B. Tech.
(SEM. I) (ODD SEM.) THEORY
EXAMINATION, 2014-15
COMPUTER PROGRAMMING

Time : 3 Hours] [Total Marks : 100

Note : 1) Attempt all questions.
2) All questions carry equal marks.

1 Attempt all parts of this question : (2×10=20)

(a) Differentiate between algorithm and flowchart.
(b) Define algorithm. What are the characteristics of an algorithm?
(c) What is a pointer and how it is initialized?
(d) Define identifier and keywords.
(e) Explain the getch() and putch() function with example.
(f) What are the string handlings functions?
(g) What is compiler? How is it different from interpreter?
(h) What are the computer Codes?
(i) Explain difference between while loop and do-while loop with example.
(j) If a=10 and b=20, find the value of statement:
a>b ? a+5 : b+5

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2. Attempt any **three** parts of this question: 

(a) What is digital computer? Draw a block diagram of it and explain ALU and CU of it.

(b) What is an operating system? Give name of any five operating Systems and explain any one of them.

(c) What is flowchart? Design a flowchart and write algorithm to find greatest among three numbers given by user.

(d) What are the various primary data types in C language? Also write the size and format --specifier of each data type.

(e) Convert the following numbers:

(i) \((325.45)_{10}\) = (\ )\(_2\)

(ii) \((101010.10001)_{2}\) = (\ )\(_8\)

(iii) \((ABC.75)_{16}\) = (\ )\(_{10}\)

(iv) \((1011011.1101101)_{2}\) = (\ )\(_{16}\)

(v) \((1101)_{2}\) = (\ )\(_{10}\)

3. Attempt any **two** parts of the following: 

(a) What are the different types of Operator in C language?

(b) Distinguish between local and global variables with the help of example program.

(c) What are storage classes? Explain its type.

4. Attempt any **two** parts of the following: 

(a) Explain the concept of modular programming.

(b) Write a short note on call by value and call by reference parameter passing method with example.

(c) Write down the difference between the associativity and precedence of operators.
5 Attempt any two parts of the following: \( (5 \times 2 = 10) \)
(a) Write a program to add two matrices of dimension 3*3 and store the result in another matrix.
(b) What is the difference between Array and Structure? Write the syntax also.
(c) What is difference between preprocessor and macros?

6 Attempt any two parts of the following: \( (5 \times 2 = 10) \)
(a) Define a structure that can describe a hotel. It should have the members that include the name, address, grade, room charge and number of rooms. Write a function to perform the following operation. To print out hotel of given grade in order of room charges.
(b) Write a program in C to find the largest number in array.
(c) Write a program to read five digits and print the sum of the digits.

7 Attempt any two parts of the following: \( (5 \times 2 = 10) \)
(a) Write a program to copy content of one file to another file.
(b) What are advantages and disadvantages of recursion? Write a program to find the factorial of a number using recursion.
(c) Write a program in C to generate the following series:
   
   1 2 3 4 5
   1 2 3 4
   1 2 3
   1 2
   1