

MCA (Revised)

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)
$$\frac{ab^4c^2 - d}{m - n}$$

(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 *strup*? 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) ftell ()
 - (v) strcpy ()
- (b) Differentiate Sequential and Random Access files. 4
- (c) Explain briefly null pointer assignment. Write a program in C to illustrate this concept. 6
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