

Name :
Roll No. :
Invigilator's Signature :

**CS/MCA/SEM-1/MCA-103/2011-12
2011**

COMPUTER PROGRAMMING WITH C

Time Allotted : 3 Hours

Full Marks : 70

*The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words
as far as practicable.*

**GROUP – A
(Multiple Choice Type Questions)**

1. Choose the correct alternatives for the following :

10 × 1 = 10

i) The output of the following code is

```
#include<stdio.h>
main()
{
    int x, y = 2;
    x = y<<1;
    printf ("%d", x );
}
```

- a) 1
- b) 2
- c) 3
- d) 4.



ii) The output of the following code is

```
#include<stdio.h>

main()
{
    int a = - 6, b = 2;
    if (a/b)
        printf ("True");
    else
        printf ("False");
}
```

- a) True b) False
- c) Compilation error d) none of these.

iii) The output of the following code is

```
#include<stdio.h>

main()
{
    int x = 3, y = 3, z = 3;
    z -- = -- x -- - -- y;
    printf ("x=%d, y=%d, z=%d", x, y, z);
}
```

- a) x=2, y=2, z=8 b) x=2, y=2, z=-5
- c) x=2, y=2, z=5 d) none of these.



iv) $a[i][j]$ is equivalent to

- a) $*(* a + i) + j$ b) $*(a + i) + j$
 c) $\&*(a + i) + j$ d) $\&(a + i) + j$.

v) Which one is the correct alternative of the following C declaration ?

```
int * ( * ( * ptr ) ( int ) ) ( char );
```

- a) ptr is a pointer to a pointer to a function taking int and char and returning pointer to int
 b) ptr is a pointer to a function, taking an int returning a pointer to function taking a char, returning a pointer to int
 c) ptr is a pointer to a pointer to a pointer to int and char
 d) none of these.

vi) What is printed when the following program is compiled and executed ?

```
int func(int x)
{
    if (x<=0)
        return(1);
    return func(x-1)+x;
}
main()
{
    printf ("%d\n", func(5));
}
```

- a) 12 b) 16
 c) 15 d) 11.



- vii) The declaration of float `*a[5]` is
- a) a normal pointer
 - b) an ordinary array
 - c) an array of pointer
 - d) a pointer to an array.
- viii) Which is not a storage class ?
- a) Auto
 - b) Struct
 - c) Typedef
 - d) Static.
- ix) The library function `exit()` causes an exit from
- a) the loop in which it occurs
 - b) the block in which it occurs
 - c) the function in which it occurs
 - d) the program in which it occurs.
- x) Which of the following is the correct order of evaluation for the following expression ?
- $$z = x + y * z / 4 \% 2 - 1$$
- a) `* / % + - =`
 - b) `= * / % + -`
 - c) `/ * % - + =`
 - d) `* % / - + =`



GROUP – B

(Short Answer Type Questions)

Answer any *three* of the following. $3 \times 5 = 15$

2. What do you mean by operator precedence and associative ?
Explain with an example. What is conditional operator ?
 $2 + 2 + 1$
3. a) What is pointer to a function ? Give an example. 2
b) Write the form of the fopen() function. What are the
various modes used for processing the data in files ? 3
4. Write a C-program to convert binary number to equivalent
decimal number.
5. What is the difference between structure and class ? What is
a self-referential structure ? $3 + 2$
6. What is the difference between array of pointer and pointer to
an array in respect of multidimensional array ? What is
structure pointer ? $3 + 2$

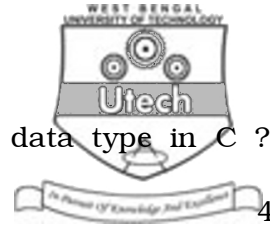
GROUP – C

(Long Answer Type Questions)

Answer any *three* of the following. $3 \times 15 = 45$

7. a) Explain the Tower of Hanoi problem. Write a C-program
to implement the Tower of Hanoi problem using
recursion. $3 + 3$
b) What do you mean by explicit and implicit type
conversions in C ? Explain with example. $2 + 2$
c) What is meant by the scope of a variable within a
program ? What is the purpose of external variable ?
What is its scope ? $3 + 1 + 1$

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8. a) What do you mean by enumerated data type in C ?
Explain with an example. 4
- b) Compare and contrast between structure and union
in C.5
- c) What do you mean by dynamic memory allocation ?
Critically compare between malloc() and calloc()
functions. 2 + 4
9. a) Write a program in C to generate Pascal's triangle up to
specified number of rows. 7
- b) Write a C-program to implement binary searching. 6
- c) What is a self-referential structure ? 2
10. a) Write a program to find GCD and LCM of two
non-negative integer values. 6
- b) Write a program to accept a number and find sum of its
individual digits repeatedly till the result is a single
digit. 5
- c) Explain the storage class in C. 4



11. a) What is the difference between two declarations? 3

`Int *a[20];`

`Int (*a)[21];`

- b) Write a program in C-programming language to print the set string in dictionary order using array of pointer(2-D array implementation). The strings are initially stored in 2-dimensional array. 6
- c) What is dangling pointer and void pointer ? 3
- d) What is memory leakage ? 3
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