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ECS-101

(Following Paper ID and Roll No. to be filled in your Answer Book)

Paper ID :110111

Roll No.

B.Tech.

(SEM. I) THEORY EXAMINATION, 2015-16

COMPUTER CONCEPTS & PROGRAMMING IN C

[Time:3 hours]

[Total Marks:100]

Section-A

1. Attempt **All** parts of this section. Answer in brief.

(10×2=20)

- (a) What is the need of function?
- (b) Why operating system is required?
- (c) What is the role of dynamic memory allocation?
- (d) What do curly braces denote in C?
- (e) Differentiate between do-while and while loop.
- (f) Explain the role of the C pre-processor.
- (g) What is a string?
- (h) What do you mean by an algorithm?
- (i) Explain in brief the purpose of the 'strempr' function.

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(j) What is the meaning of prototype of a function?

Section-B

Attempt any five questions from this section. (10×5=50)

2. Convert the following :

- (a) $(FA1.2C)_{16} = (?)_8$
- (b) $(756)_{10} = (?)_4$
- (c) $(11011.011)_2 = (?)_{16}$
- (d) $(574.32)_8 = (?)_2$

3. A program in 'C' language contains the following declaration : static int x[8]={1,2,3,4,5,6,7,8};

- (a) What is the meaning of x?
- (b) What is the meaning of (x+2)?
- (c) What is the meaning of *x?
- (d) What is the meaning of (*x+2)?
- (e) What is the meaning of *(x+2)?

4. Describe structure. Differentiate between structure and array. Define a structure data type called time _structure containing three member's integer hour, integer minute and integer second. Write a program in 'C' that would assign values to the individual members and display the time in the following form : 16:40:52

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5. Define the following terms and give at least one example of each :

- (a) Interpreter
- (b) Linker
- (c) Editor
- (d) Procedural Programming

6. Simulate calculator using switch statement.

- 7. (a) Differentiate between iteration and recursion.
- (b) Write a function in C language to find the reverse of a given integer number.

8. A number is said to be an Armstrong number if the sum of the cube of its digit is equal to the number itself. For example, 153 is an Armstrong number as $1^3 + 5^3 + 3^3 = 153$. Write a C program to check whether a given number is Armstrong or not.

9. Write the various input functions used in file handling in C. A file name DATA contains a series of integer numbers, write a program to read these numbers and then write all 'odd' numbers to a file to be called ODD and all even numbers to a file to be called EVEN.

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Section-C

Answer **any two** questions from this section: (2×15=30)

10. Discuss the following :
- (a) Scope of variables.
 - (b) Five mathematical library functions in C.
 - (c) Mixed operands and type conversion.
11. A program has been compiled and linked successfully. When you run this program you face one or more of the following situations :
- (a) Program executed, but no output.
 - (b) It produces incorrect answers.
 - (c) It does not stop running.
- Explain all above condition in detail.
12. What is dynamic memory allocations? How does it help in building complex programs? What is the task of following memory allocation functions?
- (a) malloc
 - (b) calloc

—x—