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

PAPER ID : 1602 Roll No. | | | | | | | | | | |

B. Tech.

(SEM. II) THEORY EXAMINATION 2010-11

COMPUTER CONCEPTS & PROGRAMMING IN C

Time : 3 Hours *Total Marks : 100*

Note :— (1) This question paper consists of **THREE** sections. Section-A contains objective type questions and carries **20** marks. Section-B consists of short answer type questions which are of **30** marks and Section-C contains long answer type questions of total of **50** marks.

(2) Your answers for Sections B and C should be precise and to the point.

(3) Answer to the questions each section must be done at **one** place in your answer book.

(4) You are required to attempt all the questions.

SECTION—A

1. There are a total of 10 multiple choice questions. Only one of the answers out of given four choices is correct. Write the correct answer :— **(10×1=10)**

(i) The example of system software is :

(a) UNIX

(b) Compiler

(c) MS-DOS

(d) All of the above.

(ii) Devices used for producing hard copy is :

(a) Printers only

(b) Plotters only

(c) Scanners only

(d) Printer and Plotters both.

(iii) Which of the following is an example of scripting language :

(a) LISP

(b) C++

(c) PERL

(d) COBOL

(iv) How many bytes are occupied by the string literal constant "abc" in memory :

(a) 1 byte

(b) 3 bytes

(c) 4 bytes

(d) 2 bytes.

(v) Which of the C construct is used to terminate a loop in the middle :

(a) return statement

(b) continue statement

(c) break statement

(d) All of the above.

(vi) Minimum number of times a do while loop will execute :

(a) 2 times

(b) 1 time

(c) 0 time

(d) None of the above.

(vii) By default, array index in C language starts from :

(a) 2

(b) 1

(c) 0

(d) – 1

(viii) The complement of the relational operator (a = = b) is :

(a) (a < = b)

(b) (a > = b)

(c) (a ! = b)

(d) All of the above.

(ix) By default the return type of a function is :

(a) char

(b) float

(c) int

(d) void.

(x) Which of the following is an example of secondary memory :

(a) RAM

(b) ROM

(c) Cache Memory

(d) None of the above.

2. State whether the following statements are TRUE or FALSE : **(5×1=5)**

(i) Floppy disk is an example of main memory.

(ii) The array is used to store the elements of similar data type.

(iii) An entry controlled loop is executed at least once.

(iv) Type of a function depends upon its arguments type.

(v) ALU is integral component of CPU.

3. Fill in the blanks : **(5×1=5)**

(i) The scanner is an example of ..... device.

(ii) PROM is an example of ..... memory.

(iii) An integer pointer variable is declared as ..... .

(iv) The << is an example of ..... operator.

(v) The octal equivalent of $(100)_{10}$ is ..... .

SECTION—B

4. There are **seven** questions in this section. Attempt any **five** questions : **(6×5=30)**

(a) What are the different types of operators in C language ? Explain with example. Discuss the significance of each.

(b) Write an algorithm to print all the even numbers and odd numbers between any given two integers N1 and N2 (N1 < N2) and also print the sum of all even numbers and odd numbers.

(c) Write short note on the following with example in reference to C language :

(i) Data types

(ii) Entry and exit control loops,

(iii) Switch statement and if statement.

(d) (i) Write an algorithm to print the first 100 Fibonacci numbers and their sum.

(ii) Discuss various storage classes in C with suitable example. Also give their significance.

(e) Draw the flow chart and write a function in C to calculate the sum S of all the following series :

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

(N is a positive integer)

(f) Discuss the major components of a digital computer with suitable block diagram. Also discuss the functions of these components.

(g) Give the flow chart and algorithm to calculate the number of words in a given sentence.

5. This section contains **seven** parts. Attempt any **five** parts : (10×5=50)

(a) Write a program in C to store the floating point numbers in two matrixes A and B of size 4 × 4 each. Further the program should compute the summation and multiplication of the two matrixes and store the summation and multiplication in matrix C and D respectively.

(b) What do you mean by sorting ? Write a program in C to sort the given n positive integers. Also give the flow chart for the same.

(c) (i) Write a program in C that reads the two strings of length at least 7, then concatenate these strings.

(ii) Write a program in C that takes a year from twentieth century as an input and then tells whether it is a leap year or not ?

(d) (i) What do mean by pointers ? How pointer variables are initialized ? Write a program in C to swap the values of any two integer variables using pointers.

(ii) Write a function in C that finds the reverse of a given integer number.

(e) Create the database of students in C having the following attributes : Roll_no, Stud_name, Stud_address, Stud_city, Stud_PINCode, Stud_sem, Rank, and Branch. Also write the program in C to enter the data for 500 students in any order and then display the list of students for a given branch and semester on display.

(f) (i) What do you mean by parameter passing ? Discuss various types of parameter passing mechanism in C with example.

(ii) What do you mean by recursion ? Write a recursive function to calculate the factorial of a given integer.

(g) (i) Write a program that counts the total number of vowels in a given sentence.

(ii) Write a program in C to copy the text of one file to another.