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

PAPER ID : 1602　Roll No. ☐☐☐☐☐☐☐☐☐☐

B. Tech.

(Second Semester)Theory Examination, 2010-11

COMPUTER CONCEPTS & PROGRAMMING IN C

Time : 3 Hours]　　　　　　　　　　*[Total Marks : 100*

Section-A

Note : This question contains 10 questions of multiple choice, True/False and Fill in the blanks. Attempt all parts of this Section.

1.　(a)　C is a :　　　　　　　　　　2×10=20

　　　　(i)　High Level Language

　　　　(ii)　Low Level Language

　　　　(iii)　High Level Language with some low level features

　　　　(iv)　Low Level Language with high level features.

　　(b)　Which of the following is not a internal DOS command ?

　　　　(i)　Move　　　　　(ii)　Rd

　　　　(iii)　Edit　　　　　(iv)　Mkdir

(c) What would be the output of the following program?

```
main()
{
extern int i;
i=20;
printf("%d",sizeof(i));
}
```

(i) 2

(ii) 4

(iii) Would vary from compiler to compiler

(iv) Error, i undefined

(d) Consider the function:

Find (int x, int y)

{ return ((x < y ? 0 : (x–y)); }

let a, b be two non-negative integers. The call

find (a, find(a,b)) can be used to find the :

(i) Maximum of a, b

(ii) Positive difference of a, b

(iii) Sum of a, b

(iv) Minimum of a, b

1602   (2)

(e) Point out the error, if any in the given program fragment.

```
main ( )
{
int j = 1;
for (; ;)
{
print f ("%d", j++);
if(j>10)
break;
}}
```

(i) The condition in the for loop is must

(ii) The two semicolon in for loop must be dropped

(iii) The for loop must be replaced by while loop

(iv) No error.

(f) The value of an automatic variable that is declared but not initialized will be :

(i) 0

(ii) Unpredictable

(iii) −1

(iv) None of these

(g) If n=3, then the output of the statement printf("%d%d",n++,++n); will be :

(i) 3 5

(ii) 4 5

(iii) 4 4

(iv) is implementation dependent.

(h) The specifier used for double is :

(i) %Ld

(ii) %ld

(iii) %lf

(iv) %Lf

(i) Usually recursion works slower than loop.

(True/False).

(j) "define" and "include" are the example of

....

Section-B

Note : Attempt any *three* parts of this questions. All subquestions carry equal marks. $10 \times 3 = 30$

2. (a) (i) What is an operating system ? Give the classification of the operating system.

    (ii) Differentiate between external and internal DOS commands.

    (b) Explain the various data types in C giving suitable examples of each. Also give the classification of operators in C.

    (c) Convert the following numbers as specified :

    (i) $(110111101.01101)_2 = (?)_{10}$

    (ii) $(489.287)_{10} = (?)_2$

    (iii) $(1010111010101101.011010)_2 = (?)_{16} = (?)_8$

    (iv) $(AB4F.C1)_{16} = (?)_{10}.$

    (d) What do you understand by the term Algorithm ? Write an algorithm to find the sum of individual digits of a number.

1602   (5)

(e) Write a program in C to swap two values. All by value and call by reference both.

Section-C

Note: Attempt any *two* parts from each question. All questions are compulsory. 10×5=50

3. (a) Explain the various symbols used in Flow Charts. Draw the flow chart to find whether the given number is prime or not.

   (b) What is the use of header file ? Discuss.

   (c) What is the difference between a definition and declaration of a variable ? Explain by giving suitable example.

4. (a) Discuss the different storage classes in C.

   (b) What are the merits and demerits of static and dynamic memory allocation techniques ?

   (c) What is data type ? Explain the different data types in C.

5. (a) Write a program in C to simulate calculator using switch statement.

(b) Write a program in C to implement Stack using array.

(c) Write a program in C to print the following pattern.

```
A B C D E F G F E D C B A
A B C D E F     F E D C B A
A B C D E           E D C B A
A B C D                 D C B A
A B C                       C B A
A B                             B A
A                                   A
```

6. (a) Show the usage of break and continue statement by taking an example.

(b) Write an algorithm to sort the given list of integers.

(c) Write macro definitions with arguments for calculation of area and perimeter of a triangle, a square and a circle.

(7)

7. (a) Write a program in C to display the content of a given file say "a.txt".

    (b) Create a structure to specify data on students given below :

    Roll number, Name, Department. Course, Year of joining.

    Assume that there are not more than 100 students in the collage.

    (i) Write a function to print names of all students who joined in a particular year.

    (ii) Write a function to print the data of a student whose roll number is given.

    (c) Write a function to find the binary equivalent of a given decimal integer and display it.