



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

PAPER ID : 199212

Roll No.

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B. Tech.

(SEM. II) THEORY EXAMINATION, 2014-15
COMPUTER CONCEPTS & PROGRAMMING IN C

Time : 3 Hours]

[Total Marks : 100

- Note:**
- (1) Attempt all question.
 - (2) All question carry equal marks.

1 Attempt **any four** questions. **5×4=20**

- (a) What is digital computer? Draw block diagram of digital computer and explain each component of it.
- (b) What are different data types in C language and explain range, memory size of each with its format specifier.
- (c) Convert the following:
 - (a) $(CC)_{16} + (AE)_{16} = (?)_{16}$
 - (b) $(54)_6 = (?)_3$
 - (c) $(-7)_{10} = (?)_2$
 - (d) $(DBC.B2)_{16} = (?)_8$
 - (e) $(10101)_{10} = (?)_2$

- (d) What is an operating system and what is its purpose? Name four popular operating system.
- (e) Differentiate between RAM and ROM?
- (f) What do you mean by structured programming? What is its approach in programming? Explain its merits and demerits.

2 Attempt **any four** questions.

5×4=20

- (a) Write short notes on the following with the help of example in reference of C language: sort (), sin (), cos (), pow (), tan (). Write a program to find the length of the string. Program should give the output as follows:
string hello
Lenght of the string "hello" is 5.
- (b) What are storage classes? Explain all its types in brief.
- (c) What are different types of operator in C ? Explain its types with example.
- (d) What is the use of bitwise operators. Describe any two bitwise operators with example.
- (e) Solve an expression involving three variables a, b, c. $a \&\&b \parallel c\&\& (!b)$. Given a=3, b=4, c=5.
- (f) Write a program to swap two numbers using dummy variable.

3 Attempt **any two** question. **10×2=20**

- (a) Write short notes on the following with the help of examples in reference of c language:
- (i) Data types
 - (ii) Entry and exit control loops
 - (iii) Switch statement and if statement
 - (iv) While and do-while
 - (v) Continue and break
- (b) Write a program to read a number having more than five digit and print whether the given number is divisible by 11 or not which states that number is divisible by 11 if and only if the difference of sum of digits at odd positions and even positions are either zero or divisible by 11.
- (c) What do you mean by parameter passing method? Explain call by value and call by reference with the help of an example.

4 Attempt any two question. **10×2=20**

- (a) Write a program to construct a 3*3 matrix that contains only the fractional part of another 3*3 matrix A that contains floating point numbers? Assume that elements of matrix A that contains only two digit fractional numbers.
- (b) Write a program to accept the information of your teacher with the following fields: Name, Department, Qualification, Designation, Age.

- (c) Draw a flow chart and write a function in C to calculate the sum of all the following series. (N is a positive series).

$$S = 1^1 + 2^2 + 3^3 + 4^4 + \dots + N^N$$

5 Attempt **any two** question.

10×2=20

- (a) Write short notes on :
- (i) Text files and bit files
 - (ii) fopen () and fread ()
 - (iii) stack and queue
 - (iv) dynamic memory allocation
 - (v) macros
 - (vi) linked list
- (b) Write a program to find the desired element in an array of n element. Using pointer for searching the element
- (c) What do you mean by C-Preprocessor? Give example of any two preprocessor directives?