

Name :

Roll No. :

Invigilator's Signature :



CS/MCA/SEM-1/MCA-103/2009-10

2009

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 : $10 \times 1 = 10$

i) Output of the following code is

```
#define N 2+3  
  
main ( )  
{  
  
    int a;  
  
    a=N*N;  
  
    printf("%d",a);  
  
}
```

- a) 25
- b) 13
- c) 0
- d) none of these.

ii) Output of the following code is

```
main ( )  
{  
    int a [ ] = { 0, 1, 2, 3, 4 }  
    int k, *p;  
    for (p=a, k=0, p+k<=a+4; p++, k++)  
        printf("%d", *(p+k));  
}
```

- a) 0 1 2 3 4 b) 0 2 4
c) compiler error d) none of these.

iii) Output of the following code is

```
main ( )  
{  
    int a[2][3] = { 1, 2, 3,  
                  4, 5, 6  
                };  
    printf ("%d", *(*a+1)+2);  
}
```

- a) 6 b) 2
c) compiler error d) none of these.

iv) Output of the following code is

```
#include <string.h>  
main ( )  
{  
    int k=strcmp("abc", "Abc");  
    printf("%d", k);  
}
```

- a) 0 b) 65
c) - 65 d) none of these.

viii) When applied to a variable, what does the unary "&" operator yield ?

- a) the variable's address
- b) the variable's right value
- c) the variable's binary form
- d) the variable's value.

ix) What will print when the sample code is executed ?

```
void main ( )  
{  
    int z, x=5, y=-10, a=4, b=2;  
    z=x++ -- -y * b / a;  
    printf("%d", z);  
}
```

- a) 5
- b) 6
- c) 10
- d) 11.

x) Consider the following declaration :

```
char const *p = 'd';
```

Which of the following is not a permissible operation ?

- a) *p++
- b) ++p
- c) (*p)++
- d) all.

GROUP - B

(Short Answer Type Questions)

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

2. What are the basic data types used in C language ? What are the user defined data types ? Explain briefly.

3. Write a C program to print —

```
      1
     1 0 1
    1 0 1 0 1
   1 0 1 0 1 0 1
```

4. What are the left shift and right shift operators ? Give some examples which implement those operators. What is a macro ? $4 + 1$

5. Write a C program which passes a string "This is a test" in command line and print those arguments one by one and also print the number of arguments.

6. Compare the use of the *switch* statement with the use of the nested *if-else* statement. Which is more convenient and why ?

GROUP – C

(Long Answer Type Questions)

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

7. a) Write a C program to print the prime numbers between 1 to 100.
- b) Why "&" is used in case of scanf () statement in C, while it is not used in printf() statement ?
- c) Write a C program to accept three integer numbers as the length of three sides of a triangle, test the validity of lengths and classify the triangle. $6 + 3 + 6$
8. a) What is function ? Explain with an example.
- b) What are the differences between malloc () and calloc () functions.
- c) What is C preprocessor ? What is its use ?
- d) What are the command line arguments ?
- e) What is the difference between arrays within a structure and the array of structure ? 5×3
9. a) What is a self-referential structure ? How can an individual structure member be accessed in terms of its corresponding pointer variable ?

b) What is the relationship between an array name and pointer ? What is the difference between array of pointers and pointer to an array ?

c) Write a C program to find the *greatest common divisor* (GCD) of two non-negative integer values.

$$(3 + 2) + (3 + 4) + 3$$

10. a) What is the purpose of main function ? What are the difference between void type and other data type used in function definition ?

b) What do you mean by scope of variable ? Explain briefly the scope of different types of variables.

c) Write a C program that will search the *k*th element in a list of *n* integers.

$$(3 + 2) + 5 + 5$$

11. Write short notes on any *three* of the following : 3×5

a) Dynamic memory allocation

b) Enumerated data types

c) Break and continue statements

d) Precedence and Associativity.
