2015

MCA

1st Semester Examination

INTRODUCTION TO PROGRAMMING

PAPER—MCA-101

Full Marks: 100

Time: 3 Hours

The figures in the margin indicate full marks.

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

Illustrate the answers wherever necessary.

Attempt Q. No. 1 and any four from the rest.

1. Answer any five questions: 5×2

(a) When do we use Switch-case over if-else?

(b) What is static variable?

(c) Give an example of a pointer to a function.

(d) What is the difference between the following two expressions:

    # include "Studio.h"
    # include <Studio.h>

(Turn Over)
(c) What is the difference between 'array-of-pointers' and 'pointer to an array'?  

(f) Write a function to calculate the length of a string.  

(g) Write down the output of the following program:

```c
main () {
    char ch = 291 ;
    printf ("%d %c", ch, ch);
}
```

2. (a) What is the full form of IDE? Give an example of a ternary operator. 

(b) What is function prototype? Why it is needed?  

(c) Write a program to find the maximum among 10 integers (taken from the keyboard) using an "odd loop".  

(d) Write down the output of the following program:

```c
main () {
    int i = 3, j;
    j = ++ i * ++ i * ++ i;
    printf ("%d", j);
}
```

3. (a) Suppose we want to assign 32768 to an integer variable i. What is the suitable declaration among the following two: unsigned int i, long int i.  

Give proper explanation (assume 16-bit compiler).
(b) Write a program to make an infinite loop using recursion.  

(c) What is the difference between a macro and a global variable?  

(d) What are the differences between recursion and iteration?  

(e) What is the output of the program:

```c
main () { int i;
    for (i = 1; i < 100; i++)
        printf("%d", i);
}
```

4. (a) Explain bit-wise operator. What is the return type of `printf()`?  

(b) What is the command line argument? What is call-by-address?  

(c) Are the following statements valid?  

(i) `y = *p**q;`

(ii) `Y = p/q;`

(iii) `Y = p-q;`

Assume `p` and `q` are two pointers and `y` is an integer. Write proper explanation.  

(d) How do you assign ‘COMPUTER’ to a character array ‘ar’?
5. (a) Write down the use of the library functions: $2 \times 3$
getch (), strncpy (), strrev ()

(b) What is dynamic memory allocation? What is chain of pointers? 2+2

(c) Write a function to check a given string is palindrome or not without using any build in function from string.h library. 5

6. (a) Write an example of pointer to a structure? 2

(b) What is the difference between structure and union? How are values assigned to the members of structure? 3+3

(c) What are the purpose of the following escape sequence: '\r', '\n', '\b'. 3

(d) Write down the statements to open and close a file. 4

*Internal Assessment: 30*