No. of Printed Pages : 3

MCS-011

MCA (Revised)

05644

Term-End Examination

June, 2013

MCS-011 : PROBLEM SOLVING AND PROGRAMMING

Time : 3 hours *Maximum Marks : 100*

(Weightage 75%)

Note : *Question number **1** is **compulsory**. Attempt **any three** questions from the rest.*

1. (a) Explain type cast and size of operator in C language with example. **6**

(b) Write an algorithm to check whether the given number is prime or not. **5**

(c) What is the difference between High level language and low level language ? Why C is referred as middle level language ? **6**

(d) How many bytes are assigned to store for following : **3**

(i) Double

(ii) Unsigned char

(iii) Unsigned integer

(e) Write a program segment to generate the following pattern using *"for"* and *"while loop"* 6

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* *
* * *
* * * *
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(f) Explain the concept of stepwise refinement technique. 4

(g) Give the C expression for the following algebraic expression : 6

(i) $\dfrac{ab^4c^2 - d}{m - n}$

(ii) $ab - \left[(e + f)^9 / c\right]$

(h) What is a logical error ? Give an example of logical error in C. 4

2. (a) What is a structure ? How structures are passed as function arguments ? Explain with an example. 10

(b) What is an array ? How arrays are declared and initialized ? Write a C program to add two matrices of 3×3 using arrays. 10

3. (a) Write a program to find out square and cube of given number using macros. 6

(b) What is # define preprocessor in C. How it is implemented and used in C ? 4

(c) What is a string ? Write a function in C to convert lower case letters to upper case letters in a given string *without* using *strupp* ? 10

4. (a) What are address and indirection operators in C ? How strings are declared through pointers ? Write a program that test a string for a palindrome using pointer notation. 10

(b) Give the types of file supported in C. Explain formulated Input/Output functions as well as string Input/Output functions. 10

5. (a) Explain the use of following functions in C : 10

(i) Calloc function

(ii) realloc function

(iii) fseek ( )

(iv) f tell ( )

(v) str cpy ( )

(b) Differentiate Sequential and Random Access files. 4

(c) Explain briefly null pointer assignment. Write a program in C to illustrate this concept. 6