Total No. of printed pages = 3

3 (Sem 6) MTH M3

2015

MATHEMATICS

(Major)

Theory Paper : M-6.3

(Computer Programming in C)

Full Marks – 40

Time – Two hours

The figures in the margin indicate full marks for the questions.

1. Answer any *six* questions : 1×6=6

   (a) Give one example each of 'main memory' and 'secondary memory'.

   (b) What is meant by 'machine level language' ?

   (c) Mention the utility of a 'compiler'.

   (d) What is the role of an 'assembler' ?

   (e) What is a 'flowchart' ?

   (f) What is an ASCII code ?

   (g) Name any two application software packages.

[Turn over

2. Answer any *two* questions : 2×2=4

(a) What is a 'string constant' ? Explain briefly with examples.

(b) What is meant by hierarchy of opertation ? Mention the operator precedence for arithmetic operators.

(c) Discuss the difference between assignment and equality.

3. Answer any *two* questions : 5×2=10

(a) Give the general form of 'if-else' statement in C and explain how it works with the help of a suitable example.

(b) Using 'switch' statement write a C program to find the value of y using

$$y(x, n) = \begin{cases} 1 + x & \text{when } n = 1 \\ 1 + \frac{x}{n} & \text{when } n = 2 \\ 1 + x^n & \text{when } n = 3 \\ 1 + nx & \text{when } n > 3 \text{ or } n < 1 \end{cases}$$

(c) Using 'for loop' write a program in C to sort a set of 50 given numbers in ascending order.

4. Answer any *two* questions : 5×2=10

(a) Write a program in C to find the sum of two 3×3 given matrices.

(b) What is a 'pointer' ? Explain its role with the help of a suitable example.

(c) Explain the utility of 'break' and 'continue' statement with the help of suitable examples. (No need to write the full program. Just write the segments where you use the statements).

5. Answer any *two* questions : 5×2=10

(a) What is a user defined function ? Why is it used ? How are such functions declared and called in a C program ? Explain with the help of a suitable example.

(b) Write a recursive function to display the first 50 terms of the fibonacci series :

0, 1, 1, 2, 3, 5, 8, 13, ...

Also write the main program.

(c) Explain briefly what is meant by 'call by value' and 'call by reference' of a function.