Subject Code: R161107/R16 **Set No – 1**

I B. Tech I Semester Regular Examinations, Dec – 2016
COMPUTER PROGRAMMING
(Com. to ECE, AE, AME, BOT, CHEM, CE, CSE, IT, EIE, EEE, ME, MTE, MM, PCE, PE, E Com. E)

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

Question Paper Consists of Part-A and Part-B
Answering the question in Part-A is Compulsory
Four Questions should be answered from Part-B
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PART-A

1. (a) What is the difference between low level and high level language and uses of them?
   (b) What is the difference between assignment and equality operation?
   (c) What is difference between **while** and **do-while** loops?
   (d) What are the uses of functions in C language?
   (e) What is an array variable? How it is different from ordinary variable?
   (f) Write the differences between structure and union.
   (g) What is the use of **fseek( )** function in files. Write its syntax? [7×2=14]

PART-B

2. (a) What are the steps involved in program development process? Explain.
   (b) What is Central Processing Unit (CPU) in a computer? Explain about various components and their functions of CPU. [7+7]

3. (a) List the basic data types, their sizes and range of values supported by 'C' language.
   (b) What do you mean by operator precedence and associativity? How one can override the precedence defined by C language? Give illustrative examples.
   (c) Write a C program to swap (exchange) the values of two variables without using temporary variable. [5+5+4]

4. (a) Explain about various logical operators available in C language with examples.
   (b) Write C program to convert the given decimal number into binary number. [7+7]

5. (a) Explain about different storage classes with examples. Discuss their uses and scope.
   (b) Write a recursive function for finding the factorial value of a given number. [8+6]

6. (a) Explain different string handling functions available in C language.
   (b) Write a function to multiply two matrices of order '*mxn*' and '*nxl*' and write the main program to input array values and output resultant matrix. [7+7]

7. (a) Discuss various valid arithmetic operations that can be performed on pointers in C.
   (b) Explain the following functions in file operations:
   (i) getw( ) (ii) putw() (iii) fscanf( ) (iv) fprintf( )
   (c) How to pass structure variable to functions? Explain with example. [5+5+4]

Subject Code: R161107/R16 **Set No – 2**

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

Question Paper Consists of Part-A and Part-B
Answering the question in Part-A is Compulsory
Four Questions should be answered from Part-B
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PART-A

1. (a) Define system software and application software and give examples for each one.
   (b) Explain pre- and post- decrement and increment operation on a variable with an example.
   (c) Write the differences between **nested if( )** statement and **switch( )** statement.
   (d) What are the differences between recursion and iteration?
   (e) What are the differences between an array and string?
   (f) How does a structure differ from an array?
   (g) Distinguish between text mode and binary mode operation of a file. [7×2=14]

PART-B

2. (a) Distinguish between machine, assembly, low-level and high-level languages.
   (b) Explain the features and characteristics of procedural and object oriented languages. [7+7]
3. (a) What is meant by type conversion? Why is necessary? Explain about implicit and explicit type conversion with examples.
   (b) Explain different relational operators available in C language with examples.
   (c) Write a C program to convert the given years into number of months and days. [5+5+4]
4. (a) Explain various iterative statements available in C language with examples.
   (b) Write a C program to find the roots of a quadratic equation $ax^2 + bx + c = 0$ for all possible combination values of a, b and c. [7+7]
5. (a) Explain about the actual arguments and formal argument in functions. What is the difference between these arguments? Explain the rules to call a function in a main function.
   (b) Write a C program using functions to compute the function
   $\cos(x) = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!}$ ----- upto 15 terms. Tabulate the values from 0^0 to 180^0 in steps of 30^0 in the main program. [7+7]
6. (a) What is Array? Discuss about the initialization and accessing of array elements in one dimensional and two dimensional arrays.
   (b) Write a C program to count number of lines, words and characters in a given text without using any string header files. [6+8]
7. (a) Explain the following functions in files:
   (i) fseek( ) (ii) ftell( ) (iii) rewind( ) (iv) fopen( ) (v) fclose( ) (vi) foef( )
   (b) Represent a complex number using a structure in C. Write a C program that uses functions to perform the following operations:
   (i) Addition of two complex numbers (ii) Subtraction of two complex numbers [7+7]

Subject Code: R161107/R16 **Set No – 3**

I B. Tech I Semester Regular Examinations, Dec – 2016
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Time: 3 hours **Max. Marks: 70**

Question Paper Consists of Part-A and Part-B
Answering the question in Part-A is Compulsory
Four Questions should be answered from Part-B
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PART-A

1. (a) Why is the C language called as middle level language?
   (b) What are library functions? Mention their uses in C language.
   (c) What is the difference between **break** statement and **exit( )** statement in C language.
   (d) Differentiate between built-in functions and user-defined functions.
   (e) What is a null character? What are its uses in strings?
   (f) What are the advantages and disadvantages with bit-fields?
   (g) Why register storage class does not support all data types? [7×2=14]

PART-B

2. (a) Discuss the features and characteristics of application software and system software.
   (b) Discuss about different computer languages with examples. [7+7]

3. (a) Explain different bitwise operators available in C with examples.
   (b) An integer is divisible by 9 if the sum of its digits also divisible by 9. Write a C program that prompts the user to input an integer. The program should then output the number and a message stating whether the number is divisible by 9 or not. [7+7]

4. (a) Explain various selection statements available in C language with examples.
   (b) Read the marks of eight subjects and calculate the percentage of marks. The program should output following grades based on percentage of marks obtained in the eight subjects. Use **nested if** statement to write the code. [7+7]

Percentage Marks	80 to 100	70-79	60-69	50-59	Less than 49
Grade	Excellent	Very Good	Good	Satisfactory	Fail

5. (a) What is the difference between recursive and non-recursive functions? Give their merits and demerits.
   (b) Discuss in details about local variables and global variables with respect to their scope and extent.
   (c) Write a function to reverse a given integer number. Also write main program. [5+4+5]

6. (a) What is an array? What are the disadvantages in implementing arrays in C language? Discuss problems for implementing of multi-dimensional arrays in C language.
   (b) Write C program to concatenate two strings without using strcat( ) function.
   (c) Write a C program to transpose the given two dimensional array. [5+5+4]

7. (a) How do you define a structure, structure variables, access their elements and perform operations on them? Explain with examples.
   (b) Write a C program to copy the content of one file into another file. [7+7]

Subject Code: R161107/R16 **Set No – 4**

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

Question Paper Consists of Part-A and Part-B
Answering the question in Part-A is Compulsory
Four Questions should be answered from Part-B
****

PART-A

1. (a) What is the difference between procedural language and object-oriented language?
   (b) Explain about ternary (or conditional) operator.
   (c) Write the limitations of **switch( )** and **for( )** statements.
   (d) What is meant by modular programming?
   (e) How does C complier handle the values in an array internally?
   (f) What is the difference between a pointer and dangling pointer?
   (g) Why addition and multiplication of two addresses is not possible in pointers. [7×2=14]

PART-B

2. (a) 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.
   (b) Describe procedure for creating and running C programs using algorithmic approach. [7+7]
3. (a) Explain about formatted and unformatted input and output functions available in C language. Also explain different output format modifiers in C language.
   (b) Explain different arithmetic operators available in C language with examples.
   (c) Write a C program to check whether the given integer number is palindrome or not.[5+5+4]
4. (a) Explain in details about multi-way selection statements with example.
   (b) Write C program to evaluate the following series: [7+7]

$$sin(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} \quad -----\infty$$

5. (a) Explain different parameter passing techniques in functions with examples.
   (b) Write C program find the Greatest Common Divisor (GCD) of two numbers using a recursive functions. [7+7]
6. (a) Explain the following string handling functions with examples:
   (i) strcpy( ) (ii) strcat( ) (iii) strrev( ) (iv) strlen
   (b) Write a C program to count number of vowels present in a sentence.
   (c) Write a C program to add two 2-dimensional arrays. [4+5+5]
7. (a) Explain the following with examples:
   (i) self referential structures (ii) typedef (iii) command line arguments
   (b) Write a C program to read a data file containing integers. Find the largest and smallest integers and display them. [7+7]