (A) :: KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

III BSC (CS) -SEMESTER –VI

(Cluster 2) Paper-VIII : Elective II(Cluster –B2)

Cloud Computing

Course Objectives:

The student will learn about the cloud environment, building software systems and components that scale to millions of users in modern internet, cloud concepts capabilities across the various cloud service models including Iaas, Paas, Saas, and developing cloud based software applications on top of cloud platforms.

Course Outcomes

1. Compare the strengths and limitations of cloud computing
2. Identify the architecture, infrastructure and delivery models of cloud computing
3. Apply suitable virtualization concept.
4. Choose the appropriate cloud player , Programming Models and approach.

5. Address the core issues of cloud computing such as security, privacy and interoperability

6. Design Cloud Services and Set a private cloud

Unit 1

Cloud Computing Overview – Origins of Cloud computing – Cloud components - Essential characteristics – On-demand self-service , Broad network access , Location independent resource pooling , Rapid elasticity , Measured service

Unit II

Cloud scenarios – Benefits: scalability , simplicity , vendors ,security. Limitations – Sensitive information - Application development – Security concerns - privacy concern with a third party - security level of third party - security benefits Regularity issues: Government policies

Unit III

Cloud architecture: Cloud delivery model – SPI framework , SPI evolution
Software as a Service (SaaS): SaaS service providers – Google App Engine, Salesforce.com and google platfrom – Benefits – Operational benefits - Economic benefits
– Evaluating SaaS **Platform as a Service** (PaaS): PaaS service providers –Salesforce.com

– Services and Benefits

Unit IV

Infrastructure as a Service (IaaS): IaaS service providers – Amazon EC2 , GoGrid — – Benefits

Cloud deployment model : Public clouds – Private clouds – Community clouds - Hybrid clouds - Advantages of Cloud computing

Unit V

Virtualization: Virtualization and cloud computing - Need of virtualization – cost , administration , fast deployment , reduce infrastructure cost - limitations

Types of hardware virtualization: Full virtualization - partial virtualization - para virtualization

Desktop virtualization: Software virtualization – Memory virtualization - Storage virtualization – Data virtualization – Network virtualization **Microsoft Implementation**: Microsoft Hyper V – Vmware features and infrastructure – Virtual Box - Thin client

Reference Books

1. Cloud computing a practical approach - Anthony T.Velte , Toby J. Velte Robert Elsenpeter TATA McGraw- Hill , New Delhi - 2010

2. Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online - Michael Miller - Que 2008

3. Cloud Computing, Theory and Practice, Dan C Marinescu, MK Elsevier.

4. Cloud Computing, A Hands on approach, Arshadeep Bahga, Vijay Madisetti, University Press

5. Mastering Cloud Computing, Foundations and Application Programming, Raj Kumar Buyya, Christenvecctiola, S Tammarai selvi, TMH

Student Activity:

1. Prepare the list of companies providing cloud services category wise.
2. Create a private cloud using local server

Cloud Computing Lab

Outcomes: Learner will be able to…

1. Appreciate cloud architecture
2. Create and run virtual machines on open source OS
3. implement Infrastructure , storage as a Service.

Use Eucalyptus or Open Nebula or equivalent to set up the cloud and demonstrate.

1. Find procedure to run the virtual machine of different configuration. Check how many virtual machines can be utilized at particular time.

2. Find procedure to attach virtual block to the virtual machine and check whether it holds the

data even after the release of the virtual machine.

3. Install a C compiler in the virtual machine and execute a sample program.

4. Show the virtual machine migration based on the certain condition from one node to the other.

5. Find procedure to install storage controller and interact with it.

1. Introduction to cloud computing.
2. Creating a Warehouse Application in Sales Force.com.
3. Creating an Application in Sales Force.com using Apex programming Language.
4. Implementation of SOAP web services in C#/ JAVA Applications.
5. Implementation of Para- Virtualization using VM ware's workstation/ Oracle's Virtual Box and Guest O.S.

PR GOVT COLLEGE (A):: KAKINADA

III B.Sc Computer Science VI-Semester

MODEL QUESTION PAPER

Paper - VIII : Elective – II : (Cluster - B1) CLOUD COMPUTING

Time : 2 ½ Hour Max.Marks:60

SECTION-A

Answer the following questions: 5x 1=5M

1. What is cloud computing?
2. Define scalability.
3. Define SPI evolution.
4. What is rapid elasticity**?**
5. What is data virtualization**?**

SECTION – B

Answer any **THREE** of the following questions **3x5=15M**

6. Explain the design of cloud computing?
7. What are the regularity issues?
8. Explain security concerns in cloud
9. Write about various PaaS providers
10. What is IaaS? List various IaaS providers
11. What is virtualization?
12. What is the need forvirtualization?

SECTION - C

Answer **ALL** the following questions **4 x 10 = 40 M**

13. a) What is Cloud Computing? Explain the components of Cloud Computing.
    (or)
    b) Explain various characteristics of Cloud Computing.
14. a) Explain various Cloud scenarios.
    (or)
    b) What are the benefits and limitations of Cloud scenerios?
15. a) Explain about SPI frames work.
    (or)
    b) Write a note on about the following SaaS providers
    i) Google App Engine ii) Salesforce.com

15.a) Explain various Cloud deployment models (or)

b) What are the advantages and disadvantages of Cloud Computing?

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA
MODEL BLUE PRINT FOR THE YEAR 2020-2021
III B.Sc Semester- VI

SUBJECT: CLOUD COMPUTING (Elective-B) **Time:2 ½ Hrs**
PAPER- VIII **Marks: 60**

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Very Short Questions 1 Marks	Marks allotted to the chapter
Module-1	2	2	1	31
Module-2	2	1	1	26
Module-3	1	1	1	16
Module-4	1	1	1	16
Module-5	2	1	1	26
Total No. of questions	8	6	5	
Total Marks Including choice				115

PR GOVT COLLEGE (A):: KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

III B.Sc (CS)-SEMESTER-VI
Paper-VIII: CLOUD COMPUTING (Elective-B)

Time: 2 ½ Hrs **Marks:60**

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	**Marks allotted to each question**	**Total Marks**	**No. of Questions**	**Marks allotted to each question**	**Total Marks**
1	Section-A Very Short Questions	**5**	**1**	**5**	**5**	**1**	**5**
2	Section-B Short Questions	**6**	**5**	**30**	**3**	**5**	**15**
3	Section-C Essay Questions	**8**	**10**	**80**	**4**	**10**	**40**
TOTAL MARKS				**115**	**TOTAL MARKS**		**60**

Percentage of choice given = $\frac{115 - 60}{115} \times 100 = \frac{55}{115} \times 100 = 47.82\%$

QUESTION BANK

MODULE – 1

Very Short Questions:

1. What is Cloud computing ?
2. What are the components of Cloud ?

Short Questions:

1. Explain the origins of Cloud Computing?
2. Explain about Rapid Elasticity?

Essay Questions:

1. What is Cloud computing? Explain the components of Cloud computing?
2. Explain various essential characteristics of Cloud Computing?
3. Briefly Explain (i) On demand self service (ii) Broad network access.

MODULE – 2

Very Short Questions:

1. Define Scalability?
2. Mention any one security concern in Cloud computing?

Short Questions:

1. What are the regularity issues in Cloud Computing?
2. What are the security concerns in Cloud computing?

Essay Questions:

1. Explain various Cloud Scenarios?
2. What are the Benefits and Limitations of Cloud Computing?
3. Briefly Explain about Government policies in Cloud computing?

MODULE – 3

Very Short Questions:

1. What is SPI frame work?
2. Give an example of PAAS provider ?

Short Questions:

1. Briefly Explain about SAAS providers?
2. Briefly explain about Google platform?

Essay Questions:

1. Explain about SPI frame work?
2. Write a note on the SAAS providers
   i)Google App Engine ii) Salesforce.com
3. Explain about PAAS in detail?

MODULE – 4

Very Short Questions:

1. Give an example of IAAS provider ?
2. What are the Cloud deployment models?

Short Questions:

1. Explain about Amazon EC2?
2. Briefly Explain about Go Grid?

Essay Questions:

1. Explain various Cloud deployment models?
2. What are the advantages and disadvantages of cloud computing?
3. Explain about IAAS in detail.

MODULE – 5

Very Short Questions:

1. What is Virtualization
2. What are the types of Hardware Virtualization?

Short Questions:

1. Write about thin client?
2. What is Virtualization? What is the need of Virtualization?

Essay Questions:

1. Explain about Hardware Virtualization in detail?
2. What is Virtualization? Explain the benefits and limitations of Virtualization?
3. What is VM Ware? Explain about VM Ware Infrastructure.

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COMPUTER SCIENCEIII BSC
(CS) – SEMESTER -VI
Paper-VII:
Elective-B
COMPUTER
NETWORKS

Course Objectives

1. To provide an introduction to the fundamental concepts on data communication andthe design of computer networks.
2. To get familiarized with the basic protocols of computer networks.

Course Outcomes

After this course, the student will be able to

1. Identify the different components in a Communication System and their respective roles.
2. Describe the technical issues related to the local Area Networks
3. Identify the common technologies available in establishing LAN infrastructure.

UNIT – I

Introduction: Uses of Computer Networks, Network Hardware, Network Software,Reference Models, Example Networks.

The Physical Layer: The Theoretical Basis for Data Communication, Guided Transmission Media, Wireless transmission, the public switched telephone network

UNIT – II

The Data Link Layer: Data Link Layer Design Issues, Error Detection and Correction,Sliding Window Protocols.

The Medium Access Control Sub-layer: The channel allocation problem, **MultipleAccess Protocols**, **Ethernet,** Data Link Layer Switching.

UNIT – III

The Network Layer: Network Layer Design Issues, Routing Algorithms, Congestioncontrol algorithms, Quality of Service.

Internet Working, The Network Layer in the Internet

UNIT – IV:

The Transport Layer: The Transport Service, Elements of Transport Protocols, Congestion Control Algorithms, The Internet Transport Protocols, The Internet Transport Protocols: TCP, Delay Tolerant Networks.

UNIT – V:

The Application Layer: DNS – The Domain Name System, Electronic Mail, The World Wide Web, Real Time Audio & Video, Content Delivery & Peer-to-Peer.

Reference Books:

1. Andrew S. Tanenbaum, "Computer Networks", Fifth Edition, Pearson Education.
2. Bhushan Trivedi, Computer Networks , Oxford University Press
3. James F.Kurose, Keith W.Ross, "Computer Networking", Third Edition, Pearson Education
4. Behrouz A Forouzan, "Data Communications and Networking", Fourth Edition, TMH (2007).
5. Kurose & Ross, "**COMPUTER NETWORKS**" – A Top-down approach featuring the Internet", Pearson Education – Alberto Leon – Garciak.

Student Activity:

1. **Study the functioning of network devices available in your organization .**
2. **Prepare a pictorial chart of LAN connections in your organization**

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DEPARTMENT OF COMPUTER SCIENCE
III BSC (CS) – SEMESTER -VI
Paper-VII: Elective-B

COMPUTER NETWORKS LAB

OBJECTIVES:

1. Analyze the different layers in networks.
2. Define, use, and differentiate such concepts as OSI-ISO,TCP/IP.
3. How to send bits from physical layer to data link layer
4. Sending frames from data link layer to Network layer
5. They can understand how the data transferred from source to destination
6. They can come to know that how the routing algorithms worked out in network layer

List of Experiments:

1. Analyze the different layers in networks.
2. Define, use, and differentiate such concepts as OSI-ISO,TCP/IP.

List of Experiments:

1. Write a program to implement data link layer framing method bit stuffing.

2. Write a program to implement data link layer framing method character stuffing.

3. Write a program to implement data link layer framing method character count.

4. Write a program to implement Cyclic Redundancy Check (CRC 12, CRC 16

and CRC CCIR) on a data set of characters.

5. Write a program to implement Dijkstra's algorithm to compute the shortest

paththrough a graph.

6. Write a program to implement subnet graph with weights indicating delay between

7. Write a program to implement subnet

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DEPARTMENT OF COMPUTER SCIENCE
III BSC (CS) -SEMESTER –VI
(Cluster 2) Paper-VIII : Elective – II(Cluster-B1)

Distributed Systems

Course Objectives

To expose the fundamentals of distributed computer systems, assuming the availability of facilities for data transmission.

To discuss multiple levels of distributed algorithms, distributed file systems, distributed databases, security and protection.

Course Outcomes

Create models for distributed systems.

Apply different techniques learned in the distributed system.

UNIT I

Introduction to Distributed Computing Systems, System Models, and Issues in Designing a Distributed Operating System, Examples of distributed systems.

UNIT II

Features of Message Passing System, Synchronization and Buffering, Introduction to RPC and its models, Transparency of RPC, Implementation Mechanism, Stub Generation and RPC Messages, Server Management, Call Semantics, Communication Protocols and Client Server Binding.

UNIT III

Introduction, Design and implementation of DSM system, Granularity and Consistency Model, Advantages of DSM, Clock Synchronization, Event Ordering, Mutual exclusion, Deadlock, Election Algorithms.

UNIT IV

Task Assignment Approach, Load Balancing Approach, Load Sharing Approach, Process Migration and Threads.

UNIT V

File Models, File Accessing Models, File Sharing Semantics, File Caching Schemes, File Replication, Atomic Transactions, Cryptography, Authentication, Access control and Digital Signatures.

Reference Books

1.Pradeep. K. Sinha: " Distributed Operating Systems: Concepts and Design " , PHI, 2007.

2 .George Coulouris, Jean Dollimore, Tim Kindberg: " Distributed Systems" , Concept and Design, 3rd Edition, Pearson Education, 2005.

Student Activity

1. Implementation of Distributed Mutual Exclusion Algorithm.

2. Create a Distributed Simulation Environment.

Distributed Systems Lab

Objective:

It covers all the aspects of distributed system. It introduce its readers to basic concepts of middleware, states of art middleware technology

Outcomes:

1. Students will get the concepts of Inter-process communication
2. Students will get the concepts of Distributed Mutual Exclusion and Distributed Deadlock Detection algorithm.

1. To study client server based program using RPC.

2. To study Client server based program using RMI.

3. To study Implementation of Clock Synchronization (Logical/Physical)

4. To study Implementation of Election algorithm.

5. To study Implementation of Mutual Exclusion algorithms.

6. To write program multi-threaded client/server processes.

7. To write program to demonstrate process/code migration.

PR GOVT COLLEGE (A):: KAKINADA
B.Sc(Computer Science)
III B.Sc Computer Science VI-Semester
MODEL QUESTION PAPER
Paper - VIII : Elective – II : (Cluster B) DISTRIBUTED SYSTEMS

Time : 2:30 Hours Max.Marks:60

SECTION-A

Answer the following questions: **5x 1=5M**

1. Define Distributed System?
2. Define RPC?
3. Define DSM?
4. What is Thread?
5. What is File?

SECTION – B

Answer any **Three** of the following questions **3x5=15M**

6. Write the Advantages of DS over Centralized systems.
7. Write about Dis advantages of DS.
8. Explain Group Communication.
9. What is Distributed Shared Memory(DSM)? Write the advantages of DSM.
10. Explain about Deadlock.
11. Write about Process Migra

SECTION - C

Answer **ALL** the following questions. **4 x10 = 40 M**

12. a) Write about Challengesof Distributed System
. (or)

b) Describe the issues in Distributed Operating System.

13. a) Explain RPC Protocols
(or)

b) Explain about the working of RPC .

14. a) Explain about Implementation of Distributed File Systems. (or)

b)Write about Election Algorithm.

15. a) Explain about Thread in Distributed System.
(or)

b) Write about Load Balancing Approach.

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THE YEAR 2020-2021
III B.Sc Semester- VI

SUBJECT: (Cluster B) DISTRIBUTED SYSTEMS **Time: 2:30 Hrs**

PAPER- VIII **Marks: 60**

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Very Short Questions 1 Marks	Marks allotted to the chapter
Module-1	2	2	1	31
Module-2	2	1	1	26
Module-3	1	2	1	21
Module-4	1	0	1	11
Module-5	2	1	1	26
Total No. of questions	8	6	5	
Total Marks Including choice				115

PR GOVT COLLEGE (A)::KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

III B.Sc(CS)-SEMESTER-VI

Paper - VIII : Elective – II : (Cluster B1) DISTRIBUTED SYSTEMS

Time: 2:30 Hrs **Marks:60**

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Very Short Questions	**5**	**1**	**5**	**5**	**1**	**5**
2	Section-B Short Questions	**6**	**5**	**30**	**3**	**5**	**15**
3	Section-C Essay Questions	**8**	**10**	**80**	**4**	**10**	**40**
TOTAL MARKS				**115**	**TOTAL MARKS**		**60**

Percentage of choice given = $\frac{115 - 60}{115} \times 100 = \frac{55}{115} \times 100 = 48.72\%$

DISTRIBUTED SYSTEMS

QUESTION BANK

Unit -1

Essay Questions

1. What is Distributed Computing System? Explain Issues in Designing a Distributed Operating System?
2. What is Distributed Computed System? Explain about examples of Distributed System?
3. What is Distributed System? Explain about Different System Models?

Short Answer Questions

1. What about the disadvantages of DS over centralized systems?
2. Write about disadvantages of DS over independent PC's?
3. Write about disadvantages of DS of Distributed systems?

Very short Answer Questions

1. Define Distributed Systems?
2. Define Transparency?

Unit-2

Essay Questions

1. Explain about Parameter passing in RPC?
2. What is RPC? Explain how RPC works?
3. Explain RPC Protocols?

Short Answer Questions

1. Explain about parameters passing in RPC?
2. Explain about buffering and unbuffering message passing?
3. Write about group communication?

Very short Answer Questions

1. Define RPC?
2. Define server?
3. Define client?

Unit-3

Essay Questions

1. What is DSM? Explain several kinds of Shared Memory Multiprocessors?
2. Write about Election Algorithm?
3. Write about Ring Algorithm and Bulli Algorithm?

Short Answer Questions

1. Write the advantages of DSM?
2. Write about Deadlocks in DS?

Very short Answer Questions

1. Define DSM?
2. Define Deadlock?

Unit-4

Essay Questions

1. Describe the Following in Distributed Systems?
    a. Task Assignment Approach
    b. Load-Balancing Approach
2. Describe about Load Sharing Approach & Process Migration in DS?

Short Answer Questions

1. Explain Threads in DS?
2. Write about process migration?

Very short Answer Questions

1. Define thread ?
2. Write the difference between thread and process?

Unit-5

Essay questions

1. Write about Implementation of Distributed File System?

Short Answer Questions

1. Write about Atomic Transactions in Distributed systems?

Very short Answer Questions

1. Define File Server?
2. Define cryptography?

P.R.GOVT.COLLEGE (A)::KAKINADA
DEPARTMENT OF COMPUTER SCIENCE
III B.Sc (CS) Semester -VI
Paper-VII: Elective-A
Operating Systems

Course Objectives

1. To understand the services provided by and the design of an operating system.
2. To understand the structure and organization of the file system.
3. To understand what a process is and how processes are synchronized and scheduled.
4. To understand different approaches to memory management.
5. Students should be able to use system calls for managing processes, memory and the file system.

Course Outcomes

1. Analyze the concepts of processes in operating system and illustration of the scheduling of processor for a given problem instance.
2. Identify the dead lock situation and provide appropriate solution so that protection and security of the operating system is also maintained.
3. Analyze memory management techniques, concepts of virtual memory and disk scheduling.

MODULE - I

Operating System Introduction: Operating Systems Objectives and functions, Computer System Architecture, OS Structure, OS Operations, Evolution of Operating Systems - Simple Batch, Multi programmed, time shared, Parallel, Distributed Systems, Real-Time Systems, Operating System services.

MODULE - II

Process and CPU Scheduling - Process concepts - The Process, Process State, Process Control Block, Threads, Process Scheduling - Scheduling Queues, Schedulers, Context Switch, Preemptive Scheduling, Dispatcher, Scheduling Criteria, Scheduling algorithms, Case studies: Linux, Windows.
Process Coordination - Process Synchronization, The Critical section Problem, Synchronization Hardware, Semaphores, and Classic Problems of Synchronization, Monitors, Case Studies: Linux, Windows.

MODULE - III

Memory Management and Virtual Memory - Logical & physical Address Space, Swapping, Contiguous Allocation, Paging, Structure of Page Table. Segmentation, Segmentation with Paging, Virtual Memory, Demand Paging, Performance of Demanding Paging, Page Replacement Page Replacement Algorithms, Allocation of Frames.

MODULE - IV

File System Interface - The Concept of a File, Access methods, Directory Structure, File System Mounting, File Sharing, Protection, File System Structure,
Mass Storage Structure - Overview of Mass Storage Structure, Disk Structure, Disk Attachment, Disk Scheduling.

MODULE - V

Deadlocks - System Model, Deadlock Characterization, Methods for Handling Deadlocks, Deadlock Prevention, Deadlock Avoidance, Deadlock Detection and Recovery from Deadlock.

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REFERENCES BOOKS:

1. Operating System Principles, Abraham Silberchatz, Peter B. Galvin, Greg Gagne 8th Edition, Wiley StudentEdition.
2. Principles of Operating Systems by Naresh Chauhan, OXFORD University Press
3. Operating systems - Internals and Design Principles, W. Stallings, 6th Edition, Pearson.
4. Modern Operating Systems, Andrew S Tanenbaum 3rd Edition PHI.
5. Operating Systems A concept - based Approach, 2nd Edition, D. M. Dhamdhere, TMH.
6. Principles of Operating Systems, B. L. Stuart, Cengage learning, India Edition.
7. Operating Systems, A. S. Godbole, 2nd Edition, TMH

Student Activity:

1. Load any new operating system into your computer.
2. Partition the memory in your system
3.Create a semaphore for process synchronization

Operating Systems Lab

Objectives:

• To use linux operating system for study of operating system concepts.
• To write the code to implement and modify various concepts in operating systems

Outcomes:

• The course objectives ensure the development of students applied skills in operating systems related areas.
• Students will gain knowledge in writing software routines modules or implementing various concepts of operating system.

List of Experiments:

1. Usage of following commands
Ls,pwd,tty,cat,who,who am I,rm, mkdir, rmdir,touch,cd.
2. Usage of following commands
Cal,cat(append),cat(concatenate),mv,cp,man,date.
3. Usage of following commands
Chmod,grep,tput(clear,highlight),bc.
4. Write a shell script to check if the number entered at the command line is Prime or not
5. Write a shell script to modify "cal" command to display calendars of the specified months.
6. Write a shell script to modify "cal" command to display calendars of the specified range of months.
7. Write a shell script to accept a login name. If not a valid login name display message "entered login name is invalid"
8. Write a shell script to display date in the mm/dd/yy format.
9. To implement the FCFS Algorithm.
10. To implement the shortest job First Algorithm.
11. To implement the priority algorithm.
12. To implement the round robin Algorithm.
13. To implement the FIFO page replacement algorithm

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MODEL BLUE PRINT FOR THE YEAR 2020-2021
III B.SC (CS) 2020-2023 BATCH
Course Code: CP6207

SEMESTER-VI

SUBJECT: OPERATING SYSTEMS
Time: 2 1/2 Hrs
PAPER- VII **Max. Marks: 60**

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Very Short Questions	**5**	**1**	**5**	**5**	**1**	**5**
2	Section-B Short Questions	**6**	**5**	**30**	**3**	**5**	**15**
3	Section-C Essay Questions	**8**	**10**	**80**	**4**	**10**	**40**
TOTAL		**19**		**115**	**TOTAL MARKS**		**60**

Percentage of choice given = $\frac{115 - 60}{115} \times 100 = \frac{55}{115} \times 100 = 47.82\%$

PR GOVT COLLEGE (A)::KAKINADA
DEPARTMENT OF COMPUTER SCIENCE
III B.Sc(CS)-SEMESTER-VI
Paper-VII: Operating Systems (Elective-A)

Time:2 ½ Hrs **Max. Marks: 60**

SECTION - I

Answer ALL questions **5 x 1M= 5 M**

1. Define operating system
2. Define a processing?
3. Define deadlock?
4. Define DMA?
5. Define Process Scheduling

SECTION - II

Answer Any THREE questions **5 x 5M= 25M**

6. Define Operating System and Explain Operating System Functions.

7. What are the differences between Real Time and typical Operating System?
8. Explain about semaphores.

9. What are the differences between paging and segmentation?

10. Write about allocation of frames in virtual memory management.

11. Discuss various file access methods.

SECTION - III

Answer ALL questions **4 x 10M = 40M**

12. a) Explain Computer System Architecture.
(Or)
b) Explain the various operating system services.
13. a) Explain preemptive scheduling algorithms.
(Or)
b) Write about classic problems of synchronization.

14. a) Write about Directory Structure.
(Or)
b) Explain Disk Scheduling.

15. a) Define Deadlock. Explain Deadlock characterization and methods for handling Deadlocks.
(Or)
b) Explain about Deadlock Avoidance.

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MODEL BLUE PRINT FOR MODULE_WISE FOR THE YEAR 2020-2021
III B.SC (CS) 2020-2023 BATCH

Computer Science Course: Operating Systems
CODE:CP1204

Time : 2.30 Hrs. **SEMESTER-V** **Max. Marks: 60**

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Very Short Questions 1 Marks	Marks allotted to the chapter
MODULE -I	2	2	2	32
MODULE -II	2	2	1	31
MODULE -III	2	1	1	26
MODULE – IV,V	2	1	1	26
Total No. of questions	8	8	5	
Total Marks Including choice				115

P.R. GOVT. COLLEGE (A), KAKINADA
III B.Sc(CS) (W.E.F 2020-2021)
QUESTION BANK

Subject: Operating Systems Paper: VII Elective-A

SEMESTER – VI

Essay Questions:

MODULE-I

1. Explain the features of an Operating system?
2. Explain any four types of Operating systems?
3. Explain the structure of an Operating system?

MODULE-II

4. Define processing and explain process management ?
5. What is time sharing operating system and write advantages of time sharing systems?

MODULE-III

6. What is virtual memory and explain its advantages?
7. Explain direct memory access concept?

MODULE-IV

8. Write about file access methods?
9. Explain classification of virus?

MODULE-V

10. Define deadlock and explain its?

SHORT:

MODULE-I

1. Explain the purpose of operating system?
2. How to manage software?
3. How can you get the security status of PC?
4. Explain about services of an operating system?

MODULE-II

5. Difference between multi programming and multiprocessing?
6. Explain CPU Scheduling?
7. Explain time sharing system?
8. What is Linux and explain its?

MODULE-III

9. Write the disadvantage of virtual memory?

MODULE-IV

10. What are the file operations?
11. Explain about type of viruses?
12. Explain about software security?

VERY SHORT

MODULE-I

1. Define operating system?
2. Define booting?

MODULE-II

3. Define processing ?

MODULE-III

4. What is paging?
5. What is segmentation?
6. What is multi programming ?
7. What is multi tasking?

MODULE-IV

8. Define file?
9. Define privacy?
10. Define virus?
11. What is user interface?

MODULE-V

12. Define deadlock?

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DEPARTMENT OF COMPUTER SCIENCE

III B.Sc(CS)-SEMESTER-VI

Paper-VIII: Cluster Elective-A2

Subject: PHP and My SQL

Unit-I: Building blocks of PHP: Variables, Data Types, Operators and Expressions, Constants.

Flow Control Functions in PHP: Switching Flow, Loops, Code Blocks and Browser Output.

Working with Functions: Defining Functions, Calling functions, returning the values from User-Defined Functions, Variable Scope, Saving State between Function calls with the Static statement, more about arguments.

Unit-II: Working with Arrays: Arrays, Creating Arrays, Some Array-Related Functions.
Working with Objects: Creating Objects, Object Instance.
Working with Strings, Dates and Time: Formatting Strings with PHP, Investigating Strings with PHP, Manipulating Strings with PHP, Using Date and Time Functions in PHP.

Unit-III: Working with Forms: Creating Forms, Accessing Form - Input with User defined Arrays, Combining HTML and PHP code on a single Page, Using Hidden Fields to save state, Redirecting the user, Sending Mail on Form Submission, Working with File Uploads**.**

Working with Cookies and User Sessions: Introducing Cookies, Setting a Cookie with PHP, Session Function Overview, Starting a Session, Working with session variables, passing session IDs in the Query String, Destroying Sessions and Unsetting Variables, Using Sessions in an Environment.

Unit-IV: Working with Files and Directories: Including Files with include(), Validating Files, Creating and Deleting Files, Opening a File for Writing, Reading or Appending, Reading from Files, Writing or Appending to a File, Working with Directories, Open Pipes to and from Process Using popen (), Running Commands with exec(), Running Commands with system ( ) or passthru ( ).
Working with Images: Understanding the Image-Creation Process, Necessary Modifications to PHP, Drawing a New Image, Getting Fancy with Pie Charts, Modifying Existing Images, Image Creation from User Input.

Unit-V: Interacting with MySQL using PHP: MySQL Versus MySQLi Functions, Connecting to MySQL with PHP, Working with MySQL Data.
Creating an Online Address Book: Planning and Creating Database Tables, Creating Menu, Creating Record Addition Mechanism, Viewing Records, Creating the Record Deletion Mechanism, Adding Sub-entities to a Record.

References:

1. Julie C. Meloni, PHP MySQL and Apache, SAMS Teach Yourself, Pearson Education (2007)

2. Xue Bai Michael Ekedahl, The Web Warrior Guide to Web Programming, Thomson (2006)

PHP AND MySql LAB

MySQL Lab Cycle

Cycle -1

An Enterprise wishes to maintain the details about his suppliers and other corresponding details. For that he uses the following details.
Suppliers (sid: Integer, sname: string, address: string)
Parts (pid: Integer, pname: string, color: string)
Catalog (sid: integer, pid: integer, cost: real)
The catalog relation lists the prices charged for parts by suppliers.
Write the following queries in SQL:
1. Find the pnames of parts for which there is some supplier.
2. Find the snames of suppliers who supply every part.
3. Find the snames of supplier who supply every red part.
4. Find the pnames of parts supplied by London Supplier abd by no one else.
5. Find the sid's of suppliers who charge more for some part than the average cost of that part.
6. For each part, find the sname of the supplier who charges the most for that part.
7. Find the sid's of suppliers who supply only red parts.
8. Find the sid's of suppliers who supply a red and a green part.
9. Find the sid's of suppliers who supply a red or green part.
10. Find the total amount has to pay for that suppler by part located from London

Cycle – 2

An organisation wishes to maintain the status about the working hours made by his employees. For that he uses the following tables.
Emp (eid: integer, ename: string, age: integer, salary: real)
Works (eid: integer, did: integer, pct_time: integer)
Dept (did: integer, budget: real, managerid: integer)
An employee can work in more than one department; the pct_time field of the works relation shows the percentage of time that a given employee works in a given department.
Resolve the following queries.
1. Print the names and ages of each employee who works in both Hardware and Software departments.
2. For each department with more than 20 full time equivalent employees (i.e., where the part-time and full-time employees add up to at least that many full-time employees), print the did's together with the number of employees that work in that department.
3. Print the name of each employee whose salary exceeds the budget of all of the departments that he or she work in.

PHP Lab Cycle

4. Find the managerid's of managers who manage only departments with budgets greater than 1,000,000.
5. Find the enames of managers who manage the departments with largest budget.
6. If a manager manages more than one department, he or she controls the sum of all the budgets for those departments. Find the managerid's of managers who control more than 5,000,000.
7. Find the managerid's of managers who control the highest amount.
8. Find the average manager salary.

PHP Lab Cycle

1. Write a PHP program to Display “Hello”
2. Write a PHP Program to display the today’s date.
3. Write a PHP Program to read the employee details.
4. Write a PHP Program to display the
5. Write a PHP program to prepare the student marks list.
6. Write a PHP program to generate the multiplication of two matrices.
7. Write a PHP Application to perform demonstrate the college website.
8. Write a PHP application to add new Rows in a Table.
9. Write a PHP application to modify the Rows in a Table.
10. Write a PHP application to delete the Rows from a Table.
11. Write a PHP application to fetch the Rows in a Table.

12. Develop an PHP application to make following Operations i. Registration of Users.

ii. Insert the details of the Users.

iii. Modify the Details.

iv. Transaction Maintenance. a) No of times Logged in

b) Time Spent on each login.

c) Restrict the user for three trials only.

d) Delete the user if he spent more than 100 Hrs of transaction

PR GOVT COLLEGE (A):: KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

III B.Sc(CS)-SEMESTER-VI
Paper-VII:PHP & MYSQL (Elective-A)

Time: 3 Hr **Marks:70**

Model blue print for the model paper and choice:

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Very Short Questions	**5**	**1**	**5**	**5**	**1**	**5**
2	Section-B Short Questions	**8**	**5**	**40**	**5**	**5**	**25**
3	Section-C Essay Questions	**8**	**10**	**80**	**4**	**10**	**40**
TOTAL MARKS				**125**	**TOTAL MARKS**		**70**

PR GOVT COLLEGE (A)::KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

III B.Sc(CS)-SEMESTER-VI
Paper-V:PHP & MYSQL

Time:3Hrs **Max. Marks: 70**

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Very Short Questions 1 Marks	Marks allotted to the chapter
Module-1	2	2	1	31
Module-2	1	1	1	16
Module-3	1	1	1	16
Module-4	2	2	1	31
Module-5	2	2	1	31
Total No. of questions	8	8	5	
Total Marks Including choice				125

P R Government College(A),
KakinadaDepartment of Computer Science
III B.SC (Computer Science) /
Semester- VI MODEL QUESTION PAPER (W.E.F: 2020-21)

SUBJECT: PHP & My Sql **Time: 3 Hrs**
Max. Marks: 70

SECTION - I

Answer ALL questions **5 x 1M= 5 M**

1. What is PHP?
2. What is String?
3. Define Cookie.
4. What is My SQL
5. What is Form?

SECTION - II

Answer ANY FIVE questions **5 x 5M= 25M**

6. Discuss different data types of PHP.
7. Explain about the conditional Statements in PHP?
8. Give the differences between GET and POST.
9. List all input elements. Explain any three with examples?
10. What are the different types of errors in PHP?
11. Explain the differences between cookie and Session with an example.
12. Explain about five Date functions of php.
13. Write a php Script to list data in the table.

SECTION - III

Answer Any Four questions **4x10M= 40M**

14. A. Explain the Functions of PHP?

OR

B. Explain about Defining a Function, calling a function, function parameters with an example?

15. A. How array are created in PHP? Discuss any three sorting functions of an array.

OR

B. Explain about Formatting Strings with PHP ?

16. A. Explain creating Forms using HTML and PHP

OR

B. What are Cookies? Explain about Cookies in detail?

17. A. Explain working with Files and Directories in PHP?

OR

B. Explain creating Database Table using MySql and PHP?.

R GOVT COLLEGE (A) :: KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

III BSC (CS) – SEMESTER –VI

Paper-VII : Elective-C
Web Technologies

Course Objective

To provide knowledge on web architecture, web services, client side and server side scripting technologies to focus on the development of web-based information systems and web services.

To provide skills to design interactive and dynamic web sites.

Course Outcome

1. To understand the web architecture and web services.
2. To practice latest web technologies and tools by conducting experiments.
3. To design interactive web pages using HTML and Style sheets.
4. To study the framework and building blocks of .NET Integrated Development Environment.
5. To provide solutions by identifying and formulating IT related problems.

UNIT – I

HTML: Basic HTML, Document body, Text, Hyper links, adding more formatting, Lists, Tables using images. More HTML: Multimedia objects, Frames, Forms towards interactive, HTML document heading detail

UNIT – II

Cascading Style Sheets: Introduction, using Styles, simple examples, your own styles, properties and values in styles, style sheet, formatting blocks of information, layers.

UNIT – III

Introduction to JavaScript: What is DHTML, JavaScript, basics, variables, string manipulations, mathematical functions, statements, operators, arrays, functions. Objects in JavaScript: Data and objects in JavaScript, regular expressions, exception handling

UNIT – IV

DHTML with JavaScript: Data validation, opening a new window, messages and confirmations, the status bar, different frames, rollover buttons, moving images,

UNIT – V

XML: defining data for web applications, basic XML, document type definition, presenting XML, document object model. Web Services

References:

1. Harvey M. Deitel and Paul J. Deitel, **"Internet & World Wide Web How to Program", 4/e,** Pearson Education.
2. Uttam Kumar Roy, Web Technologies from Oxford University Press

Student Activities:

1. **Prepare a web site for your college**
2. **Prepare your personal website**

Web Technologies Lab

1. Write a HTML program illustrating text formatting.

2. Illustrate font variations in your HTML code.

3. Prepare a sample code to illustrate links between different sections of the page.

4. Create a simple HTML program to illustrate three types of lists.

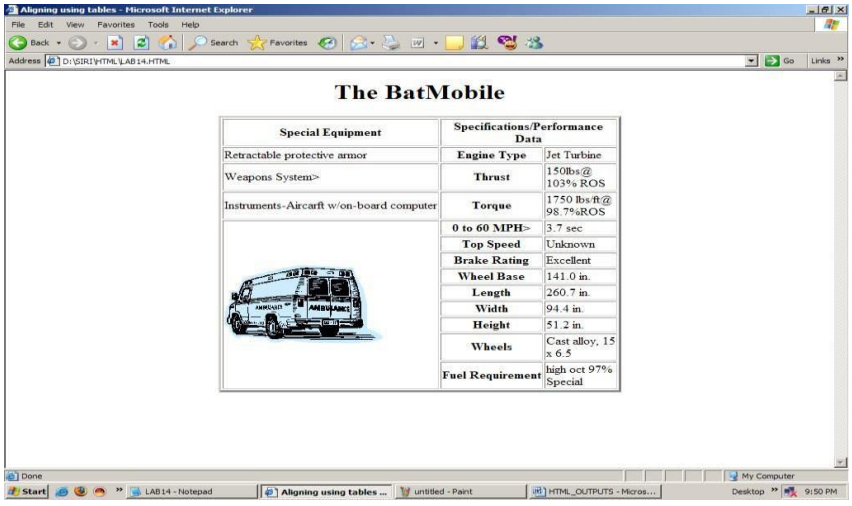
5. Embed a calendar object in your web page.

6. Create an applet that accepts two numbers and perform all the arithmetic operations on them.

7. Create nested table to store your curriculum.

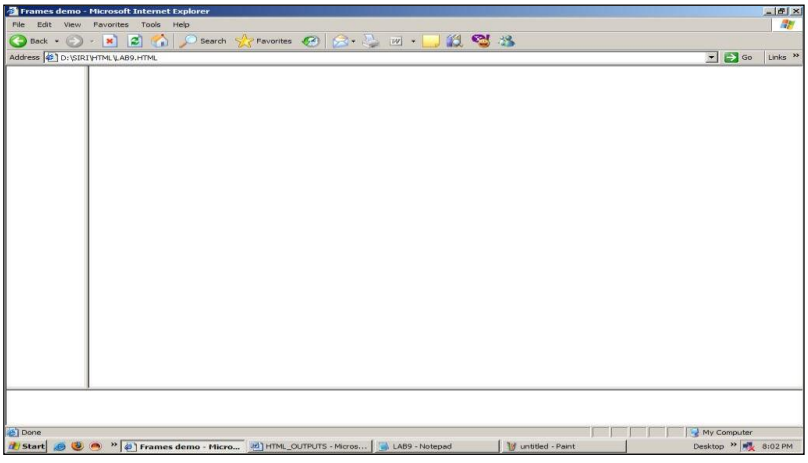
8. Create a form that accepts the information from the subscriber of a mailing system.

9. Design the page as follow

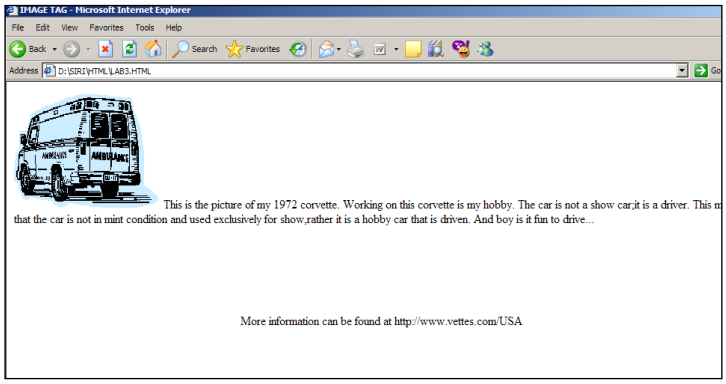


11. Using “table” tag, align the images as follows:

12. Divide the web page as follows:

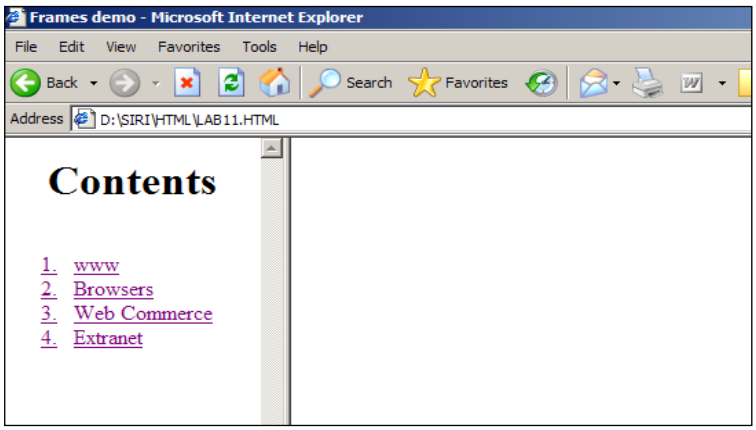


13. Design the page as follows:



14. Illustrate the horizontal rulers in your page.

15. Create a help file as follows:



16. Create a form using form tags(assume the form and fields).
17. Create a webpage containing your biodata(assume the form and fields).
18. Write a html program including style sheets.
20. Write a html program to layers of information in web page.
21. Create a static webpage.

PR GOVT COLLEGE (A):: KAKINADA
III B.Sc Computer Science VI-Semester
MODEL QUESTION PAPER
Paper - VIII : Elective – II : (Elective -C) WEB TECHNOLOGIES

Time : 2:30 Hours Max.Marks:60

SECTION-A

Answer the following questions: **5x 1=5M**

1.What is HTML?
2.What is CSS?
3.What is data and object?
4.Write about data validation?
5.What is document object model?

SECTION –B

Answer any **THREE** of the following questions. **3X5=15M**

6.Write about formatting options in HTML.
7.What are the different types of lists we can create in HTML page.
8.Explain frames in HTML.
9.Write about HTML Block & Inline elements
10. How to use functions in JavaScript?
11. How to open a new window in Javascript?
12. How to validate data using JavaScript?
13. Write brief note on XML web services

SECTION – C

Answer **ALL** the following questions**.** **4x10=40M**

14. a) Explain the structure of HTML.

(or)

b) How to create forms in HTML? Explain with an example.

15. . a) Explain the concept of layers in CSS. How to create them?

(or)

b) Explain how to use styles in CSS.

16 . a) Write about string manipulations in JavaScript.

(or)

b) What are regular expressions in JavaScript? How to use them?

17. a) Explain data validation concept in detail.

(or)

b) Explain briefly about Rollover Buttons.

PR GOVT COLLEGE (A):: KAKINADA

DEPARTMENT OF COMPUTER SCIENCE

III B.Sc(CS)-SEMESTER-VI
Paper-VII: Web-Technologies(Elective-B)

Time: 2 $^{1/2}$ Hrs **Marks:60**

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Very Short Questions	5	1	5	5	1	5
2	Section-B Short Questions	6	5	30	3	5	15
3	Section-C Essay Questions	8	10	80	4	10	40
TOTAL MARKS				115	TOTAL MARKS		60

$$\text{Percentage of choice given} = \frac{115 - 60}{115} \times 100 = \frac{55}{115} \times 100 = 47.82\%$$

P. R.GOVT. COLLEGE
(AUTONOMOUS),
KAKINADAMODEL BLUE
PRINT (W.E.F. 2020-2021)
III B.Sc SEMESTER-VI
COURSE CODE:

SUBJECT: Web-Technologies(Elective-B) **Time: 2:30 Hrs**

PAPER-III **Marks: 60M**

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Very Short Questions 2 Marks	Marks allotted to the chapter
MODULE-I	2	2	2	32
MODULE-II	2	2	1	31
MODULE-III	2	1	1	26
MODULE-IV	2	1	1	26
Total No. of questions	8	6	5	
Total Marks Including choice				115

IOT

PR GOVT COLLEGE (A), KAKINADA
I B.Sc –MEIOT / Semester- I (W.E.F. 2020-2021)

Course: Fundamentals of Computer and C-Programming

Total Hrs. of Teaching-Learning: 52 @ 4 Hrs / Week **Credits: 03**

Course Objectives:

1. To explore basic knowledge on computers
2. Learn how to solve common types of computing problems.
3. Learn basic constructs of computer programming languages
4. Learn data types and control structures of C
5. Learn to map problems to programming features of C.
6. Learn to write good portable C programs.

Course Outcomes

Upon successful completion of the course, a student will be able to:

1. Appreciate and understand the working of a digital computer
2. Analyze a given problem and develop an algorithm to solve the problem
3. Improve upon a solution to a problem
4. Use the 'C' language constructs in the right way
5. Design, develop and test programs written in 'C'

UNIT-I

Introduction to computers - Characteristics and limitations of computer, Block diagram of computer, types of computers, computer generations. Number systems: binary, hexadecimal and octal numbering system. Input and output devices: Keyboard and mouse, inputting data in other ways

Types of Software: system software, Application software, commercial, open source, domain and free ware software, Memories: primary, secondary and cache memory.

UNIT-II

Problem Analysis and its Tools: Problem solving technique and Program Development Life Cycle, Problem Definition, Algorithm, Flow Charts, Types of Errors, Testing and Debugging.

Basics of C: Historical development of C Language, Basic Structure of C Program, C Character Set, Identifiers and Keywords, constants, variables, Data types.

Operators and expressions: Arithmetic, Relational, Logical, Assignment, Unary, Conditional and Bitwise operators.Type conversions. Input and output statements: getchar( ), getch( ), getche( ), putchar( ), printf( ), scanf( ), gets( ), puts( )

UNIT-III

Control statements: Decision making statements: if, if else, else if ladder, switch statements. Loop control statements: while loop, for loop and do-while loop. Jump Control statements: break, continue and goto.

Arrays: one dimensional Array, two dimensional arrays.

UNIT-IV

Strings: Input/ Output of strings, string handling functions, table of strings

Functions: Function Prototype, definition and calling. Return statement. Nesting of functions. Categories of functions. Recursion, Parameter Passing by address & by value. Local and Global variables. Storage classes: automatic, external, static and register.

UNIT-V

Pointers: Pointer data type, Pointer declaration, initialization, accessing values using pointers. Pointer arithmetic. Pointers and arrays, pointers and functions.

Structures and Unions : Using structures and unions, use of structures in arrays and arrays in structures. Comparison of structure and Union.

Text Books:

1. E. Balagurusway, "Programming in C", Tata McGrwal Hill.
2. Computer fundamentals and c programming in c by Reemathareja, oxford university press

Reference Books

1. Introduction to C programming by REEMA THAREJA from OXFORD UNIVERSITY PRESS
2. E Balagurusamy: ―COMPUTING FUNDAMENTALS & C PROGRAMMING – Tata McGraw-Hill, Second Reprint 2008, ISBN 978-0-07-066909-3.
3. Ashok N Kamthane: Programming with ANSI and Turbo C, Pearson Edition Publ, 2002.
4. Henry Mullish&HuubertL.Cooper: The Spirit of C An Introduction to modern Programming, Jaico Pub. House,1996.
5. Y kanithkar, let us C BPB, 13 th edition-2013, ISBN:978-8183331630,656 pages.

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Problem-solving exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports like "Creating Text Editor in C".
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,
10. Peers and self-assessment, outputs form individual and collaborative work

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA

MODEL BLUE PRINT(W.E.F. 2020-2021)

I B.Sc (MEIOT)

SEMESTER-I

Course: Fundamentals of Computer and C -Programming

Time: 2.30Hrs **Marks: 50**

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Marks allotted to the chapter
Module-1	2	2	30
Module-2	1	2	20
Module-3	1	1	15
Module-4	1	1	15
Module-5	1	1	15
Total No. of questions	6	7	
Total Marks Including choice			95

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA

MODEL BLUE PRINT(W.E.F. 2020-2021)

I B.Sc (MEIOT)

SEMESTER-I

Course: Fundamentals of Computer and C -Programming

Time: 2.30Hrs

Marks: 50

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Short Questions	**7**	**5**	**35**	**4**	**5**	**20**
2	Section-B Essay Questions	**6**	**10**	**60**	**3**	**10**	**30**
TOTAL		**13**		95	**TOTAL MARKS**		**50**

Percentage of choice given = $\frac{95 - 50}{95} \times 100 = \frac{45}{95} \times 100 = 47.36\%$

P R GOVT COLLEGE (A), KAKINADA
I B.Sc –MEIOT / Semester- I (W.E.F. 2020-2021)
Course: Fundamentals of Computer and C –Programming

Time: 2:30hrs **SEMISTER – I** **Max. Marks: 50**

Section – I

Answer any 4 Questions (Short answer questions) **(4x5=20M)**

1) Types of Software?
2) What is Identifier? Explain with example.
3) What is switch statement? Write its syntax?
4) Explain about Break and continue?
5) What are the different storage classes?
6) What is dynamic memory allocation?
7) Explain about pointer datatypes?

Section – II

Answer Any Four Questions **(3x10=30M)**

8) A) Explain about various components of computer and draw the blockdiagram?
(OR)
B) What are the generations of computers?
9) A) What is operator? Explain different types of operators in C?
(OR)
B) Explain about conditional control statements in C?
10) A) explain about functions in details?
(OR)
B) What is a pointer? Explain the types of pointers?

P R GOVT COLLEGE (A), KAKINADA
I B.Sc –MEIOT / Semester- I(W.E.F. 2020-2021)
Course: Hardware and C Programming Lab

Practical /Laboratory-I

Time: 2 Hrs **Marks: 50**

Practical/Laboratory – IV

1. Internal Practicals 20 Marks
2. External Practicals 30 Marks

Semester	Course Code	Course Title	Hours	Credits
I	**C1-P**	**Hardware and C Programming Lab**	**30**	**1**

SEMESTER-I

Hardware Lab:

1. Identify various Memory components of the Computer.
2. Identify Various Cables and their uses
3. Identify various Network Devices.
4. Assembling and Disassembling of Computers.

C Programming Lab

1. Find the biggest of three numbers using C.
2. Write a c program to find the sum of individual digits of a positive integer.
3. A Fibonacci sequence is defined as follows: the first and second terms in the sequence are 0 and 1. Subsequent terms are found by adding the preceding two terms in the sequence.
4. Write a c program to check whether a number is Armstrong or not.
5. Write a program to perform various string operations.
6. Write a c program to generate all the prime numbers between 1 and n, where n is a value supplied by the user.
7. Write a c program that uses functions to perform the following: Addition of two matrices. Multiplication of two matrices.
8. Write a c program that implements searching of given item in given list.
9. Write a c program to sort a given list of integers in ascending order.
10. Write a c program to perform various operations using pointers.
11. Write a c program to read data of 10 employees with a structure of 1.employee id 2.aadar no, 3.title, 4.joined date, 5.salary, 6.date of birth, 7.gender, 8.department.
12. Write a program for concatenation of two strings.
13. Write a program for length of a string

P R GOVT COLLEGE (A), KAKINADA
DEPARTMENT OF COMPUTER SCIENCE
I B.Sc –MEIOT / Semester- I (W.E.F. 2020-2021)
Course: Fundamentals of Computer and C -Programming

Computer fundamentals and C Language Important Questions

Module – I

1) Explain about Machine and Assembly levellanguage?
2) Explain about system software and applicationsoftware?
3) Explain about bits andbytes?
4) Explain about various components of computer and draw the blockdiagram?
5) What are the generations of computers?
6) Types of Software
7) Types of Memory.

Module - II

8) Define Keyword?
9) State any four types of statements in C.
10) Define Variable? Give example.
11) What is Identifier? Explain with example.
12) Explain about different types of data types inC?
13) What is operator? Explain different types of operators in C?
14) What is type conversion? Explain about type conversions in C?

Module- III :

15) Explain about two way selection statements and multi way selection statements withexamples?
16) What are iterative statements explain with syntax andexamples?
17) Explain the difference between while and do-while with an example?
18) Write a C program to find the sum of the digits in a given number?
19) Differentiate counter controlled and conditional controlled loops with examples?
20) Explain about Break and continue?
21) Write a C program to find whether a given number is Palindrome or not?
22) Define Actual Parameters and Formal Parameter. What is meant by Global and Local variable? Explain with anexample.
23) Write a C Program demonstrating of parameter passing in Functions and returningvalues.
24) What are the different storage classes? Explain with suitableexamples.
25) Write C program that use both recursive and non-recursive function to find the factorial of a giveninteger.
26) Write a Program to exchange the values of two variables using Functionsconcept.

Module – IV :

27) Explain about the following

(i)One dimensional array , (ii)Two dimensional arrays (iii)Array Initialization

28) Write a C program to find the sum of elements of a two dimensionalarray.

29) What is a string? How to declare and initialize thestring?

30) Explain different string manipulation (string handling) functions withexamples.

31) Write a program to multiply two matrices and print theresult.

Module – V :

32) Define pointer. Write a program to explain the usage of pointer .List the troubles in usingpointers?

33) What is dynamic memory management? Explain about various functions used forit?

34) Explain the followingoperations

i. fseek()
ii. ftell()
iii. rewind()
iv. ferror() and feof()

35) List the differences between structure and union. Describe structure declaration, initialization and accessingelements.

36) Write a program using structure to accept and display structure name, roll number, mobile number?

P R GOVT COLLEGE (A), KAKINADA
I B.Sc –MEIOT / Semester- II(W.E.F. 2020-2021)
Course: Fundamentals of IoT and Applications

Total Hrs. of Teaching-Learning: 52 @ 4 Hrs / Week **Credits: 03**

Course Objectives

1. To study fundamental concepts of IoT
2. To understand roles of sensors in IoT
3. To Learn different protocols used for IoT design
4. To be familiar with data handling and analytics tools in IoT
5. Appreciate the role of big data, cloud computing and data analytics in a typical IoT system.
6. Understand the role of IoT in various domains of Industry.

Course Outcomes:

On completion of the course, student will be able to

1. Understand the various concepts, terminologies and architecture of IoT systems.
2. Use sensors and actuators for design of IoT.
3. Understand and apply various protocols for design of IoT systems
4. Use various techniques of data storage and analytics in IoT
5. Understand various applications of IoT
6. Understand APIs to connect IoT related technologies

UNIT-I

Fundamentals of IoT: Introduction, Definitions & Characteristics of IoT, IoT Architectures, Physical & Logical Design of IoT, Enabling Technologies in IoT, History of IoT, About Things in IoT, The Identifiers in IoT, About the Internet in IoT, IoT frameworks, IoT and M2M.

UNIT-II

Sensors Networks : Definition, Types of Sensors, Types of Actuators, Examples and Working, IoT Development Boards: Arduino IDE and Board Types, RaspberriPi Development Kit, RFID Principles and components, Wireless Sensor Networks: History and Context, The node, Connecting nodes, Networking Nodes, WSN and IoT.

UNIT-III

Wireless Technologies for IoT: WPAN Technologies for IoT: IEEE 802.15.4, Zigbee, HART, NFC, Z-Wave, BLE, Bacnet, Modbus.
IP Based Protocols for IoT IPv6, 6LowPAN, RPL, REST, AMPQ, CoAP, MQTT.
Edge connectivity and protocols

UNIT-IV

Data Handling& Analytics: Introduction, Bigdata, Types of data, Characteristics of Big data, Data handling Technologies, Flow of data, Data acquisition, Data Storage, Introduction to Hadoop. Introduction to data Analytics, Types of Data analytics, Local Analytics, Cloud analytics and applications

UNIT-V

Applications of IoT: Home Automation, Smart Cities, Energy, Retail Management, Logistics, Agriculture, Health and Lifestyle, Industrial IoT, Legal challenges, IoT design Ethics, IoT in Environmental Protection.

Text Books:

1. Hakima Chaouchi, — "The Internet of Things Connecting Objects to the Web" ISBN : 978-1- 84821-140-7, Wiley Publications
2. Olivier Hersent, David Boswarthick, and Omar Elloumi, — "The Internet of Things: Key Applications and Protocols", WileyPublications
3. Vijay Madisetti and ArshdeepBahga, — "Internet of Things (A Hands-on-Approach)", 1st Edition, VPT, 2014.
4. J. Biron and J. Follett, "Foundational Elements of an IoT Solution", O'Reilly Media, 2016.
5. Keysight Technologies, "The Internet of Things: Enabling Technologies and Solutions for Design and Test", Application Note, 2016.

References

1. Daniel Minoli, — "Building the Internet of Things with IPv6 and MIPv6: The Evolving World of M2M Communications", ISBN: 978-1-118-47347-4, Willy Publications
2. Pethuru Raj and Anupama C. Raman, "The Internet of Things: Enabling Technologies, Platforms, and Use Cases", CRC Press
3. https://onlinecourses.nptel.ac.in/noc17_cs22/course
4. http://www.cse.wustl.edu/~jain/cse570-15/ftp/iot_prot/index.html

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time

problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity))

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Problem-solving exercises,
4. Practical assignments and laboratory reports,
5. Observation of practical skills,
6. Individual and group project reports like "Developing IoT real time application using Arduino".
7. Efficient delivery using seminar presentations,
8. Viva voce interviews.
9. Computerized adaptive testing, literature surveys and evaluations,

Peers and self-assessment, outputs form individual and collaborative work

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA

MODEL BLUE PRINT (W.E.F. 2020-2021)

I B.Sc (MEIOT)

SEMESTER-II

Course: Fundamentals of Computer and C -Programming **Time: 2.30Hrs**

Marks: 50

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Marks allotted to the chapter
UNIT-1	2	2	30
UNIT-2	1	2	20
UNIT-3	1	1	15
UNIT-4	1	1	15
UNIT-5	1	1	15
Total No. of questions	6	7	
Total Marks Including choice			95

P. R.GOVT. COLLEGE (AUTONOMOUS), KAKINADA

MODEL BLUE PRINT(W.E.F. 2020-2021)

I B.Sc (MEIOT)

SEMESTER-II

Course: Fundamentals of Computer and C -Programming

Time: 2.30Hrs **Marks: 50**

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	**Marks allotted to each question**	**Total Marks**	**No. of Questions**	**Marks allotted to each question**	**Total Marks**
1	Section-A Short Questions	**7**	**5**	**35**	**4**	**5**	**20**
2	Section-B Essay Questions	**6**	**10**	**60**	**3**	**10**	**30**
TOTAL		**13**		95	**TOTAL MARKS**		**50**

Percentage of choice given = $\frac{95 - 50}{95} \times 100 = \frac{45}{95} \times 100 = 47.36\%$

P R GOVT COLLEGE (A), KAKINADA
DEPARTMENT OF COMPUTER SCIENCE
I B.Sc –MEIOT / Semester- II(W.E.F. 2020-2021)
Course: Fundamentals Of Iot And Applications

Time: 2:30hrs **SEMISTER – II** **Max. Marks: 50**

Section – I

Answer any 4 Questions (Short answer questions) (4x5=20M)

1. write the history of IoT?
2. Explain the role of internet in Iot?
3. What is RFID? Explain its components?
4. Explain about networking nodes?
5. Explain about z-wave?
6. Explain descriptive analytics?
7. Explain working of IoT in Logistics?

Section – II

Answer Any Four Questions (3x10=30M)

8. A) what is Iot? Explain characteristics of IoT?

   (OR)

   B) Explain the architecture of IoT?
9. A) Explain the types of actuators with example?

   (OR)

   B) What is edge connectivity? Write its applications
10. A) Explain Hadoop in detail

    (OR)

    B) Write the role of IoT in home automations &health and life cycle?

P R GOVT COLLEGE (A), KAKINADA
I B.Sc –MEIOT / Semester- II(W.E.F. 2020-2021)
Course: Fundamentals OfIoT And Applications

Important Questions:

UNIT – I

Essay:

1. what is IoT?Explain the characteristics of IoT?
2. Explain Physical & Logical Design of IoT
3. Explain IoT vs M2M connectivity?
4. Explain the architecture of IoT

Short:

5. Write the History of IoT?
6. Explain IoT Frameworks
7. Explain the role of internet in IoT?

UNIT – II

Essay:

8. Explain Different sensors that mostly used in IoT?
9. Explain The Types of Actuators with Example
10. Explain the Given IoT development Kits

i) ARDUINO UNO ii) RASPBERRIPI

11. Explain Wireless Sensor Networks in detail?

Short:

12.write any five sensors that mostly used in IoT?
13. What is RFID? Explain its components?
14. Explain about Networking Nodes?

UNIT – III

Essay:

1. What is Edge connectivity? Write its Applications
2. Briefly Explain IPv4, IPv6,6LowPAN, CoAP, MQTT
3. Briefly explain BLE, BACNET, MODBUS?
4. Explain ZigBee, HART, NFC?

Short:

5. Explain about Z-wave?
6. Explain AMPQ in detail?

UNIT – IV

Essay:

1. Explain the Characteristics of Big data
2. Explain Hadoop in detail?
3. Explain the Types of Data Analytics

Short:

1. Explain Local Analytics
2. Explain data Storage in IoT
3. Write the concept of Big data

UNIT – V :

Essay:

1. write the role of IoT in HOME AUTOMATION?
2. How IoT implemented in smart cities, Energy and retail management
3. What are the legal challenges faces in IoT.
4. Explain the role of IoT in Environmental protection.

Short:

1. Explain the working of IoT in Logistics
2. Explain the working of IoT in agriculture
3. Explain the working of IoT in Health & Lifestyle.
4. Briefly explain IoT design Ethics.

P R GOVT COLLEGE (A), KAKINADA
I B.Sc –MEIOT / Semester- I(W.E.F. 2020-2021)
Course: Arduino Lab

Practical /Laboratory-II

Time: 2 Hrs Marks: 50

Practical/Laboratory – IV

1. Internal Practicals 20 Marks
2. External Practicals 30 Marks

P R GOVT COLLEGE (A), KAKINADA
I B.Sc –MEIOT / Semester- II(W.E.F. 2021-2022)

Course: Arduino Lab

List of Experiments

1. Understanding Arduino UNO Board and Components
2. Installing and work with Arduino IDE
3. Blinking LED sketch with Arduino
4. Simulation of 4-Way Traffic Light with Arduino
5. Using Pulse Width Modulation
6. LED Fade Sketch and Button Sketch
7. Analog Input Sketch (Bar Graph with LEDs and Potentio metre)
8. Digital Read Serial Sketch (Working with DHT/IR/Gas or Any other Sensor)
9. Working with Adafruit Libraries in Arduino
10. Spinning a DC Motor and Motor Speed Control Sketch
11. Working with Shields
12. Interfacing Arduino with Cloud (Thingspeak API)