 In Pursuit of Excellence	Course and Faculty Details	SESSION-2019-2020
		SEM- 2 nd

Faculty Details

Name of the Faculty: Abhinav Gupta

Designation: Assistant Professor

Department: Computer Science & Engineering

Course Details

Name of the Programme: B.Tech.

Batch: 2019-2023

Branch: CSE

Section: D

Name of Subject: Programming For Problem Solving

Subject Code: KCS-201

Category of Course: Core Subject


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 In Pursuit of Excellence	Vision & Mission of Institute	SESSION-2019-2020
		SEM- 2nd

Vision of Institute

To Develop industry ready professionals with values and ethics for global needs.

Mission of Institute

- To impart education through outcome based pedagogic principles.
- To provide conducive environment for personality development, training & entrepreneurial skills.
- To induct high professional ethics and accountability towards society in students



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 In Pursuit of Excellence	Vision & Mission Of Department	SESSION-2019-2020
		SEM- 2nd

Vision of Department


To develop globally recognized computer science and engineering graduates with ethical values for need of software industries.

Mission of Department

1. To impart knowledge through well defined instructional objectives in the field of computer science and engineering.
2. To provide learning ambiance for skills, innovation, leadership and overall personality development.
3. To inculcate professional ethics, teamwork and responsiveness towards society.


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 In Pursuit of Excellence	Program Education Objectives	SESSION-2019-2020
		SEM- 2nd

Program Education Objectives


PEO 1 : The graduates will have entrepreneurial and employable skills in software industries, by adapting themselves in the corporate world by utilizing the defined instructional objectives learnt in the program.

PEO 2 : The graduates will engage in skill enhancement, that would help to work in their own area of interest, individually or in a team.

PEO 3 : The graduates will demonstrate ownership and responsiveness towards the profession and the society.



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 In Pursuit of Excellence	Program Outcomes	SESSION-2019-2020
		SEM- 2nd

Program Outcomes

- 1. Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization for the solution of complex engineering problems.
- 2. Problem analysis:** Identify, formulate, research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
- 3. Design/development of solutions:** Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for public health and safety, and cultural, societal, and environmental considerations.
- 4. Conduct investigations of complex problems:** Use research based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.
- 5. Modern tool usage:** Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling to complex engineering activities, with an understanding of the limitations.
- 6. The engineer and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
- 7. Environment and sustainability:** Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
- 8. Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
- 9. Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
- 10. Communication:** Communicate effectively on complex engineering activities with the engineering community and with the society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- 11. Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
- 12. Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.


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 In Pursuit of Excellence	Program Specific Outcomes	SESSION-2019-2020
		SEM- 2 nd

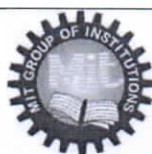
After completing their graduation, students of Computer Science and Engineering will be able to do-

PSO 1 : Comprehend the core subjects of CSE and apply them to resolve domain specific tribulations.

PSO 2: Extrapolate the fundamental concepts in engineering and to apply latest technology with programming language skills to develop, test, implement and maintain software products.


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In Pursuit of Excellence

Academic Calendar

SESSION-2019-2020

SEM- 2nd

Moradabad Institute of Technology

Ramganga Vihar Phase - II, Moradabad

Date: 16-01-2020

ACADEMIC CALENDAR

Even Semester

Session: 2019 - 2020

S. No.	Particulars	Date	Responsibility
1.	Time Table (a) Display on Notice Boards (b) Distribution to concerned Teachers	18 Jan 2020 18 Jan 2020	O.C. Time Table
2.	Distribution of Students' lists to teachers	18 Jan 2020	Concerned HODs O.C. Class
3.	Blow up subtitles on to HODs	18 Jan 2020	Concerned Teachers
4.	Registrations (a) 2 nd and 4 th Semester (b) 6 th and 8 th Semester (c) List of unregistered students to various department (d) Notifying unregistered students for getting registered at the earliest (through class O.C. / Faculty)	20 Jan 2020 21 Jan 2020 27 Jan 2020 29 Jan 2020	Concerned Teachers OS Academic Concerned HODs
5.	Commencement of Classes (a) 2 nd and 4 th Semester (b) 6 th and 8 th Semester	21 Jan 2020 22 Jan 2020	HODs and Concerned Teachers
6.	Announcement of Test series dates	30 Jan 2020	Dean Academics
7.	Procurement of stationary & materials for Test Series for full semester (a) Requirement (b) Actual Procurement	10 Feb 2020 15 Feb 2020	Convener Test Series Committee O.S. Academics
8.	(a) Short attendance compilation before Class Test-I (b) Information to parents (c) Undertaking form handed over to students (d) Collection of undertaking form	20 Feb 2020 21 Feb 2020 21 Feb 2020 22 Feb 2020	O.C. Class
9.	1st Test Series	24, 25 and 26 Feb 2020	
	Announcement of Test Series schedule, Navigation Programme, Seating arrangement etc.	18 Feb 2020	Class Test Committee
	After completion of Test Series (a) Evaluation of test copies & showing of copies to students (b) Report of poor performance of students to class OCs (c) Submission of test copies in Nodal Centre	29 Feb 2020 29 Feb 2020 29 Feb 2020	Concerned Teachers Concerned Teachers Concerned Teachers
10.	(a) Last date for submission of examination forms to office (b) Submission of forms to University	06 March 2020** 07 March 2020**	OS Academic to take timely action as per University directions.

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11.	Mid Semester break	09 March to 11 March 2020	
12.	Announcement of dues list and its last date for clearing dues (Current semester)	25 March 2020	Accounts/ OS Academic
13.	(a) Short attendance compilation before Class Test-2 (b) Information to parents (c) Undertaking form handed over to students (d) Collection of undertaking form	01 April 2020 03 April 2020 03 April 2020 04 April 2020	O.C. Class
14.	2nd Test Series	07, 08 and 09 April 2020	
	Announcement of Test Series schedule, Invigilation Programme, Seating arrangement etc.	03 April 2020	Class Test Committee
	After completion of Test Series		
	(a) Evaluation of test copies & showing of copies to students	13 April 2020	Concerned Teachers
	(b) Report of poor performance of students to class OCs	13 April 2020	Concerned Teachers
	(c) Submission of test copies in Nodal Centre	13 April 2020	Concerned Teachers
15.	Filling of student feedback forms for current semester	22 April 2020	Concerned HODs
16.	Requirement of additional Faculty (to be conveyed to Director) (for even semester)	30 April 2020	Concerned HODs
17.	(a) Floating the electives for even semester (b) Last date for students choice	22 April 2020 23 April 2020	Concerned HODs
18.	Date up to which final attendance is to be counted	26 April 2020	Concerned teachers
19.	Submission of consolidated list of shortage of attendance to Director and information to Parents	27 April 2020	Class O.Cs
20.	3rd Test Series	28, 29, 30 April 2020	
	Announcement of Test Series schedule, Invigilation Programme, Seating arrangement etc.	23 April 2020	Class Test Committee
	After completion of Test Series		
	(a) Evaluation of test copies & showing of copies to students	04 May 2020	Concerned Teacher
	(b) Report of poor performance of students to class OCs	04 May 2020	Concerned Teachers
	(c) Submission of test copies in Nodal Centre	04 May 2020	Concerned Teachers
21.	Submission of sessional marks:		
	(a) Meeting of Dean Academics, all HODs and Director regarding attendance and performance of students.	05 May 2020	Dean Academics
	(b) Checking of Teachers' Records by HODs	06 May 2020	Concerned HODs
	(c) Finalization of sessional marks	08 May 2020	Concerned Teachers
	(d) Submission of Award list after final checking and uploading to OS Academics for further necessary action	As per date announced by AKTU	HODs Concerned Teachers
22.	Theory Examinations:		
	(a) Collection of Admit Cards / Roll Nos. from University	As per AKTU schedule	OS Academics to take appropriate actions as per University directions.
	(b) Preparation of Roll lists		
	(c) Collection of stationery such as copies, practical copies drawing sheets, graph paper etc. from University.		
	(d) Procurement of stationery and other materials locally as necessary.		

23.	Practical Examinations:	As per AKTU schedule	Concerned HODs
	(a) Appointment of Internal Examiners	3 days before the practical exam schedule	Concerned HODs
	(b) Obtaining list of panel of External Examiners from AKTU & preparation of schedule of practical examination.	As per AKTU schedule	OS Academics
	(c) Dispatch of letters/contacting the external examiners	Within 2 days of list obtained from AKTU	HODs and concerned teachers
24.	Preparation for Even Semester		
	(a) Load Distribution by Department	15 May 2020	Concerned Coordinators
	(b) Submission to O.C. Time Table	16 May 2020	O.C. Time Table
25.	Registration for odd semester (2020 - 21)	To be announced**	OS Academic

**May be revised as per AKTU Schedule.

Nitin
Dean Academics
16-01-2020

Chaf
Director

Copy to:

- | | | |
|--------------------|-----------------------|---|
| 1. Chairman | 2. Secretary | 3. P.A. to Director for Director's folder |
| 4. All HODs | 5. DOSW | 6. Controller of Examination |
| 7. O.C. Time Table | 8. Registrar | 9. All Faculty Members through HODs |
| 10. O.S. Academics | 11. A.S. Examinations | 12. Account Section |
| 13. T & P Cell | 14. Librarian | 15. Converter Test Series |

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Department Academic Calendar, Even Semester, Session (2019 – 2020)

VISION

To develop globally recognized computer science and engineering graduates with ethical values for need of software industries.

MISSION

- M1:** To impart knowledge through well defined instructional objectives in the field of computer science and engineering.
M2: To provide a learning ambience for skills, innovation, leadership and overall personality development.
M3: To inculcate professional ethics, teamwork and responsiveness towards society.

JANUARY-2020							FEBRUARY-2020							MARCH-2020						
Su	M	T	W	Th	F	S	Su	M	T	W	Th	F	S	Su	M	T	W	Th	F	S
			1	2	3	4							1	1	2	3	4	5	6	7
5	6	7	8	9	10	11	2	3	4	5	6	7	8	8	9	10	11	12	13	14
12	13	14	15	16	17	18	9	10	11	12	13	14	15	15	16	17	18	19	20	21
19	20	21	22	23	24	25	16	17	18	19	20	21	22	22	23	24	25	26	27	28
26	27	28	29	30	31		23	24	25	26	27	28	29	29	30	31				
APRIL-2020							MAY-2020							JUNE-2020						
Su	M	T	W	Th	F	S	Su	M	T	W	Th	F	S	Su	M	T	W	Th	F	S
			1	2	3	4						1	2		1	2	3	4	5	6
5	6	7	8	9	10	11	3	4	5	6	7	8	9	7	8	9	10	11	12	13
12	13	14	15	16	17	18	10	11	12	13	14	15	16	14	15	16	17	18	19	20
19	20	21	22	23	24	25	17	18	19	20	21	22	23	21	22	23	24	25	26	27
26	27	28	29	30			24	25	26	27	28	29	30	28	29	30				
							31													

A
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Time Table Display on Notice Boards

Blow Up Submission to HODs

4th /6th /8th semester registration

4th /6th /8th SEM Commencement of Classes

Republic Day

Expert Lecture on Machine Learning & IOT by Mr. Abhey Kumar Bains & Mr. Aman Kumar Singh, Scope Telecom, Chandigarh

Expert Lecture on Image Classification using Machine Learning by Mr. Rahul Pathak, CETPA Noida

Event 'Dosto ki Mehfil' by CSSS

Maha Shivratri

1st Test Series

Submission of Test copies in Nodal Center

Event 'Filmy Bytes' by CSSS

Mid Semester Break(Holi and Birthday of Mohd. Hazrat Ali)

Classes Suspended due to Lockdown

New Time Table for Online Classes

Commencement of Online Classes

Q
R
S
T
U
V
W
X
Y
Z
AA

Information of CTs to parents and students through Counsellors

2nd Test Series

Information regarding filling of Examination Form to students

Submission of CT 2 Marks on MIT ERP

Departmental Meeting on Google Meet

Submission of Concept Map by Subject Coordinators

Online Conduction of Event 'Lockdown with Family' by CSSS

Online Conduction of Event 'MAA' by CSSS

Webinar on 'Internet Routing' by Dr. Mahesh Kumar organized by CSE Deptt, MIT

Webinar on 'Apache Airflow' by Shivam Saxena organized by CSE Deptt, MIT

Submission of Sessional Marks on AKTU ERP

Month	Dates of Teaching Days (2 nd , 3 rd & 4 th Year)	No. of Teaching Days	No. of Lecture Hours
Jan-2020	22,23,24,25,27,28,29,30,31	09	76 × 6 = 456
Feb-2020	1,3,4,5,6,7,8,10,11,12,13,14,15,17,18,19,20,22,27,28,29	21	
Mar-2020	2,3,4,5,6,7,12,13,14,16,23,24,25,26,27,28,30,31	23	
Apr-2020	1,2,3,4,6,7,8,9,10,11,15,16,17,18,20,21,22,23,24,25,27,28,29,30	24	
May-2020	1,2,4,5,6,7,8,9,11,12,13,14,16	13	
	Total	70	
	Sessional Examinations	06	456
	Total Teaching Days	76	


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In Pursuit of Excellence

Course Evaluation Scheme

SESSION-2019-2020


SEM-1st

SEMESTER II

Sl. No.	Code	SUBJECT	PERIODS			EVALUATION SCHEME				END SEMESTER		TOTAL	CREDIT
			L	T	P	CT	TA	Total	PS	TE	PE		
1	KAS201/ KAS202	Physics/Chemistry	3	1	3	30	20	50	25	100	25	200	5.5
2	KAS203	Mathematics II	3	1	0	30	20	50	-	100	-	150	4
3	KEE201/ KCS201	Basic Electrical Engineering/Programming for Problem Solving	3	1	2	30	20	50	25	100	25	200	5
4	KCE201/ KWS201	Engineering Graphics & Design/Workshop Practices	1	0	4	-	-	-	25	-	25	50	3
5	KAS204	Professional English	2	0	2	30	20	50	-	100	-	150	3
		MOOCs (For B.Tech. Hons. Degree)*											0
		TOTAL										750	20.5
Mini Project or Internship (3-4 weeks) shall be conducted during summer break after II semester and will be assessed during III semester													


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 In Pursuit of Excellence	Course Syllabus as per University	SESSION-2019-2020
		SEM- 2nd

Programming for Problem Solving (KCS-201)

Module – 1 : (Introduction to Programming)

[08]

Introduction to components of a computer system: Memory, processor, I/O Devices, storage, operating system, Concept of assembler, compiler, interpreter, loader and linker. Idea of Algorithm: Representation of Algorithm, Flowchart, Pseudo code with examples, From algorithms to programs, source code. Programming Basics: Structure of C program, writing and executing the first C program, Syntax and logical errors in compilation, object and executable code. Components of C language. Standard I/O in C, Fundamental data types, Variables and memory locations, Storage classes.

Module – 2 : (Arithmetic expressions & Conditional Branching)

[08]

Arithmetic expressions and precedence: Operators and expression using numeric and relational operators, mixed operands, type conversion, logical operators, bit operations, assignment operator, operator precedence and associativity. Conditional Branching: Applying if and switch statements, nesting if and else, use of break and default with switch.

Module – 3 : (Loops & Functions)

[08]

Iteration and loops: use of while, do while and for loops, multiple loop variables, use of break and continue statements. Functions: Introduction, types of functions, functions with array, passing parameters to functions, call by value, call by reference, recursive functions.

Module – 4 : (Arrays & Basic Algorithms)

[08]

Arrays: Array notation and representation, manipulating array elements, using multi dimensional arrays. Character arrays and strings, Structure, union, enumerated data types, Array of structures, Passing arrays to functions. Basic Algorithms: Searching & Basic Sorting Algorithms (Bubble, Insertion and Selection), Finding roots of equations, Notion of order of complexity.

Module – 5 : (Pointer & File Handling)

[08]

Pointers: Introduction, declaration, applications, Introduction to dynamic memory allocation (malloc, calloc, realloc, free), Use of pointers in self-referential structures, notion of linked list (no implementation) File handling: File I/O functions, Standard C preprocessors, defining and calling macros, command-line arguments.

Text books:

1. Schum"s Outline of Programming with C by Byron Gottfried, McGraw-Hill
2. The C programming by Kernighan Brain W. and Ritchie Dennis M., Pearson Education.
3. Computer Basics and C Programming by V.Rajaraman , PHI Learning Pvt. Limited, 2015.
4. Computer Concepts and Programming in C, R.S. Salaria, Khanna Publishing House
5. Computer Concepts and Programming in C, E Balaguruswami, McGraw Hill
6. Computer Science- A Structured Programming Approach Using C, by Behrouz A. Forouzan, Richard F. Gilberg, Thomson, Third Edition , Cengage Learning - 2007.
7. Let Us C By Yashwant P. Kanetkar.
8. Problem Solving and Program Design in C, by Jeri R. Hanly, Elliot B. Koffman, Pearson Addison-Wesley, 2006.
9. Programming in C by Kochan Stephen G. Pearson Education – 2015.
10. Computer Concepts and Programming in C by D.S. Yadav and Rajeev Khanna, New Age International Publication.
11. Computer Concepts and Programming by Anami, Angadi and Manvi, PHI Publication.
12. Computer Concepts and Programming in C by Vikas Gupta, Wiley India Publication
13. Computer Fundamentals and Programming in C. Reema Thareja, Oxford Publication
14. Problem Solving and Programming in C, R.S. Salaria, Khanna Publishing House



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Programming for Problem Solving Lab(KCS-201 P)

1. WAP that accepts the marks of 5 subjects and finds the sum and percentage marks obtained by the student.
2. WAP that calculates the Simple Interest and Compound Interest. The Principal, Amount, Rate of Interest and Time are entered through the keyboard.
3. WAP to calculate the area and circumference of a circle.
4. WAP that accepts the temperature in Centigrade and converts into Fahrenheit using the formula $C/5=(F-32)/9$.
5. WAP that swaps values of two variables using a third variable.
6. WAP that checks whether the two numbers entered by the user are equal or not.
7. WAP to find the greatest of three numbers.
8. WAP that finds whether a given number is even or odd.
9. WAP that tells whether a given year is a leap year or not.
10. WAP that accepts marks of five subjects and finds percentage and prints grades according to the following criteria: Between 90-100%-----Print „A“ 80-90%-----Print „B“ 60-80%-----Print „C“ Below 60%-----Print „D“
11. WAP that takes two operands and one operator from the user and perform the operation and prints the result by using Switch statement.
12. WAP to print the sum of all numbers up to a given number.
13. WAP to find the factorial of a given number.
14. WAP to print sum of even and odd numbers from 1 to N numbers.
15. WAP to print the Fibonacci series.
16. WAP to check whether the entered number is prime or not.
17. WAP to find the sum of digits of the entered number.
18. WAP to find the reverse of a number.
19. WAP to print Armstrong numbers from 1 to 100.
20. WAP to convert binary number into decimal number and vice versa.
21. WAP that simply takes elements of the array from the user and finds the sum of these elements.
22. WAP that inputs two arrays and saves sum of corresponding elements of these arrays in a third array and prints them.
23. WAP to find the minimum and maximum element of the array.
24. WAP to search an element in a array using Linear Search.
25. WAP to sort the elements of the array in ascending order using Bubble Sort technique.
26. WAP to add and multiply two matrices of order nxn.
27. WAP that finds the sum of diagonal elements of a mxn matrix.
28. WAP to implement strlen (), strcat (),strcpy () using the concept of Functions.
29. Define a structure data type TRAIN_INFO. The type contain Train No.: integer type Train name: string Departure Time: aggregate type TIME Arrival Time: aggregate type TIME Start station: string End station: string The structure type Time contains two integer members: hour and minute. Maintain a train timetable and implement the following operations: (i) List all the trains (sorted according to train number) that depart from a particular section. (ii) List all the trains that depart from a particular station at a particular time. (iii) List all the trains that depart from a particular station within the next one hour of a given time. (iv) List all the trains between a pair of start station and end station.
30. WAP to swap two elements using the concept of pointers.
31. WAP to compare the contents of two files and determine whether they are same or not.
32. WAP to check whether a given word exists in a file or not. If yes then find the number of times it occurs.


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 In Pursuit of Excellence	Syllabus Adopted by the Program	SESSION-2019-2020
		SEM- 2nd

Syllabus

Pre-requisites:

The student should have basic Mathematics knowledge, Analytical and Logical skills.

KCS 201 Programming for Problem Solving

Unit I

Overview: Introduction to Computers: Generation of computers, Characteristic and classifications of computers.

Introduction to components of a computer system: Memory, processor, I/O Devices, storage, operating system, Concept of assembler, compiler, interpreter, loader and linker. Idea of Algorithm: Representation of Algorithm, Flowchart, Pseudo code with examples, From algorithms to programs, source code. Programming Basics: Structure of C program, writing and executing the first C program, Syntax and logical errors in compilation, object and executable code. Components of C language. Standard I/O in C, Fundamental data types, Variables and memory locations, Storage classes.

Unit II

Review: Brief review of Number System and operations performed on them

Arithmetic expressions and precedence: Operators and expression using numeric and relational operators, mixed operands, type conversion, logical operators, bit operations, assignment operator, operator precedence and associativity.

Bridging: Programs on operator and type casting

Conditional Branching: Applying if and switch statements, nesting if and else, use of break and default with switch.

Beyond: conversion of decimal, binary, octal and hexa-decimal

C program based on above concept

Unit III

Iteration and loops: use of while, do while and for loops, multiple loop variables, use of break and continue statements. Functions: Introduction, types of functions, functions with array, passing parameters to functions, call by value, call by reference, recursive functions.

Beyond: Need of "C" function, User Defined and Library Functions, Prototype of Function

C program based on above concept

Unit IV

Review: Tips and common programming errors.

Arrays: Array notation and representation, manipulating array elements, using multi dimensional arrays. Character arrays and strings, Structure, union, enumerated data types, Array of structures, Passing arrays to functions. Basic Algorithms: Searching & Basic Sorting Algorithms (Bubble, Insertion and Selection), Finding roots of equations, Notion of order of complexity.

Beyond: Array applications, String concepts


C program based on above concept

Unit V

Review: accessing the address of the variable, chain of pointers

Pointers: Introduction, declaration, applications, Introduction to dynamic memory allocation (malloc, calloc, realloc, free), Use of pointers in self-referential structures, notion of linked list (no implementation) File handling: File I/O functions, Standard C preprocessors, defining and calling macros, command-line arguments.

C program based on above concept


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References:


1. The C programming by Kernighan Brain W. and Ritchie Dennis M., Pearson Education.
2. Computer Concepts and Programming in C, E Balaguruswami, McGraw Hill


Additional References:

3. Let Us C By Yashwant P. Kanetkar.

Text Books:


4. Computer Concepts and Programming in C by D.S. Yadav and Rajeev Khanna, New AgeInternational Publication.


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 In Pursuit of Excellence	Course Objectives	SESSION-2019-2020
		SEM- 2nd

- To learn the fundamentals of computers.
- To understand the various steps in program development.
- To learn the syntax and semantics of C programming language.
- To learn the usage of structured programming approach in solving problems.



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 In Pursuit of Excellence	Course Outcomes	SESSION-2019-2020
		SEM- 2nd

Programming for Problem Solving		
Course Outcome (CO) as per the university-		Bloom's Knowledge Level (KL)
At the end of course , the student will be able to understand		
CO1	To develop simple algorithms for arithmetic and logical problems.	K5(Evaluate)
CO2	To translate the algorithms to programs & execution (in C language).	K2(Understand) K3(Apply)
CO3	To implement conditional branching, iteration and recursion.	K4(Analyze)
CO4	To decompose a problem into functions and synthesize a complete program using divide and conquer approach.	K4(Analyze)
CO5	To use arrays, pointers and structures to develop algorithms and programs.	K2(Understand)


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 <p>In Pursuit of Excellence</p>	<p align="center">Course Delivery Method</p>	<p>SESSION-2019-2020</p>
		<p>SEM- 2nd</p>

KCS 201 Programming for Problem Solving

Name of Subject: Programming for Problem Solving

Subject Code: KCS201

Branch: Computer Science & Engineering

Course Plan

Delivery Methods: Chalk & Talk, Power Point Presentation, Tutorials, Video Lectures, Analogy, solving Numericals/Design exercises, Practicals, assignments, Brainstorming, Group Discussion/Interactive session, Delivery through Simulation Software, Quiz

Coverage of

Unit 1 by: - Chalk & Talk, Tutorials, Analogy, solving numericals, Practicals, assignments

Unit 2 by: - Chalk & Talk, Tutorials, Analogy, solving numericals, Practicals, assignments


Unit 3 by: - Chalk & Talk, Tutorials, Analogy, solving numericals, Practicals, assignments

Unit 4 by: - Chalk & Talk, Tutorials, Analogy, solving numericals, assignments


Unit 5 by: - Chalk & Talk, Presentation, Tutorials, Group Discussions, brain storming question, assignment.

Video Lectures Link:

1. <https://youtu.be/My7ZJWmrFCo>
2. https://youtu.be/IGNaBY_WNwQ
3. <https://youtu.be/3JiTISMIEXw>
4. <https://youtu.be/pCKTwD7xVa4>
5. <https://youtu.be/HC2sc5sHHs4>
6. <https://youtu.be/UJ5J27bV8ew>
7. <https://youtu.be/uRuT92Hehzo>
8. <https://youtu.be/BqK-EqLLQoQ>
9. <https://youtu.be/76ydRQgnEGg>
10. <https://youtu.be/G2B1QevgTlw>
11. <https://youtu.be/eSblwcf6E-c>
12. https://youtu.be/ttHa_aWQhE8
13. <https://youtu.be/4Jnf3uuv7hk>
14. <https://youtu.be/2nsRfspwVhs>
15. <https://youtu.be/cv2-nlUowDw>
16. <https://youtu.be/-WZcHkdqNcs>
17. <https://youtu.be/mCoRikAhnFA>
18. <https://youtu.be/b-ggXVokpfl>
19. <https://youtu.be/DnpJ-2zzrA4>
20. <https://youtu.be/-IUwNxMOAM8>
21. <https://youtu.be/k-ZGQbCubCk>
22. <https://youtu.be/0Uc3wZ84eFk>


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 In Pursuit of Excellence	Mapping	SESSION-2019-2020
		SEM- 2nd

Mapping of Course Outcomes with POs & PSOs:

Sr. No	Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO 8	PO 9	PO 10	PO 11	PO 12	PS O1	PS O 2
1	CO 1	3	3	2	2	2				2	3				
2	CO 2	3	3	3	2	3				3	2				
3	CO 3	3	3	3	2	3				3	2				
4	CO 4	3	3	3	2	3				3	2				
5	CO 5	3	3	3	2	3				3	2				

*H(3)= High


*M(2)= Medium

*L(1)= Low

CO1	To develop simple algorithms for arithmetic and logical problems.
CO2	To translate the algorithms to programs & execution (in C language).
CO3	To implement conditional branching, iteration and recursion.
CO4	To decompose a problem into functions and synthesize a complete program using divide and conquer approach.
CO5	To use arrays, pointers and structures to develop algorithms and programs.


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 In Pursuit of Excellence	Time Table	SESSION-2019-2020
		SEM- 2nd

FACULTY NAME- MR. ABHINAV GUPTA

L T P TOTAL

w.e.f.- 21/01/2020

6 3 6 15

Day	9.00AM-10.00 AM	10.00AM-11.00 AM	11.00AM-12.00 NOON	12.00 AM-01.00 PM	01.00 PM-2.00 PM	2.00PM - 3.00 PM	3.00PM-4.00 PM	4.00PM-5.00 PM
MON				KCS-201 (L) 2 nd D A-301	L U N C H		KCS-201 P 2 nd D3 B-123	
TUE	KCS-201 (L) 2 nd D A-301					KCS-201 P 2 nd D1 B-123		
WED	KCS-201 (L) 2 nd D A-301							
THU							KCS-201 (L) 2 nd D A-301	KCS-201 (T) 2 nd D3 A-313
FRI	KCS-201 P 2 nd D2 B-123						KCS-201 (L) 2 nd D A-301	
SAT				KCS-201 (L) 2 nd D A-301			KCS-201 (T) 2 nd D1 A-301	KCS-201 (T) 2 nd D2 A-303

SUB CODE	SUBJECT NAME
KCS-201	Programming for Problem Solving
KCS-201 P	Programming for Problem Solving Lab


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In Pursuit of Excellence

Lecture Plan & Course Coverage

SESSION-2019-2020

SEM- 2nd

Total Period: 40

Section D

Sr. No.	No. of Periods	Topics/Sub Topics	Reference Books	CO Covered	Planned Date	Coverage Date	Sign
1.	1	Introduction to components of a computer system Overview: Characteristic&classifications of computers.	T1	CO1	21/01/20	21/01	Ms.
2.	2	Memory, Processor, I/O devices, Storage, Overview: Generation of computers Operating System	T1,R1	CO1	22/01/20	22/01	Ms.
3.	3	Concept of Assembler, Compiler,Interpreter, Loader and Linker	T2	CO1	23/01/20	23/01 24/01	Ms.
4.	4	Idea of algorithm: Representation of Algorithm, Flow chart	R1,R2	CO1	24/01/20	25/01	Ms.
5.	5	Pseudo code, from algorithm to program, source code	T1	CO1	25/01/20	27/01	Ms.
6.	6...7	Programming basic: Structure of c program, writing and executing the first c program, syntax and logical error	T2	CO1	27/01/20 And 28/01/20	27/01 28/01 29/01	Ms. Ms.
7.	8	Object and executable code, components of C language, standard I/O in C	T2	CO1	29/01/20	30/01	Ms.
8.	9...10	Fundamental data types, variables and memory locations, Storage Classes	T1,R2	CO2	30/01/20 And 31/01/20	31/01, 01/02	Ms.
9.	11	Arithmetic expressions and precedence	T1	CO2	01/02/20	03/02	Ms.
10.	12	Operators and expression	T2,R1	CO2	03/02/20	04/02 05/02	Ms.
11.	13	using numeric and relational operators Beyond: conversion of decimal, binary, octal and hexa-decimal	T1	CO2	04/02/20	06/02 07/02	Ms. Ms.
13.	14	mixed operands, type conversion	R1	CO2	05/02/20	08/02	Ms.
14.	15	logical operators	T1, R1	CO2	06/02/20	10/02	Ms.
15.	16	bit operations, assignment operator	T2	CO2	07/02/20	11/02	Ms.
16.	17	operator precedence and associativity Bridging: Programs on operator and type casting	T2,RA	CO2	08/02/20	12/02	Ms.

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17.	18	Conditional Branching: Applying if and switch statements	T1	CO2	10/02/20	13/02	Ms.
18.	19	nesting if and else	T1	CO2	11/02/20	14/02	Ms.
19.	20	use of break and default with switch	T1,T2	CO2	12/02/20	15/02	Ms.
20.	21	Iteration and loops: use of while	T1,R1	CO3	13/02/20	17/02	Ms.
21.	22	do while and for loops	T2	CO3	14/02/20	18/02	Ms.
22.	23	multiple loop variables, use of break and continue statements	T1	CO3	15/02/20	19/02	Ms.
23.	24...25	Functions: Introduction, types of functions Beyond: Need of "C" function, User Defined and Library Functions, Prototype of Function	T1	CO3	17/02/20 And 18/02/20	20/02 22/02	Ms. Ms.
24.	26	functions with array, passing parameters to functions	R1,R2	CO3	19/02/20	27/02	Ms.
25.	27	call by value, call by reference, recursive functions	T1	CO3	20/02/20	28/02	Ms.
26.	28...29	Arrays: Array notation and representation, manipulating array elements, using multi dimensional arrays. Beyond: Array applications	T2	CO4	22/02/20 And 27/02/20	29/02 02/03	Ms. Ms.
27.	30	Character arrays and strings, Structure, union, enumerated data types	T1,R1	CO4	28/02/20	03/03	Ms.
28.	31	Array of structures, Passing arrays to functions.	T2,R1	CO4	29/02/20	04/03	Ms.
29.	32	Basic Algorithms: Searching & Basic Sorting Algorithms	T1	CO4	02/03/20	05/03	Ms.
30.	33	Bubble, Insertion and Selection	T2	CO4	03/03/20	06/03	Ms.
31.	34	Finding roots of equations, Notion of order of complexity Beyond: String concepts	T1,R1	CO4	04/03/20	7/03 12/03	Ms.
32.	35	Pointers: Introduction, declaration, applications	T2	CO5	05/03/20	13/03	Ms.
32.	36	Introduction to dynamic memory allocation (malloc, calloc, realloc, free)	T1	CO5	06/03/20	21/03	Ms.
33.	37...38	Use of pointers in self-referential structures, notion of linked list	T1	CO5	07/03/20 And 12/03/20	24/03 25/03	Ms. Ms.
34.	39	File handling: File I/O functions, Standard C preprocessors	R1	CO5	13/03/20	26/03	Ms.
35.	40	defining and calling macros, command-line arguments	R1,R2	CO5	21/03/20	27/03	Ms.


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 In Pursuit of Excellence	Tutorial-1 & Assignment-1	SESSION-2019-2020
		SEM-1 st

Tutorial-1 & Assignment-1 [CO-1]

Sr. No.	No. of Periods	Topics/Sub Topics	Coverage Date			Sign
			Section D			
			D1	D2	D3	
1.	1	Introduction to components of a computer system: Memory, processor, I/O Devices, storage, operating system, assembler, compiler, interpreter, loader and linker	25/01	25/01	23/01	

Tutorial-1

1. Explain the Digital Computer with its block diagram and also explain its components.
2. Define Assembler, Compiler, Interpreter, Loader and Linker.
3. What is operating system? Explain all type of operating system.

Assignment-1

4. Explain the primary memory used in digital computer.
5. Explain System Software and Application Software.
6. Describe the services provided by the operating system.
7. Differentiate Linker and Loader.
8. Describe the internal management function of the operating system.


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 In Pursuit of Excellence	Tutorial-2 & Assignment-2	SESSION-2019-2020
		SEM- 2nd

Tutorial-2 & Assignment-2 [CO-1]

Sr. No.	No. of Periods	Topics/Sub Topics	Coverage Date			Sign
			Section D			
			D1	D2	D3	
1.	1	Algorithm, Flowchart, Pseudo code, Structure of C program, Syntax and logical errors, object and executable code. Components of C language. Standard I/O in C	01/02	01/02	30/01	

Tutorial-2

1. Define Algorithm and its characteristics.
2. What is flow chart? Define all its symbols with suitable example.
3. Explain the structure of C program with its diagram.


Assignment-2


4. Draw the memory hierarchical structure of a computer system in details of every memory.
5. Explain pseudo code with its advantage and disadvantage.
6. What is the difference between syntax and logical error.
7. Write the short note on object code and executable code.
8. Write the all commands used in gcc compiler.
9. Give the examples of syntax error and logical error.
10. Write the name of formatted and unformatted input and output function used in c language.


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 In Pursuit of Excellence	Tutorial-3 & Assignment-3	SESSION-2019-2020
		SEM- 2nd

Tutorial-3 & Assignment-3 [CO-2]

Sr. No.	No. of Periods	Topics/Sub Topics	Coverage Date			Sign
			Section D			
			D1	D2	D3	
1.	1	Fundamental data type, operator, associativity,mixed operands type conversion, decision control statement	08/02	08/02	06/02	

Tutorial-3


1. What is data type? Explain all types of data type with its keywords, format specifier, Range and size.
2. What is Operator? Explain all operators with its associativity.
3. Discuss the type conversion in C in detail.
4. WAP in C to find out the entered year is leap or not.

Assignment-3


5. What do understand by sizeof operator, explain it with suitable example? Also explain the special operator in detail.
6. Explain increment and decrement operator with at least two examples of each operator.
7. Solve the equation: (i) $--3 * 3 + 4 / 2 - 5 ++ * 4$ (II) $6 != 5 \&\& 7 < 8 \&\& 9 > 10$
8. What do you understand by ternary Operator, explain with example.
9. Explain the decision control statement with suitable example.


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 In Pursuit of Excellence	Tutorial-4 & Assignment-4	SESSION-2019-2020
		SEM- 2nd

Tutorial-4 & Assignment-4 [CO-2]

Sr. No.	No. of Periods	Topics/Sub Topics	Coverage Date			Sign
			Section D			
			D1	D2	D3	
1.	1	Storage class, switch case, nested if condition, use of default and break,	15/02	15/02	13/02	AS,

Tutorial-4

1. What do you understand by storage class, Explain?
2. Explain the Switch – Case statement with suitable example.
3. What do you mean by nested if statement? Explain it with flow chart.
4. WAP in C to print the reverse number, also check it with the given number that , either it is same or not.

Assignment-4


5. Describe the role of default and break statement in switch.
6. What is the scope of local and global variable in C.
7. What do you mean by escape sequence character, Explain?
8. If int a=2, b=3, x=0; find the value of x= (++a, b +=a).
9. Find the difference between local and global variable.

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 In Pursuit of Excellence	Tutorial-5 & Assignment-5	SESSION-2019-2020
		SEM- 2nd

Tutorial-5 & Assignment-5 [CO-3]

Sr. No.	No. of Periods	Topics/Sub Topics	Coverage Date			Sign
			Section D			
			D1	D2	D3	
1.	1	Iteration, for, while and do while loop, nested loop	22/02	22/02	20/02	

Tutorial-5

1. Explain FOR loop with a program to print series starting from 1 to n terms.
2. WAP to print the Fibonacci series up to n given number.
3. Write a program to print the FOLLOWING pattern:


```

1
2   3
4   5   6
7   8   9   10

```


Assignment-5


4. Differentiate between pre test and post test loop with the help of syntax.
5. Write a Program to reverse the digit using while loop.
6. WAP in C to display the prime numbers between 10 and 50.
7. What do you mean by break statement? How it is differ then continue.
8. Write a program to multiply a given number by 4 using bitwise operators.


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 In Pursuit of Excellence	Tutorial-6 & Assignment-6	SESSION-2019-2020
		SEM- 2nd

Tutorial-6 & Assignment-6 [CO-3]

Sr. No.	No. of Periods	Topics/Sub Topics	Coverage Date			Sign
			Section D			
			D1	D2	D3	
1.	1	Loops, function and its type, calling methods, recursive function, programs	29/02	29/02	27/02	Ms.

Tutorial-6

1. WAP in C to display the palindrome numbers between 1 and 100.
2. WAP in C to display the armstrong numbers between 1 and 200.
3. What is function? Explain all types of functions used in C.


Assignment-6


4. Find the difference between actual and formal argument.
5. What do you understand by Call by Value and Call by reference? Explain with suitable example.
6. Explain the function declaration, function calling and function definition with example.
7. What is recursion? WAP that recursively calculate the factorial of a number.
8. WAP to print the sum of natural number / factorial of number up to nth term.
9. WAP to print the Fibonacci series up to nth term using recursive function


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

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 In Pursuit of Excellence	Tutorial-7 & Assignment-7	SESSION-2019-2020
		SEM- 2nd

Tutorial-7 & Assignment-7 [CO-4]

Sr. No.	No. of Periods	Topics/Sub Topics	Coverage Date			Sign
			Section D			
			D1	D2	D3	
1.	1	Array, one and two dimensional, structure, quadratic equation, programs, union	07/03	07/03	05/03	

Tutorial-7


1. What is array? Explain one-dimensional, two-dimensional and multi-dimensional array in details.
2. What is structure? Explain with suitable example.
3. WAP in C to find out the roots of quadratic equation.

Assignment-7


4. WAP to find out the multiplication of two $n \times m$ given matrix.
5. WAP to find out the minimum and maximum element of array.
6. WAP to convert the two dimensional array into one dimensional array.
7. Declare a structure of 20 students called student which contains the following information - roll_no, age, marks and write a program in C to list all students who scored more than 75 marks.
8. What is the difference between structure and union.


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 In Pursuit of Excellence	Tutorial-8 & Assignment-8	SESSION-2019-2020
		SEM- 2nd

Tutorial-8 & Assignment-8 [CO-4]

Sr. No.	No. of Periods	Topics/Sub Topics	Coverage Date			Sign
			Section D			
			D1	D2	D3	
1.	1	Sorting method- bubble, insertion, selection, searching method- linear and binary, enumerated data type, notion of complexity	21/03	21/03	05/03	

Tutorial-8

1. Explain Bubble Sort? WAP of Bubble sort.
2. Write an algorithm of insertion sort with its flow chart.
3. WAP of Selection Sort with its algorithm.

Assignment-8


4. What do you understand by Linear Search in an array? Explain it with suitable example.
5. Write an algorithm of Binary search with suitable example.
6. WAP in C to find the total number of words in a given sentence.
7. What do you mean by enumerated data type? Write a C program to display month in the year using ENUM.
8. Explain the notion of complexity in details.


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 In Pursuit of Excellence	Tutorial-9 & Assignment-9	SESSION-2019-2020
		SEM- 2nd

Tutorial-9 & Assignment-9 [CO-5]


Sr. No.	No. of Periods	Topics/Sub Topics	Coverage Date			Sign
			Section D			
			D1	D2	D3	
1.	1	Pointer, pointer to pointer, dynamic memory allocation, linked list, standard c pre-processor, file handling	28/03	28/03	09/04	

Tutorial-9


1. What is pointer? Explain with suitable Example.
2. What is pointer to pointer? Explain with suitable example.
3. What is Dynamic Memory in Programming Language C

Assignment-9


4. Explain malloc(), calloc(), free(), realloc() in dynamic memory allocation in C using program.
5. What is linked list and where it can be used.
6. What is standard C Pre-processor, Explain?
7. Define Macro with suitable example.
8. Explain all the function used in file handling operation.
9. WAP to copy contents of one file into another file using file handling.


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 In Pursuit of Excellence	Tutorial-10 & Assignment-10	SESSION-2019-2020
		SEM- 2nd

Tutorial-10 & Assignment-10 [CO-5]

Sr. No.	No. of Periods	Topics/Sub Topics	Coverage Date			Sign
			Section D			
			D1	D2	D3	
1.	1	Command line arguments method, gcc compiler, self referential pointer, preprocessor directives	04/04	04/04	09/04	MS

Tutorial-10


1. What do you understand by command line argument? What are the properties of command line argument?
2. What is the difference between the Turbo C++ compiler and GCC Compiler?.
3. Explain self referential pointer in link list.


Assignment-10

4. What is difference between gets() and puts() function in C.
5. What are pre-processor directive? Explain any three of them.
6. Describe the relation between structure and pointer.
7. What is special about void pointer.


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In Pursuit of Excellence

List of Students

SESSION-2019-2020

SEM- 2nd

B. Tech. 2nd Semester [2019 – 20]

SECTION-D

Branch – CE, EC, EE, ME, CS

S.No	St. No.	ROLL. No	Name	Father's Name	Branch	Mob. No
1.	1940131	1900820400002	Arun Yadav	Hariom Singh Yadav	ME	7599611238
2.	1940195	1900820400003	Avee Pandey	Arun Pandey	ME	7017990066, 9412623834
3.	1940182	1900820400004	Chandra Prakash	Umeshchand	ME	8475930125
4.	1940245	1900820400005	Deepak Saini	Dal Chand Saini	ME	8057064653
5.	1940194	1900820400007	Harish Pal	Moolchand Singh	ME	9634245583
6.	1940081	1900820400008	Himanshu Singh	Ravi Kumar	ME	8859580579
7.	1940215	1900820400009	Hitesh Chauhan	Dayaram Singh	ME	7500465403
8.	1940116	1900820400011	Kaushal Nagar	Mr. Sunil Kumar	ME	9548696765
9.	1940047	1900820400013	Manikya Agarwal	Suraj Agarwal	ME	9870857960
10.	1940132	1900820400014	Mohd. Aasim	Haji Yameen	ME	9634856430
11.	1940243	1900820400015	Mohd. Saif	Khushbu Ali	ME	9639011433
12.	1940145	1900820400016	Noor Alam	Mohd. Raffi	ME	8865033034
13.	1940046	1900820400017	Pandit Swarnim Sharma	Ajay Kumar Sharma	ME	8077973817
14.	1900027	1900820000002	Hemendra Singh	Vishv Kumar Singh	CE	7668676028
15.	1900020	1900820000004	Manveer Singh Bedi	Gurmeet Singh Bedi	CE	9568055000
16.	1900168	1900820000006	Mohd. Anas	Mohammad Rafeeq	CE	7351052723
17.	1900250	1900820000005	Mohammad Danish	Shameem Ahmad	CE	9412391458
18.	1900076	1900820000007	Mohd. Shahrukh	Mohd. Yusuf	CE	9012289460
19.	1920235	1900820200002	Aayushmann Parashar	Jitendra Parashar	EE	9412144838
20.	1920165	1900820200003	Arin Singh	Nempal Singh	EE	7409743775
21.	1922041	1900820200004	Bhoomika Rana	Mahipal Singh	EE	9720146904
22.	1920216	1900820200005	Harshit Kumar Khardonia	Nanhey Singh	EE	9410866019
23.	1920077	1900820200006	Kanishka Singh	Surendra Singh Goley	EE	9412411417
24.	1920242	1900820200002	Kaushik Chauhan	Rakesh Singh	EE	9761575550
25.	1931192	1900820310001	Arvind Chauhan	Harilala Chauhan	EC	9839414582
26.	1931054	1900820310002	Ashish Rana	Murari Lal Rana	EC	9927065669
27.	1931151	1900820310003	Bawar Husain	Moeen Husain	EC	9412636016
28.	1931058	1900820310004	Dharmendra	Rajaram	EC	9675397314
29.	1931111	1900820310005	Divyanshu Sharma	Vinod Kumar Sharma	EC	9568979769
30.	1931150	1900820310006	Mohammad Zubeen	Mohammad Shamm	EC	9760892114
31.	1931205	1900820310007	Preet Sharma	Subhash Chand Sharma	EC	7310796811
32.	1910210	1900820100154	Unnati Gupta	Vipin Kumar Gupta	CS	9837920384
33.	1910034	1900820100155	Urvashi Rastogi	Ankur Rastogi	CS	7579585868


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34.	1910240	1900820100156	Utkarsh Kaushik	Pawan Kaushik	CS	7017110563, 6397268108
35.	1910083	1900820100157	Utkarsh Mishra	Ram Ji Mishra	CS	9760624920, 9808908084
36.	1910155	1900820100159	Utkarsh Tomar	Pawan Kaushik	CS	8630607614
37.	1910107	1900820100158	Utkarsh Tyagi	Sanjay Kumar Tyagi	CS	9958136377, 9058005651
38.	1910143	1900820100160	Vaibhav Dixit	Rajeev Kr. Sharma	CS	8272814760, 9756366780
39.	1910125	1900820100161	Vaishali Mathur	Vineet Kr. Mathur	CS	9411946221, 9412523150
40.	1910122	1900820100162	Vanshika Singh	Sandeep Singh	CS	9410828380
41.	1910050	1900820100163	Veerpal Singh	Horam Singh	CS	8279452606, 9149204368
42.	1910158	1900820100164	Vidit Agarwal	Manoj Kr. Agarwal	CS	9027977461, 8279783012
43.	1910005	1900820100172	Yashika Rohilla	Amit Rohilla	CS	7983178945
44.	1810212	1808210035	Arpit Verma	Ashok Babu	CS Re Adm	9456429202
45.	1810031	1808210169	Vishal Kumar	Pitamber Singh	CS Re Adm	7300766334
46.	1810193	1808210112	Piyush Sharma	Vipin Sharma	CS Re Adm	8791177425

Batch - D 1	ME+CE
Batch - D 2	EE+EC
Batch - D 3	CS


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In Pursuit of Excellence

Record of Monthly Attendance

SESSION-2019-2020

SEM- 2nd

Attendance Register. Dates From: 21-01-2020 to 22-02-2020

SECTION-D

S.No.	Name	held(L+T)	Att	(%age)
1	Arun Yadav	33	16	48.5
2.	Avee Pandey	33	28	84.8
3.	Chandra Prakash	33	32	97
4.	Deepak Saini	33	28	84.8
5.	Harish Pal	33	23	69.7
6.	Himanshu Singh	33	30	90.9
7.	Hitesh Chauhan	33	21	63.6
8.	Kaushal Nagar	33	26	78.8
9.	Manikya Agarwal	33	31	93.9
10.	Mohd. Aasim	33	16	48.5
11.	Mohd. Saif	33	27	81.8
12.	Noor Alam	33	22	66.7
13.	Pandit Swarnim Sharma	33	15	45.5
14.	Hemendra Singh	33	19	57.6
15.	Manveer Singh Bedi	33	21	63.6
16.	Mohd. Anas	33	26	78.8
17.	Mohammad Danish	33	19	57.6
18.	Mohd. Shahrukh	33	27	81.8
19.	Aayushmann Parashar	33	26	78.8
20.	Arin Singh	33	14	42.4
21.	Bhoomika Rana	33	30	90.9
22.	Harshit Kumar Khardonia	33	27	81.8
23.	Kanishka Singh	33	30	90.9
24.	Kaushik Chauhan	33	22	66.7
25.	Arvind Chauhan	33	22	66.7
26.	Ashish Rana	33	24	72.7
27.	Bawar Husain	33	25	75.8
28.	Dharmendra	33	22	66.7
29.	Divyanshu Sharma	33	23	69.7
30.	Mohammad Zubeen	33	30	90.9
31.	Preet Sharma	33	24	72.7
32.	Unnati Gupta	33	32	97
33.	Urvashi Rastogi	33	28	84.8
34.	Utkarsh Kaushik	33	19	57.6


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35.	Utkarsh Mishra	33	32	97
36.	Utkarsh Tomar	33	27	81.8
37.	Utkarsh Tyagi	33	19	57.6
38.	Vaibhav Dixit	33	18	54.5
39.	Vaishali Mathur	33	24	72.7
40.	Vanshika Singh	33	31	93.9
41.	Veerpal Singh	33	27	81.8
42.	Vidit Agarwal	33	27	81.8
43.	Yashika Rohilla	33	31	93.9
44.	Arpit Verma	33	23	69.7
45.	Vishal Kumar	33	16	48.5
46.	Piyush Sharma	33	18	54.5

Attendance Register. Dates From: 21-01-2020 to 29-04-2020

SECTION-D

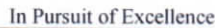
S.No.	Name	held(L+T)	Att	(%age)
1	Arun Yadav	78	57	73.1
2.	Avee Pandey	78	68	87.2
3.	Chandra Prakash	78	72	92.3
4.	Deepak Saini	78	68	87.2
5.	Harish Pal	78	59	75.6
6.	Himanshu Singh	78	71	91
7.	Hitesh Chauhan	78	61	78.2
8.	Kaushal Nagar	78	65	83.3
9.	Manikya Agarwal	78	74	94.9
10.	Mohd. Aasim	78	55	70.5
11.	Mohd. Saif	78	68	87.2
12.	Noor Alam	78	63	80.8
13.	Pandit Swarnim Sharma	78	54	69.2
14.	Hemendra Singh	78	58	74.4
15.	Manveer Singh Bedi	78	63	80.8
16.	Mohd. Anas	78	66	84.6
17.	Mohammad Danish	78	57	73.1
18.	Mohd. Shahrukh	78	64	82.1
19.	Aayushmann Parashar	78	65	83.3
20.	Arin Singh	78	55	70.5
21.	Bhoomika Rana	78	73	93.6
22.	Harshit Kumar Khardonia	78	69	88.5
23.	Kanishka Singh	78	72	92.3
24.	Kaushik Chauhan	78	64	82.1
25.	Arvind Chauhan	78	60	76.9
26.	Ashish Rana	78	64	82.1


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27.	Bawar Husain	78	63	80.8
28.	Dharmendra	78	63	80.8
29.	Divyanshu Sharma	78	65	83.3
30.	Mohammad Zubeen	78	72	92.3
31.	Preet Sharma	78	65	83.3
32.	Unnati Gupta	79	77	97.5
33.	Urvashi Rastogi	79	68	86.1
34.	Utkarsh Kaushik	79	59	74.7
35.	Utkarsh Mishra	79	73	92.4
36.	Utkarsh Tomar	79	73	92.4
37.	Utkarsh Tyagi	79	62	78.5
38.	Vaibhav Dixit	79	58	73.4
39.	Vaishali Mathur	79	69	87.3
40.	Vanshika Singh	79	74	93.7
41.	Veerpal Singh	79	67	84.8
42.	Vidit Agarwal	79	71	89.9
43.	Yashika Rohilla	79	76	96.2
44.	Arpit Verma	79	65	82.3
45.	Vishal Kumar	79	58	73.4
46.	Piyush Sharma	79	60	75.9


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SESSION-2019-2020

SEM- 2nd

Course: B.Tech.

Semester: 2nd

Subject: Programming For Problem Solving

Subject Code: KCS-201

Time: 1 hr 15 min.


Section A (6 Marks)

- | | | |
|-----|--|--------|
| Q1. | Differentiate operator precedence and associativity. WAP in C to elaborate the use of logical AND operator. | 2 Mark |
| Q2. | Define the term mixed operands in an arithmetic expression with few examples. WAP in C to elaborate the use of type casting. | 2 Mark |
| Q3. | Explain the use of default in switch statement. WAP in C that takes two operands and one operator from the user and performs only addition and modulus operation and print the result by using case control statement. | 2 Mark |

Section B (9 Marks)

- | | | |
|-----|--|--------|
| Q4. | WAP in C to print the following pattern with appropriate comments: | 3 Mark |
| | <pre> 10 <u>OR</u> 1 9 8 2 3 7 6 5 4 5 6 4 3 2 1 7 8 9 10 </pre> | |
| Q5. | WAP in C to check palindrome number entered by the user. | 3 Mark |
| Q6. | Explain function declaration, function definition and function calling statement. WAP in C to swap two numbers entered by the user using call by value and call by reference method. | 3 Mark |

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 In Pursuit of Excellence	Class Test Paper	SESSION-2019-2020
		SEM- 2nd

MORADABAD INSTITUTE OF TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING
SESSIONAL TEST -2nd

Course: B.Tech.

Session: 2019-20

Subject: Programming For Problem Solving

Max. Marks: 15

Semester: 2nd

Section: D/E

Subject Code: KCS-201

Time: 1 hr 15 min.

Q.No. :	1	2	3	4	5	6
CO No. :	4	4	4	4	4	4


Section A (6 Marks)

- Q1. Define the union, and also explain its difference with structure with example. 2 Mark
- Q2. Define the order of complexity, and also explain any one notion to represent order of complexity with diagram. 2 Mark
- Q3. Explain the enumerated data type with example. 2 Mark

Section B (9 Marks)

- Q4. Write a program in C to input two 3x3 matrix from the user and print multiplication as the result in matrix form. (Write comments at the appropriate places in the program.) 3 Mark
- Q5. Explain the importance of structure in C programming. Write a program in C using structure to enter and print the record of 10 books available in your library. Following fields may be included in the record:- book_title, book_price and number_of_pages. 3 Mark


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 In Pursuit of Excellence	Class Test Marks	SESSION-2019-2020
		SEM- 2nd

SECTION-D KCS-201 CT-1

S. No.	Roll No.	Name	Max. Marks						Total
			Q. 1	Q. 2	Q. 3	Q. 4	Q. 5	Q. 6	
			2	2	2	3	3	3	
1	1900820400002	Arun Yadav	A						-
2	1900820400003	Avee Pandey	1.5	1	1.5	1	1	3	9
3	1900820400004	Chandra Prakash	0.5		0.5	0	0	1	2
4	1900820400005	Deepak Saini	1		1	2.5	0	2	6.5
5	1900820400007	Harish Pal	2	0	2	1	2	1.5	8.5
6	1900820400008	Himanshu Singh	1	1.5	2	2	3	3	12.5
7	1900820400009	Hitesh Chauhan	A						-
8	1900820400011	Kaushal Nagar	A						-
9	1900820400013	Manikya Agarwal	2	1	1.5	3	3	3	13.5
10	1900820400014	Mohd. Aasim	A						-
11	1900820400015	Mohd. Saif	2		1.5	3	2.5	3	12
12	1900820400016	Noor Alam	A						-
13	1900820400017	Pandit Swarnim Sharma	A						-
14	1900820000002	Hemendra Singh	A						-
15	1900820000004	Manveer Singh Bedi	A						-
16	1900820000006	Mohd. Anas	2	0	1	1	3	3	10
17	1900820000005	Mohammad Danish	A						-
18	1900820000007	Mohd. Shahrukh				1	1	1	3
19	1900820200002	Ayushmann Parashar	1.5		1.5			0.5	3.5
20	1900820200001	Arin Singh	A						-
21	1900820200003	Bhoomika Rana	2	2	1.5	0	1	2.5	9
22	1900820200004	Harshit Kumar Khardonja	2	1	2	3	3	2.5	13.5
23	1900820200005	Kanishka Singh	1.5	0.5	1	1	1		5
24	1900820200006	Kaushik Chauhan			0.5	0	0	0	0.5
25	1900820310001	Arvind Chauhan	0		0	1		1	2
26	1900820310002	Ashish Rana	A						-


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27	1900820310003	Bawar Husain	0		0.5	1	0	1	2.5
28	1900820310004	Dharmendra Rana	A						-
29	1900820310005	Divyanshu Sharma	2		2	3	3	2	12
30	1900820310006	Mohammad Zubeen	2	2	1.5	0	3	2.5	11
31	1900820310007	Preet Sharma	A						-
32	1900820100154	Unnati Gupta	2	0	0.5	1	2.5	3	9
33	1900820100155	Urvashi Rastogi	1	0	0.5	1.5	1	1.5	5.5
34	1900820100156	Utkarsh Kaushik	A						-
35	1900820100157	Utkarsh Mishra	1.5	0	1	0.5	0.5	1	4.5
36	1900820100159	Utkarsh Tomar	0.5	0	0.5	0.5	1	0.5	3
37	1900820100158	Utkarsh Tyagi	1		1.5	3	3	1.5	10
38	1900820100160	Vaibhav Dixit	A						-
39	1900820100161	Vaishali Mathur	1.5	0.5	1	2	3	1.5	9.5
40	1900820100162	Vanshika Singh	2	1	2	3	3	2.5	13.5
41	1900820100163	Veerpal Singh	2	0	1	1	3	0.5	7.5
42	1900820100164	Vidit Agarwal	A						-
43	1900820100172	Yashika Rohilla	2	1	1	3	2	2	11
44	1808210035	Arpit Verma	A						-
45	1808210169	Vishal Kumar	A						-
46	1808210112	Piyush Sharma	A						-

SECTION-D KCS-201 CT-2


S. No.	Roll No.	Name	Max. Marks						Total
			Q. 1	Q. 2	Q. 3	Q. 4	Q. 5	Q. 6	
			2	2	2	3	3	3	
1	1900820400002	Arun Yadav	2	2	2	2	1	1	10
2	1900820400003	Avee Pandey	2	2	2		3	3	12
3	1900820400004	Chandra Prakash	1	1	2	1	1		6
4	1900820400005	Deepak Saini	2	2	2	3		1	10
5	1900820400007	Harish Pal	2	2	2	3	2	3	14
6	1900820400008	Himanshu Singh	2	2	2	2	3	3	14
7	1900820400009	Hitesh Chauhan	2	2	2	3	2	3	14
8	1900820400011	Kaushal Nagar	2	2	2	2	2	3	13
9	1900820400013	Manikya Agarwal	2	2	2	3	2	3	14
10	1900820400014	Mohd. Aasim	1		2	2	3	2	10
11	1900820400015	Mohd. Saif	2	2	1	3	3	3	14
12	1900820400016	Noor Alam	2	2	2	3	2	3	14
13	1900820400017	Pandit Swarnim Sharma	2	2	2	1	3	2	12
14	1900820000002	Hemendra Singh	2	1	2	3	2	2	12
15	1900820000004	Manveer Singh Bedi			2	3	2	2	9
16	1900820000005	Mohd. Anas	1			3	3	3	10
17	1900820000006	Mohammad Danish	1		1	2	2	1	7

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18	1900820000007	Mohd. Shahrukh	1		1	1	2	2	7
19	1900820200002	Ayushmann Parashar	2	1	2	3	2	2	12
20	1900820200001	Arin Singh	1	1	2	2		2	8
21	1900820200003	Bhoomika Rana	2	2	2	3	3	2	14
22	1900820200004	Harshit Kumar Khardonia	2		1	3	2	3	11
23	1900820200005	Kanishka Singh	2	2	2	3	2	1	12
24	1900820200006	Kaushik Chauhan	2	1	2	2	0	1	8
25	1900820310001	Arvind Chauhan	2	2	2	1		0	7
26	1900820310002	Ashish Rana	2	2	2	3	3	2	14
27	1900820310003	Bawar Husain	2	2	1	2	2	3	12
28	1900820310004	Dharmendra Rana	A						-
29	1900820310005	Divyanshu Sharma	2	2	2	2	3	3	14
30	1900820310007	Mohammad Zubeen	2	2	2	3	1	3	13
31	1900820310008	Preet Sharma	2	1	2	3		1	9
32	1900820100154	Unnati Gupta	2	2	2	2	3	3	14
33	1900820100155	Urvashi Rastogi	2	2	2	1	3	3	13
34	1900820100156	Utkarsh Kaushik	2	2	2	3		2	11
35	1900820100157	Utkarsh Mishra	2	2	2	2	3	3	14
36	1900820100159	Utkarsh Tomar	2	2	1	2	2	2	11
37	1900820100158	Utkarsh Tyagi	2	2	2	2	3	2	13
38	1900820100160	Vaibhav Dixit	2	2		1	1		6
39	1900820100161	Vaishali Mathur	2	2	2	2	3	3	14
40	1900820100162	Vanshika Singh	2	2	2	3	3	3	15
41	1900820100163	Veerpal Singh	2	2	2	3	1	1	11
42	1900820100164	Vidit Agarwal	2	2	2	1	3	1	11
43	1900820100172	Yashika Rohilla	2	2	2	2	2	3	13
44	1808210035	Arpit Verma	2	2	1	2	3	2	12
45	1808210169	Vishal Kumar	2	2	1	2	3	2	12
46	1808210112	Piyush Sharma	2	2	1	2	3	2	12


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 In Pursuit of Excellence	List of Weak Students (Action taken for Improvement)	SESSION-2019-2020
		SEM- 2nd

SECTION D

S.No.	Name
1	Arun Yadav
2	Chandra Prakash
3	Kaushal Nagar
4	Mohd. Aasim
5	Pandit Swarnim Sharma
6	Hemendra Singh
7	Manveer Singh Bedi
8	Mohammad Danish
9	Mohd. Shahrukh
10	Arin Singh
11	Kaushik Chauhan
12	Arvind Chauhan
13	Dharmendra Rana
14	Preet Sharma
15	Utkarsh Kaushik
16	Vaibhav Dixit
17	Vidit Agarwal
18	Arpit Verma
19	Vishal Kumar
20	Piyush Sharma

Action Taken

1. Special focus in tutorial class via motivation and Q/A discussions.
2. Extra slots assign to them on Wednesday and Saturday 2pm.
3. Providing question bank



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For Weak Students

- Q1. Explain the types of functions and WAP to swap (interchange) values using call by value and call by address.
- Q2. What do you mean by recursion? Illustrate the use of recursive functions with an example (factorial, Fibonacci and number/factorial of series) of recursive function.
- Q3. What do you mean by Macro also explain its type with examples?
- Q4. WAP to sort the elements in the list by using bubble, insertion and selection sort algorithm.
- Q5. What is command line argument explain with suitable example?
- Q6. Program: WAP to print Sum of Digits, Prime Number, Armstrong, Reverse and Palindrome for a digit or range.
- Q7. Explain the Digital computer with the help of block diagram and also explain its components.
- Q8. WAP to input two $n \times n$ matrices and print the final matrix after multiplying them. And if dimensions are different then check ($row1 == col2$)
- Q9. Define the concept of Pointer? Also explain the dynamic memory allocation and various functions for dynamic memory allocation with suitable examples.
- Q10. List out various file handling function and modes in C. WAP to copy the content from one file to another file.
- Q11. Declare a structure of 20 students called student which contains the following information—roll_no, age, marks and write a program in C to list all students who scored more than 75 marks.
- Q12. Concept of algorithm and flow charts→
- Largest among 3 numbers using conditional operator
 - Factorial
 - Fibonacci series
- Q13. Storage classes- automatic, register, static and external with table and examples.
- Q14. Explain Implicit and explicit type conversion for mixed operands with examples.
- Q15. Explain switch statements and the role of break in switch case with an example.
- Q16. Discuss various fundamental data types used in C with suitable examples.
- Q17. Explain --
- High Level Language and Low Level Language
 - Compiler, Interpreter and Assembler
 - Loader and Linker.
- Q18. Explain the operator precedence and associativity with the help of precedence table.
- Q19. Explain the following:
- Difference between while and do while
 - Difference between break and continue statements.
 - Difference between structure and union in C .
- Q20. Explain the following:
- Explain the Structure of C program.
 - Explain Fundamental data types.
- Notion of order of complexity


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 In Pursuit of Excellence	List of Bright Students (Action taken for enhancing performance)	SESSION-2019-2020
		SEM- 2nd

SECTION D

S.No.	Name
1	Avee Pandey
2	Himanshu Singh
3	Manikya Agarwal
4	Mohd. Saif
5	Harshit Kumar Khardonia
6	Divyanshu Sharma
7	Vanshika Singh

Action Taken

1. Discussing Question based on previous year GATE paper.


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Previous Year Question Papers

SEM- 2nd

Sub Code:KCS101

[illegible]

(SEM-I) THEORY EXAMINATION 2019-20
PROGRAMMING FOR PROBLEM SOLVING

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably

SECTION A

$$2 \times 10 = 20$$

Qno	Question	Marks	CO
a.	Name different storage class with one example of each.	2	CO1
b.	Describe the functionalities of operating system.	2	CO1
c.	Differentiate between implicit & Explicit type conversion.	2	CO2
d.	What do you understand by mixed operands? Explain with example.	2	CO2
e.	What is the meaning of prototype of a function?	2	CO3
f.	Differentiate between while and do-while loop.	2	CO3
g.	Write an algorithm to find second largest element in an array.	2	CO4
h.	Differentiate structure with union.	2	CO4
i.	Explain the role of C preprocessor.	2	CO5
j.	What do you mean by pointer arithmetic?	2	CO5

SECTION B

$$3 \times 10 = 30$$

Qno.	Question	Marks	CO
a.	Discuss the major components of a digital computer with suitable block diagram. Also discuss the function of each component.	10	CO1
b.	What are operators? Mention different types of operators in C. Explain the difference between operator precedence and associativity with suitable example.	10	CO2
c.	Take the three digit number from the user then write a program to check entered number is palindrome or not.	10	CO3
d.	Write a program that prints the real roots of a quadratic equation. Also draw flowchart for the same.	10	CO4
e.	Write macro definition with arguments for calculation of simple interest and amount. Store these macro definitions in a file called 'interest.h'. Include this file in your program and use the macro definitions for calculating simple interest and amount.	10	CO5

SECTION C

$$1 \times 10 = 10$$

Qno.	Question	Marks	CO
a	Differentiate between: (i) Compiler and Interpreter (ii) Linker and Loader (iii) break and continue	10	CO1
b	(i) Define data types in C. Discuss primitive data types in terms of memory size, format specifier and range. (ii) Explain structure of a C program.	10	CO1

1 | Page

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Printed Pages: 02

Paper Id: 110265

Sub Code: KCS 201

Roll No.

B. TECH
(SEM II) THEORY EXAMINATION 2018-19
PROGRAMMING FOR PROBLEM SOLVING

Time: 3 Hours

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data, then choose suitably.

SECTION A


1. Attempt all questions in brief.

	Marks	CO
a. What is the difference between .obj and .exe files in C?	2	2
b. List the components of C language.	2	1
c. Differentiate assignment and equality operators in C.	2	1
d. Correlate else if ladder and switch case statement.	2	3
e. Differentiate while and do while loop.	2	3
f. Differentiate recursion and iteration.	2	3
g. Explain the significance of null character in string.	2	5
h. Differentiate linear and binary search.	2	4
i. Differentiate static and dynamic memory allocation.	2	5
j. Define the structure of a node in linked list.	2	5

SECTION B

2. Attempt any three of the following:

	Marks	CO
a. Draw the block diagram of a computer system. Explain its different components with suitable example.	10	1
b. Differentiate operator precedence and associativity. Write a program in C to elaborate the use of logical AND and logical OR operators in C.	10	1
c. What is the use of break statement in loops? Write a program in C using while loop to elaborate the use of break statement.	10	3
d. Write a program in C to input two 3x3 matrix from the user and print multiplication as the result in matrix form. (Write comments also at appropriate places in the program)	10	3
e. Explain the importance of pointers in C. Write a program in C to swap the values of two numbers entered by user using function call by reference method.	10	4


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SECTION C

3. Attempt any *one* part of the following:

	Marks	CO
a. Write an algorithm and draw a flowchart to find the sum of digits of an integer number entered by the user.	10	2
b. Write an algorithm and draw a flowchart to reverse an integer number entered by the user.	10	2

KCS201

DR VIJAY KUMAR GUPTA | 08-May-2019 08:57:18 | 45.115.62.2

Page 2 of 2

4. Attempt any *one* part of the following:

	Marks	CO
a. Define the term mixed operands in an arithmetic expression with few examples. Write a program in C to elaborate the use of type casting.	10	1
b. Explain the use of default in switch statement. Write a program that takes two operands and one operator from the user and perform the operation and prints the result by using switch statement.	10	3

5. Attempt any *one* part of the following:

	Marks	CO
a. Write a program in C to print following pattern with appropriate comments: 10 9 8 7 6 5 4 3 2 1	10	3
b. Discuss the concept of assembler. Explain compiler, interpreter, loader and linker with example.	10	3

6. Attempt any *one* part of the following:

	Marks	CO
a. Write the importance of sorting in problem solving. Write a program in C using bubble sort technique to sort 10 numbers entered by the user.	10	4
b. Explain the importance of structure in C programming. Write a program in C using structure to enter and print the record of 10 books available in your library. Following fields may be included in the record: - book_title, book_price and number_of_pages.	10	5

7. Attempt any *one* part of the following:

	Marks	CO
a. Define various file operations in C. Write a program in C to count and print the number of characters in a file.	10	5
b. Explain the following: (i) Macros. (ii) Union (iii) Enumerated data types (iv) Type conversion	10	5

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B.TECH.
(SEM I) THEORY EXAMINATION 2018-19
PROGRAMMING FOR PROBLEM SOLVING

Time: 3 Hours

Total Marks: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief.


2 x 10 = 20

Qn	Question	Marks	CO
a.	What is the difference between compiler and Interpreter?	2	CO1
b.	What are the good characteristics of an algorithm?	2	CO1
c.	What do you mean by scope and lifetime of a variable?	2	CO1
d.	Write a recursive function in C, which takes an input from user to calculate a factorial using the recursion concept.	2	CO1
e.	How to use break statement in C? Explain with some sort of code.	2	CO1
f.	What do you mean by precedence and associativity while solving some arithmetic expressions?	2	CO1
g.	While compiling a code, write the name of two syntax and two logical errors.	2	CO1
h.	What is an array? In which situation array is advantageous over linked list?	2	CO1
i.	What is linked list? Write the self-referential structure of a node in linked list?	2	CO1
j.	Write the difference between structure and union.	2	CO1
k.	Draw the memory hierarchical structure of computer system.	2	CO1

SECTION B

2. Attempt any three of the following:

a.	Explain linear search and binary search technique for searching an item in a given array. Also write the complexity for each searching technique.	10	CO1
b.	<p>A certain grade of steel is graded according to the following conditions:</p> <ul style="list-style-type: none"> i. Hardness must be greater than 50 ii. Carbon content must be less than 0.7. iii. Tensile strength must be less than 5600 <p>The grades are as follows:</p> <ul style="list-style-type: none"> Grade is 10 if all the three conditions are met. Grade is 9 if condition (i) and (ii) are met. Grade is 8 if condition (ii) and (iii) are met. Grade is 7 if condition (i) and (iii) are met. Grade is 6 if only one condition is met. Grade is 5 if none of the conditions are met. <p>Write a program, which will require the user to give values of hardness, carbon content and tensile strength of the steel under consideration and output the grade of the steel.</p>	10	CO1


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c.	What do you mean by call by value and call by reference? Write an algorithm for swapping two numbers using call by reference technique. Also write a C program for the above stated algorithm.	10	CO3
d.	Explain Selection sort technique for sorting problem. Also write an algorithm for selection sort. Sort the following numbers using selection sort technique. 26, 54, 93, 17, 77, 31, 44, 55, 20	10	CO2
e.	Write a short note on following preprocessor directives with example: i. Macro Expansion ii. File Inclusion	10	CO3

SECTION C

3. Attempt any *one* part of the following:

a.	Describe the basic components of computer system with neat and clean block diagram. What do you mean by operating system? Ex	10	CO1
b.	Defined data types in C. Discuss primitive data types in terms of memory occupied, format specifier and range.	10	CO1

4. Attempt any *one* part of the following:

a.	Explain various types of arithmetic operators in C language with help of example. When precedence of two operators in an arithmetic expression is same, how associativity helps in identifying which operator will be evaluated first. Illustrate it with the example.	10	CO1
b.	What is case control structure in C? What is the reason for using break statement at the end of each case in case control block?	10	CO1

5. Attempt any *one* part of the following:


Qn	Question	Mark	CO
a.	Write the syntax format for while, do while and for loops. Write a program in C to multiply a matrix of dimension 4*4 and store the result in another matrix.	10	CO3
b.	What is a function? Why programmers use functions in code? While executing a function, how the values are passed between calling and called environment?	10	CO3

6. Attempt any *one* part of the following:

a.	Write short notes on following: 1. Enumerated Data Type 2. String	10	CO3
b.	What do you mean by order of complexity? Explain various notions to represent order of complexity with diagram	10	CO2

7. Attempt any *one* part of the following:

a.	What is dynamic memory allocation? Explain the calloc(), malloc(), realloc() and free() functions in detail. What is lifetime of a variable, which is created dynamically?	10	CO3
b.	Explain command line arguments in C with the help of example.	10	CO3


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B.Tech.
(SEM-II) THEORY EXAMINATION 2017-18
COMPUTER SYSTEM & PROGRAMMING IN C

Time: 3 Hours

Total Marks: 70

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief.

2 x 7 = 14

- a. What is token in 'C' language?
- b. What do you mean by formatted output in C language? Explain with example.
- c. What is the use of fseek() function in files. Write its syntax?
- d. Write down the output of the following.

```
main()
{
    int i=1;
    for(;;)
    {
        printf("%d",i);
        if(i==7)
            break;
    }
}
```

- e. Explain function prototype? Why is it required?
- f. What are subscripts? How are they specified?
- g. Write the use of putchar() and getchar().

SECTION B

2. Attempt any three of the following:

7 x 3 = 21

- a. Write a program in C to find the largest number of elements in 4*4 matrix.
- b. Explain the syntax and use of the following directives with examples:
 - (i) #ifdef
 - (ii) #undef
 - (iii) #pragma
 - (iv) #include
- c. Write short note on:
 - (a) Top down program development approach.
 - (b) Differentiate Structure and Array.
- d. A Write a Recursive program in "C" language to print Fibonacci series.
- e. What is algorithm? What are the main steps followed in the development of an algorithm? Write an algorithm for sum of digits in a given number.

SECTION C

3. Attempt any one part of the following:

7 x 1 = 7

- (a) Describe Compiler, interpreter, assembler? Write the names of compiler that are used in c programming.
- (b) Convert the following:

(i) $(0110110.1100)_2 = ()_8$ (ii) $(74.67)_{10}$ = $()_{16}$ (iii) $(AB.CD)_{16}$ = $()_8$

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$$(iii)(AB.CD)_{16} = 08$$

$$(iv)(EFE.45)_{16} = 02$$

$$(v)(576.4)_{10} = 06$$

$$(vi)(1234.7)_8 = 016$$

$$(vii)(334.43)_8 = 02$$

4. Attempt any *one* part of the following: 7 x 1 = 7

- (a) Explain different bitwise operators available in C with examples.
- (b) What is meant by type conversion? Why is necessary? Explain about implicit and explicit type conversion with examples.

5. Attempt any *one* part of the following: 7 x 1 = 7

- (a) Write a program to find the Armstrong number from 1 to 100.
- (b) Write a program to generate a following numbers structure:

12345

1234

123


12

6. Attempt any *one* part of the following: 7 x 1 = 7

- (a) Write a program to add two matrices of dimension 3*3 and store the result in another matrix.
- (b) Write a program in C to create a database of fifty students to store personal details such as roll no, name and marks. Print all the details of student whose name is entered by user.

7. Attempt any *one* part of the following: 7 x 1 = 7

- (a) Write a program in C to reverse a string by using pointer.
- (b) Explain the following functions in file operations
(i) getw() (ii) putw() (iii) fscanf() (iv) fprintf()


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Printed pages: 2

Sub Code: RCS-101

Paper Id:

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Roll No.

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**B.TECH.
(SEM I) THEORY EXAMINATION 2017-18
COMPUTER SYSTEM & PROGRAMMING IN C**

Time: 3 Hours

Total Marks: 70

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief. 2 x 7 = 14
- a. Distinguish between actual arguments and formal arguments with the help of example.
 - b. Explain function declaration and definition of a function with example.
 - c. Draw a flow chart to find the greatest number among three numbers
 - d. Write a function to interchange the two values of two variables without using third variable.
 - e. Differentiate compiler and interpreter.
 - f. Why we use do-while loop in c? Also tell any properties which you know?
 - g.

```
#define PRODUCT(n)  n*n
void main()
{
    int j;
    j=64/PRODUCT(4);
    printf("%d",j);
}
```

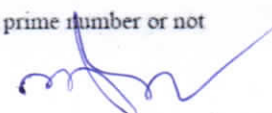
What will be the output of the above program?

SECTION B


2. Attempt any three of the following: 7 x 3 = 21
- a. What is Operating System? Explain various types of functions performed by an operating system.
 - b. Discuss various data types used in c with suitable examples
 - c. Write a C program to add first seven terms of the following series using for loop.
 $1/1! + 2/2! + 3/3! + \dots$
 - d. Define the concept of pointer? Also define the dynamic memory allocation and various functions for dynamic memory allocation, with suitable examples.
 - e. Write a C program to sort set of integers in ascending order by using bubble sort technique.


SECTION C

3. Attempt any one part of the following: 7 x 1 = 7
- (a) Write a program to check the number is palindrome or not. The program should accept any arbitrary number typed by user
 - (b) Write a program to print check a number is prime number or not


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4. Attempt any *one* part of the following: 7 x 1 = 7
- (a) What is recursion? Write a program to print the Fibonacci series using recursion.
 - (b) Explain the difference between parameter passing mechanism call by value and call by reference. Which is more efficient and why?
5. Attempt any *one* part of the following: 7 x 1 = 7
- (a) Write a program to multiply two matrices (read size and number of element of matrices from the keyboard).
 - (b) Define structure with syntax. Also write a program that compares two given dates. To store date use structure say date that contains three members namely date, month and year. If the dates are equal then display message as "Equal" otherwise "Unequal".
6. Attempt any *one* part of the following: 7 x 1 = 7
- (a) What are the different file opening modes in C. Write a program to copy the contents of one file into other file?
 - (b) What is Macros? How is it substituted? Also explain macro act as a variable and macro act as a function with the help of example.
7. Attempt any *one* part of the following: 7 x 1 = 7
- (a) What is digital computer? Draw block diagram of digital computer and explain each components of it
 - (b) What is meant by storage classes of a variable? Define all types of storage classes with example


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 In Pursuit of Excellence	<h1>Final Internal Marks</h1>	SESSION-2019-2020
		SEM- 2nd

Section D

S. No.	Roll No.	Name	CT-1 (15)	CT-2 (15)	BEST OF 1 (15)	OUT OF 30 (15*2)	ATT (10)	TUTE (10)	FINAL (50)
1	1900820400002	Arun Yadav		10	10	20	9	9	38
2	1900820400003	Avee Pandey	9	12	12	24	10	10	44
3	1900820400004	Chandra Prakash	2	6	6	12	10	10	32
4	1900820400005	Deepak Saini	6.5	10	10	20	10	10	40
5	1900820400007	Harish Pal	8.5	14	14	28	10	10	48
6	1900820400008	Himanshu Singh	12.5	14	14	28	10	10	48
7	1900820400009	Hitesh Chauhan		14	14	28	10	9	47
8	1900820400011	Kaushal Nagar		13	13	26	10	10	46
9	1900820400013	Manikya Agarwal	13.5	14	14	28	10	10	48
10	1900820400014	Mohd. Aasim		10	10	20	9	8	37
11	1900820400015	Mohd. Saif	12	14	14	28	10	10	48
12	1900820400016	Noor Alam		14	14	28	9	8	45
13	1900820400017	Pandit Swarnim Sharma		12	12	24	7	7	38
14	1900820000002	Hemendra Singh		12	12	24	9	8	41
15	1900820000004	Manveer Singh Bedi		9	9	18	9	9	36
16	1900820000005	Mohd. Anas	10	10	10	20	9	9	38
17	1900820000006	Mohammad Danish		7	7	14	10	10	34
18	1900820000007	Mohd. Shahrukh	3	7	7	14	10	10	34
19	1900820200002	Ayushmann Parashar	3.5	12	12	24	6	6	36
20	1900820200001	Arin Singh		8	8	16	10	9	35
21	1900820200003	Bhoomika Rana	9	14	14	28	10	10	48
22	1900820200004	Harshit Kumar Khardonia	13.5	11	13.5	27	10	10	47
23	1900820200005	Kanishka Singh	5	12	12	24	10	10	44
24	1900820200006	Kaushik Chauhan	0.5	8	8	16	9	10	35
25	1900820310001	Arvind Chauhan	2	7	7	14	10	10	34
26	1900820310002	Ashish Rana		14	14	28	9	9	46
27	1900820310003	Bawar Husain	2.5	12	12	24	8	9	41
28	1900820310004	Dharmendra Rana		10		10	10	10	30
29	1900820310005	Divyanshu Sharma	12	14	14	28	10	10	48


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30	1900820310007	Mohammad Zubeen	11	13	13	26	10	10	46
31	1900820310008	Preet Sharma		9	9	18	10	7	35
32	1900820100154	Unnati Gupta	9	14	14	28	10	10	48
33	1900820100155	Urvashi Rastogi	5.5	13	13	26	10	9	45
34	1900820100156	Utkarsh Kaushik		11	11	22	10	9	41
35	1900820100157	Utkarsh Mishra	4.5	14	14	28	10	10	48
36	1900820100159	Utkarsh Tomar	3	11	11	22	10	10	42
37	1900820100158	Utkarsh Tyagi	10	13	13	26	10	10	46
38	1900820100160	Vaibhav Dixit		6	6	12	10	10	32
39	1900820100161	Vaishali Mathur	9.5	14	14	28	10	10	48
40	1900820100162	Vanshika Singh	13.5	15	15	30	10	10	50
41	1900820100163	Veerpal Singh	7.5	11	11	22	9	8	39
42	1900820100164	Vidit Agarwal		11	11	22	10	10	42
43	1900820100172	Yashika Rohilla	11	13	13	26	10	10	46
44	1808210035	Arpit Verma		12	12	24	9	9	42
45	1808210169	Vishal Kumar		12	12	24	9	9	42
46	1808210112	Piyush Sharma		12	12	24	8	8	40


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Course outcome Attainment

SESSION-2019-2020

SEM- 2nd

CO Attainment Gap

Course Code	CO	CO Targets	CO Attainment	CO Attainment Gap (Target - Attainment)
KCS201	CO1	55	75.33	-15.33
	CO2	55	75.33	-15.33
	CO3	55	73.98	-13.98
	CO4	55	75.22	-15.22
	CO5	55	75.33	-15.33

If Gap > 0 : Target not attained

If Gap ≤ 0 : Target attained

Closure of Quality Loop

Course Code	CO	CO Targets	CO Attainment Gap	Action proposed to bridge the gap where targets are not achieved	Modification of targets where Achieved
KCS201	CO1	55	-20.33		Target increased to 62%
	CO2	55	-20.33		Target increased to 62%
	CO3	55	-18.98		Target increased to 62%
	CO4	55	-20.22		Target increased to 62%
	CO5	55	-20.33		Target increased to 62%


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Teaching Learning Resource

SESSION-2019-2020

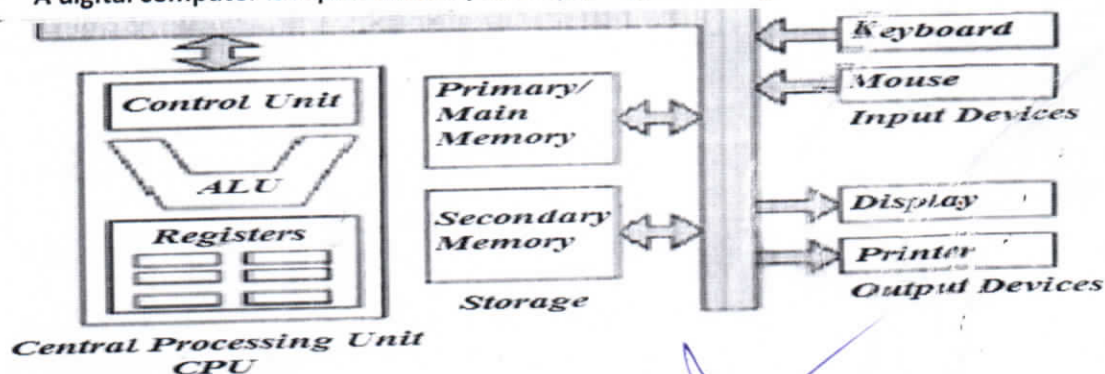
SEM- 2nd

Video Lectures Link:

1. <https://youtu.be/My7ZJWmrFCo>
2. https://youtu.be/IGNaBY_WNwQ
3. <https://youtu.be/3JiTSMIEXw>
4. <https://youtu.be/pCKTwD7xVa4>
5. <https://youtu.be/HC2sc5sHHs4>
6. <https://youtu.be/UJ5J27bV8ew>
7. <https://youtu.be/uRuT92Hehzo>
8. <https://youtu.be/BqK-EqLLQoQ>
9. <https://youtu.be/76ydRQgnEGg>
10. <https://youtu.be/G2B1QevgTlw>
11. <https://youtu.be/eSblwcf6E-c>
12. https://youtu.be/ttHa_aWQhE8
13. <https://youtu.be/4Jnf3uuv7hk>
14. <https://youtu.be/2nsRfspwVhs>
15. <https://youtu.be/cv2-nlUowDw>
16. <https://youtu.be/-WZcHkdqNcs>
17. <https://youtu.be/mCoRikAhnFA>
18. <https://youtu.be/b-ggXVokpfl>
19. <https://youtu.be/DnpJ-2zzrA4>
20. <https://youtu.be/-IUwNxMOAM8>
21. <https://youtu.be/k-ZGQbCubCk>
22. <https://youtu.be/0Uc3wZ84eFk>

1. Introduction to components of a Digital computer system: Digital Computers are mainly general purpose computers that represent and store data in discrete quantities or numbers. In these computers, all processing is done in terms of binary form. A digital computer is a programmable machine which reads the binary instruction and processes the data which are presented in binary form. If the User enters data in decimal or character form then it is converted into binary form (0's and 1's). In other words we can say a digital computer that works with numbers that are represented by the digits 0 and 1.

A digital computer is represented by the following block diagram:



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Components of computer system are:

1.1 Memory: Memory is the best essential components of a computer because computer can't perform simple tasks. Computer memory is of two basic type – Primary memory / Volatile memory and Secondary memory / non-volatile memory. Random Access Memory (RAM) is volatile memory and Read Only Memory (ROM) is non-volatile memory.

1.1(a) Random Access Memory (RAM) :

The primary memory is referred to as random access memory (RAM) due to the random selection of memory locations. It performs both read and write operations on memory. Primary memory select any part of memory when user want to save the data in memory but that may not be store permanently on that location if computer is turn off. Primary Memory also called as volatile memory because the memory can't store the data permanently.

1.1(b) Read Only Memory (ROM) :

ROM is permanent memory location that offers huge types of standards to save data. But it work with read only operation. No data lose happen whenever power supply failure during the ROM memory work in computers.

Note:

Cache Memory: It is used to store data and the related application that was last processed by the CPU. When the CPU performs processing, it first searches cache memory and then RAM for an instructions. All types of external media like Magnetic disks(CD), Magnetic drives(Hard Drive) and etc store in cache memory to provide quick access tools to the users.

1.2 Processor or Central Processing Unit(CPU):

CPU is used to perform the calculations and information processing on the data that is entered through the input device.

It is divided into two parts---

1.2(a) Arithmetic Logical Unit (ALU)- ALU performs arithmetical or logical operations on the data received. In this component, Arithmetic operations include addition, subtraction and multiplication where Logical operations include AND, OR, or EXCLUSIVE-OR. Other operation includes bitwise shifting operations.

1.2(b) Control Unit- Stores the instruction set which specifies the operations to be performed by computer. It transfers the data and instructions to the ALU for an arithmetic or logical operation. It controls communication and co-ordination between input/output devices. It reads and tells instructions and determines the sequence for processing the data.

1.2(c) Registers- *Registers are the high-speed temporary storage locations in the CPU made from electronic devices such as transistors, flip-flops, etc. So, registers can be thought as CPU's working memory.*

1.3 I/O (Input/ Output) Device:

1.3(a) Input Device

It is used for accepting the data on which the operations are to be performed.
e.g. keyboard, mouse, track ball, stylus, touch screen, an audio input unit etc.

1.3(b) Output Device

It is used for providing the output of a program that is obtained after performing the operations specified in a program. e.g. Monitor, printer, speaker, plotter (vector graphics) etc.

1.4 Storage: This component is used to store the data or the work done by you. These storage devices communicate in both directions with CPU. You can send the data to these devices or the CPU can receive the data as well. It is also known as auxiliary storage, secondary storage and external storage which is used to


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store a large amount of data at lesser cost than primary storage. Secondary storage does not lose the data when there is no power supply. Secondary storage is also known as non-volatile (means permanent). Some of the storage devices are: Hard disk drive, Floppy Disk Drive, DVD/CD, External USB drive, Pen-drives, Memory cards

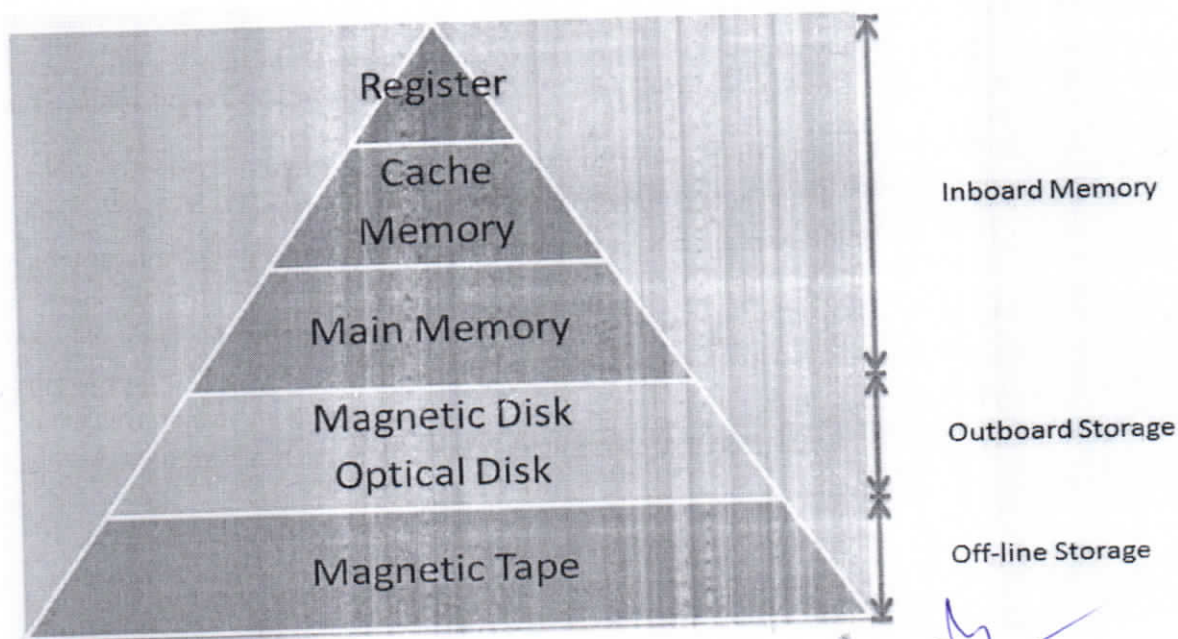
2. Interpreter: An interpreter is a program which translates statements of a program into machine code. It translates only one statement of the program at a time. It reads only one statement of program, translates it and executes it. Then it reads the next statement of the program again translates it and executes it. In this way it proceeds further till all the statements are translated and executed. On the other hand, a compiler goes through the entire program and then translates the entire program into machine codes. A compiler is 5 to 25 times faster than an interpreter.

By the compiler, the machine codes are saved permanently for future reference. On the other hand, the machine codes produced by interpreter are not saved. An interpreter is a small program as compared to compiler. It occupies less memory space, so it can be used in a smaller system which has limited memory space.

3. Loader: Loader is a program that loads machine codes of a program into the system memory. A loader is the part of an Operating System that is responsible for loading programs. It is one of the important stages in the process of starting a program. Because it loads programs into memory and prepares them for execution. Loading a program involves reading the contents of executable file into memory. Once loading is complete, the operating system starts the program by passing control to the loaded program code. All operating systems that support program loading have loaders. In many operating systems the loader is permanently resident in memory.

4. Linker: Linking is the final stage of compilation. It takes one or more object files or libraries as input and combines them to produce a single (usually executable) file. In high level languages, some built in header files or libraries are stored. These libraries are predefined and these contain basic functions which are important for executing the program. These functions are linked to the libraries by a program called Linker. If linker does not find a library of a function then it informs to compiler and then compiler generates an error. Not built in libraries, it also links the user defined functions to the user defined libraries. Usually a longer program is divided into smaller subprograms called modules. And these modules must be combined to execute the program. The process of combining the modules is done by the linker.

5. MEMORY HIERARCHY

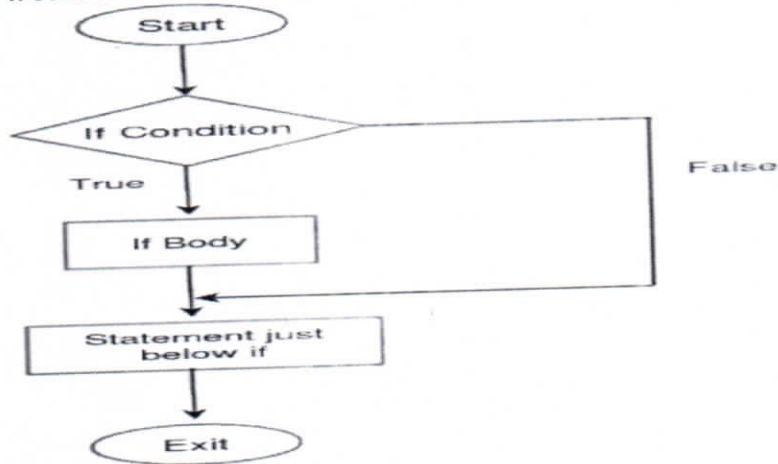


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6. Decision Control Statements:

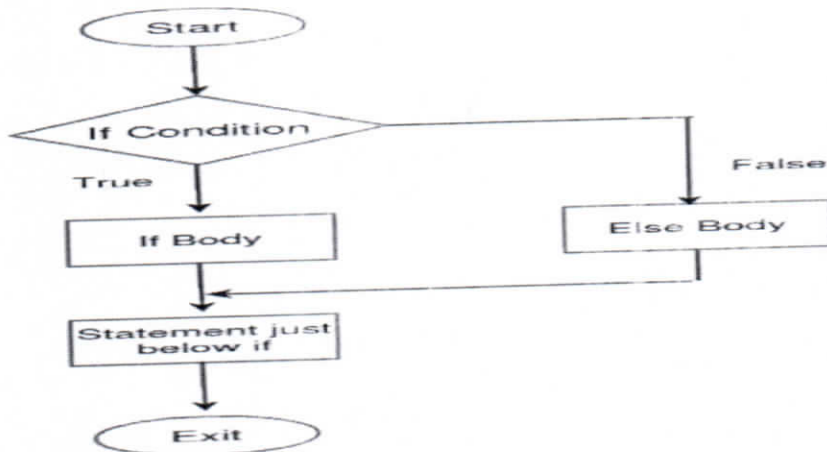
- In decision control statements (if, if-else, if-else if and nested if), group of statements are executed when condition is true. If condition is false, then else part statements are executed.
- There are types of decision making control statements in C language. They are,
- Syntax and flow chart for each C decision control statements are given in below table with description.

6.1 if statements





```
if (condition)
{
    //Block of C statements here
    //These statements will only execute if the condition is true
}
```

6.2 if-else statements

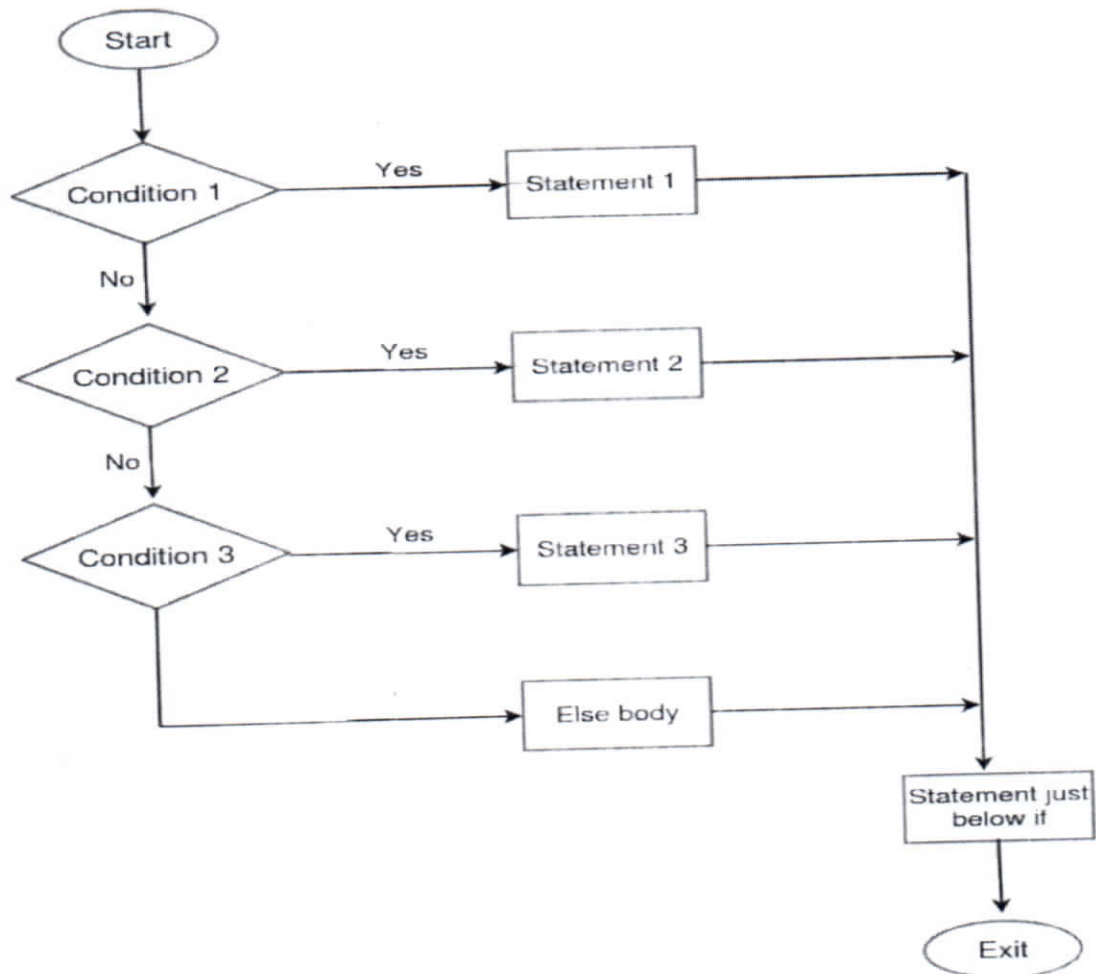


```
if(condition)
{
    // Statements inside body of if
}
else
{
    //Statements inside body of else
}
```



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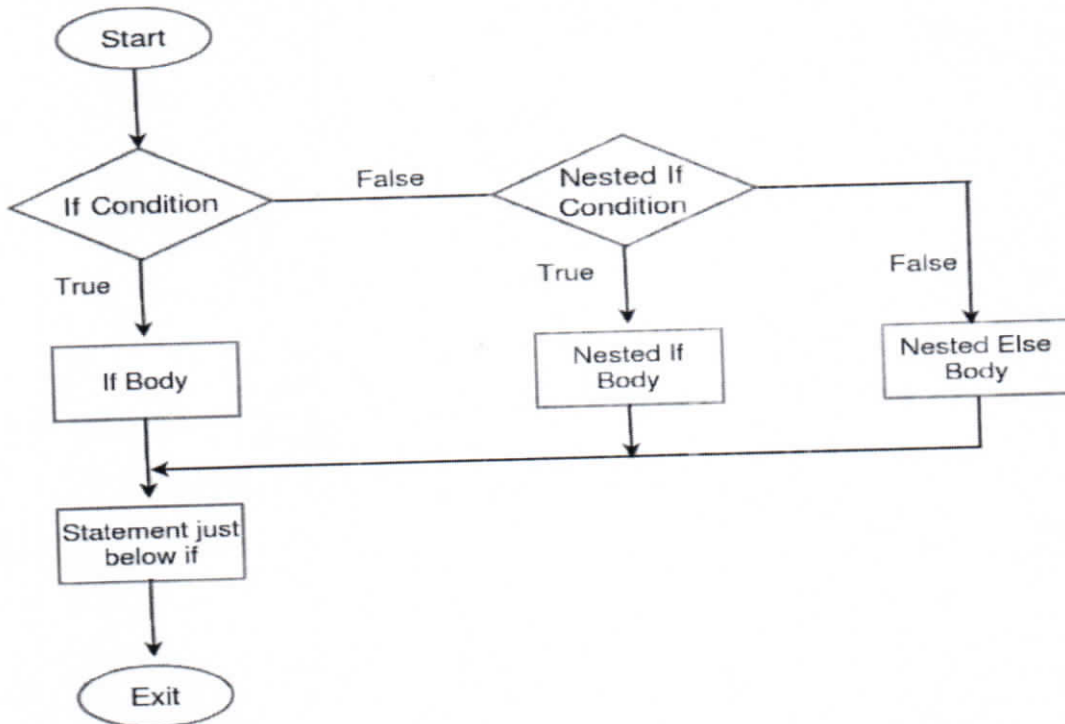
6.3 if- else if statements



```
if (condition1)
{
    //These statements would execute if the condition1 is true
}
else if(condition2)
{
    //These statements would execute if the condition2 is true
}
else if (condition3)
{
    //These statements would execute if the condition3 is true
}
.
.
else
{
    //These statements would execute if all the conditions return false.
}
```


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6.4 nested if statements



```
if (condition1)
{
    //These statements would execute if the condition1 is true
    if (condition2)
    {
        //These statements would execute if the condition2 is true
    }
}
```

- Program for if else statement in C:

In C if else control statement, group of statements are executed when condition is true. If condition is false, then else part statements are executed.

```
#include <stdio.h>
```

```
void main()
```

```
{
```

```
int m=40,n=20;
```

```
if (m == n)
```

```
{
```

```
printf(" m and n are equal ");
```

```
}
```

```
else
```


```
{
```

```
printf(" m and n are not equal ");
```

```
}
```

```
}
```

Output: m and n are not equal


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- Program for nested if-else if statement in C:
 - In "nested if-else if" control statement, if condition 1 is false, then else if condition 2 is checked and statements are executed if it is true.
 - If condition 2 is false, then else part is executed.


```
#include <stdio.h>
void main()
{
    int m=40,n=20;
    if (m>n)
    {
        printf(" m is greater than n ");
    }
    else if(m<n)
    {
        printf(" m is less than n ");
    }
    else
    {
        printf(" m is equal to n ");
    }
}
```

Output: m is greater than n

- Program to check vowel or consonant in C:

```
#include <stdio.h>
void main()
{
    char ch;
    int lower,upper;
    printf("Enter a character\n");
    scanf("%c",&ch);
    lower= (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u' );
    upper= (ch == 'A' || ch == 'E' || ch == 'I' || ch == 'O' || ch == 'U' );
    if (lower || upper)
    {
        printf(" %c is Vowel ", ch);
    }
    else
    {
        printf(" %c is Consonant ", ch);
    }
    else
    {
        printf(" m is equal to n ");
    }
}
```


Output:
Enter a character
E
E is Vowel


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- Program to check Leap Year or not in C:

```
#include <stdio.h>
void main()
{
    int yr;
    printf("Enter a Year\n");
    scanf("%d",&yr);
    if (yr % 4 == 0)
    {
        if (yr % 100 == 0)
        {
            if (yr % 400 == 0)
                printf(" %d is Leap Year ", yr);
            else
                printf(" %d is not Leap Year ", yr);
        }
        else
        {
            printf(" %d is Leap Year ", yr);
        }
    }
    else
    {
        printf(" %d is not Leap Year ", yr);
    }
}
```

Output:
Enter a Year
1600
1600 is Leap Year


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