

**2017**

**MCA**

**1st Semester Examination**

**INTRODUCTION TO PROGRAMMING**

**PAPER—MCA-101**

*Full Marks : 100*

*Time : 3 Hours*

*The figures in the right-hand margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

*Illustrate the answers wherever necessary.*

**Answer Q. No. 1 and any four from the rest.**

- 1. Answer any five questions :** 5×2
- (a) What is scope of a variable ?
  - (b) Name the different types of storage classes used in C ?
  - (c) What is an algorithm ?

- (d) Draw a flow chart to get the maximum of three numbers taken as input.
- (e) What is the use of size of and comma operator in C language ?
- (f) Give an example of each type of operators used in C.
- (g) What is the role of 'goto' statement in C ?
2. (a) What is keyword ? What is the role of 'return' statement in a function ?
- (b) Explain and write down the final value of the variables a, b, c after executing the following statements :

```
int a=0, b=1, c=2;
```

```
a=b++;
```

```
b=++c;
```

```
c=a++.
```

- (c) What is recursion ? Write a C program to calculate the  $n^{\text{th}}$  Fibonacci number using recursion.

(2+2)+3+(2+6)

3. (a) Explain different types of loops with an example. What is the difference between while and do-while loop?
- (b) Explain the use of break and continue statement in a loop using an example.
- (c) Write a program in C to convert a given decimal number to its binary equivalent. (3+2)+4+6
4. (a) What is an array? Write down the properties and advantage of using an array in a program.
- (b) Write a program in C to sort an array of integers using any sorting algorithm.
- (c) Write a program in C to implement matrix multiplication using two dimensional arrays. (1+2)+6+6
5. (a) How an array of characters differs from a string? Explain with an example.
- (b) Explain any four string handling library functions in C with an example.
- (c) Write a program in C to concatenate two strings without using any built-in function. 3+6+6

6. (a) Why a structure is used in C ? How a structure differs from a union ?
- (b) What is a pointer ? Explain how an array is handled with a pointer.
- (c) Write a program in C to swap two numbers using a function. (2+2)+(2+3)+6
7. (a) What is dynamic memory allocation ? When dynamic memory allocation for an array is required ?
- (b) Explain pointer arithmetic. Give an example of a pointer to a function.
- (c) Write a program in C to copy the content of one file to another file. (3+2)+(3+1)+6

**[ Internal Assessment — 30 Marks ]**

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