

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

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

PART-B

- What are the steps involved in program development process? Explain.
  - What is Central Processing Unit (CPU) in a computer? Explain about various components and their functions of CPU. [7+7]
- List the basic data types, their sizes and range of values supported by 'C' language.
  - What do you mean by operator precedence and associativity? How one can override the precedence defined by C language? Give illustrative examples.
  - Write a C program to swap (exchange) the values of two variables without using temporary variable. [5+5+4]
- Explain about various logical operators available in C language with examples.
  - Write C program to convert the given decimal number into binary number. [7+7]
- Explain about different storage classes with examples. Discuss their uses and scope.
  - Write a recursive function for finding the factorial value of a given number. [8+6]
- Explain different string handling functions available in C language.
  - Write a function to multiply two matrices of order 'm×n' and 'n×l' and write the main program to input array values and output resultant matrix. [7+7]
- Discuss various valid arithmetic operations that can be performed on pointers in C.
  - Explain the following functions in file operations:  
(i) getw() (ii) putw() (iii) fscanf() (iv) fprintf()
  - How to pass structure variable to functions? Explain with example. [5+5+4]



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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  

$$\cos(x) = 1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} \text{ ----- upto 15 terms. Tabulate the values from } 0^0 \text{ to } 180^0 \text{ in steps of } 30^0 \text{ in the main program. [7+7]}$$
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]



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**PART-A**

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

**PART-B**

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

$$\sin(x) = x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} - \dots - \infty$$
- Explain different parameter passing techniques in functions with examples.
  - Write C program find the Greatest Common Divisor (GCD) of two numbers using a recursive functions. [7+7]
- Explain the following string handling functions with examples:  
(i) strcpy( ) (ii) strcat( ) (iii) strcmp( ) (iv) strlen
  - Write a C program to count number of vowels present in a sentence.
  - Write a C program to add two 2-dimensional arrays. [4+5+5]
- Explain the following with examples:  
(i) self referential structures (ii) typedef (iii) command line arguments
  - Write a C program to read a data file containing integers. Find the largest and smallest integers and display them. [7+7]