Code No: R161107 **R16** SET - 1

I B. Tech I Semester Regular/Supplementary Examinations, Nov/Dec - 2017

COMPUTER PROGRAMMING

(Com. to CE,ECE,CSE,IT,EIE,EEE,ME,Aero E,Auto E,Bio-Tech,Chem E,Metal E,Min E, PChem E, PE,ECom E)

Time: 3 hours Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answer **ALL** the question in **Part-A**
3. Answer any **FOUR** Questions from **Part-B**

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PART –A

1. a) What is the difference between application software and system software? (2M)
   b) What are library functions? Write its uses in C programming. (2M)
   c) Give the differences between break and exit() statements in C language. (2M)
   d) What are the uses with recursive functions? (2M)
   e) What is a null character? Write its uses in strings. (2M)
   f) Distinguish between an append mode and write mode in files. (2M)
   g) How does a structure differ from an array? (2M)

PART -B

2. a) Explain briefly about low-level and high-level languages. (7M)
   b) What is algorithm? Explain the steps involved in the development of C algorithms. (7M)

3. a) Explain the tokens C language. (5M)
   b) What is a library function? List out different mathematical library functions available in C programming and mention their functions and uses. (5M)
   c) How data type promotion is is done in an expression in C programming? (4M)

4. a) Explain about switch statement. What is the importance of break and continue in switch statement? Give examples. (7M)
   b) Write a C program to find value of y using nested if-else statements (7M)

$$y(x,n)=\begin{cases}1+x & when\ \mathrm{n}=1\\ 1+\mathrm{x/n} & when\ \mathrm{n}=2\\ 1+\mathrm{x}^{\mathrm{n}} & when\ \mathrm{n}=3\\ 1+\mathrm{nx} & when\ \mathrm{n}>1 \text{ or } \mathrm{n}<1\end{cases}$$

5. a) What is an user defined function? When these functions are useful? How a function is declared and what are the rules followed to call a function. (7M)
   b) Write a C program to find the arithmetic mean of n values using functions. (7M)

6. a) What is an array? How to initialize, accessing, and print the array elements? (7M)
   b) Write a C program to compare two strings for equality without using strcmp( ) function. (7M)

7. a) Explain different random file access functions with example. (7M)
   b) What is a pointer? Explain address arithmetic with example. (7M)
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PART –A

1.	a)	Define bit and byte. What are its uses in computer programming?	(2M)
	b)	What is the difference between assignment and equality?	(2M)
	c)	What is meant by pretest and posttest loop?	(2M)
	d)	Write any two merits and demerits of pointers.	(2M)
	e)	What is a array variable and how it is different from ordinary variable.	(2M)
	f)	In what way is a file more flexible than a string in C language?	(2M)
	g)	How does a structure differ from an union?	(2M)

PART -B

2.	a)	Explain about the computer hardware and software.	(7M)
	b)	Explain briefly about procedural and object oriented languages.	(7M)
3.	a)	Explain implicit and explicit type conversions with examples.	(6M)
	b)	Explain bitwise, increment and decrement, conditional operators with examples.	(8M)
4.	a)	Explain *if-else* statement and nested *if-else* statement with syntaxes and suitable examples.	(7M)
	b)	Write a C program to accept an integer number and print the digits using words (for example 356 is printed as Three Five Six)	(7M)
5.	a)	What are various storage classes in C? Discuss their uses and scope.	(7M)
	b)	Write a function to obtain greatest common divisor (GCD) of two integers *m* and *n* and use it to find the LCM (least common multiple) using the formula $LCM = \frac{m \times n}{GCD}$.	(7M)
6.	a)	Explain different types of string handling functions with example.	(7M)
	b)	Write a C program to check whether the given string is palindrome or not?	(7M)
7.	a)	Explain in detail about array of structure and pointer to structure with example.	(7M)
	b)	Write a program to merge two files into single file.	(7M)
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Time: 3 hours Max. Marks: 70

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2. Answer **ALL** the question in **Part-A**
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PART –A

1.	a)	Why a program written in assembly language would take less computer time than the same program written in a high level language?	(2M)
	b)	Explain pre-decrement and post-decrement operation on a variable with an example.	(2M)
	c)	Give two differences between while and do-while statements.	(2M)
	d)	What is indirection operator and what is its role in pointers?	(2M)
	e)	How does the C compiler handle the values in an array internally?	(2M)
	f)	What is the difference between a sequential file and a random file?	(2M)
	g)	What is a command line argument?	(2M)

PART -B

2.	a)	Explain the steps involved in C program development process.	(7M)
	b)	What are the components of computer? Explain.	(7M)
3.	a)	Explain relational and logical operators with examples.	(8M)
	b)	What is meant by a variable in C programming? How a variable is initialized? Explain the rules for defining variable names.	(6M)
4.	a)	Explain different looping statements with syntax and examples.	(7M)
	b)	Write a C program to generate and print the numbers between 100 and 200 which are divisible by 3 but not divisible by 4.	(7M)
5.	a)	What is meant by recursion? What are its uses? How it is implemented? Explain with example.	(7M)
	b)	Explain about (i) local and global variables (ii) actual and formal arguments.	(7M)
6.	a)	Explain following string handling functions with example: (i) strrev( ) (ii) strncmp( ) (iii) strncat( ) (iv) strcmpi( )	(7M)
	b)	Write C program to read an array of names and to sort them in alphabetical order.	(7M)
7.	a)	Explain nested structure and self referential structure with an example.	(7M)
	b)	Explain the following with example: (i) fprintf( ) (ii) fscanf( ) (iii) fgets( ) (iv) feof( ) (v) rewind( ) (vi) fseek() (vii) ftell( )	(7M)
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Time: 3 hours Max. Marks: 70

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2. Answer **ALL** the question in **Part-A**
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PART –A

1. a) What is the difference between low level and high level language? (2M)
   b) What is the purpose of type declaration in C programming? (2M)
   c) If break was not given in the switch statement, what happens? Explain with example. (2M)
   d) What is the need of functions in C language? (2M)
   e) How do you initialize arrays in C programming? (2M)
   f) What are the primary advantages of using data files in C language? (2M)
   g) What is a static variable? When should it be used? (2M)

PART -B

2. a) Discuss the features of application software and system software. (7M)
   b) Explain briefly about machine and assembly languages. (7M)

3. a) What is associativity? Explain operator precedence. (6M)
   b) What are different basic data types in C? How these are extended? Explain memory requirements and range of values that can be stored in these data types. (8M)

4. a) What is the need of do-while and while loops? Discuss about their usage. Distinguish between them. (7M)
   b) Write a C program to find factorial of given number using for loop. (7M)

5. a) Explain about call by value and call by reference with reference to functions. Write a function to swap the values between the variables using call by value and call by reference. (8M)
   b) Explain function prototype and explain different methods to call the functions. (6M)

6. a) Explain how arrays are passed as function arguments. Write a C program to add two 2-dimensional arrays using the concept of arrays as function arguments. (7M)
   b) Write a C program to count number of lines, words and characters in a given text. (7M)

7. a) Write a C program to append data to already existing file. (7M)
   b) Explain the following dynamic memory management functions with example: (7M)
   (i) malloc( ) (ii) calloc( ) (iii) realloc( ) (iv) free( )
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