

Code: DC05
Time: 3 Hours

Subject: PROBLEM SOLVING THROUGH C
Max. Marks: 100

JUNE 2011

StudentBounty.com

NOTE: There are 9 Questions in all.

- Question 1 is compulsory and carries 20 marks. Answer to Q.1 must be written in the space provided for it in the answer book supplied and nowhere else.
- The answer sheet for the Q.1 will be collected by the invigilator after 45 Minutes of the commencement of the examination.
- Out of the remaining EIGHT Questions answer any FIVE Questions. Each question carries 16 marks.
- Any required data not explicitly given, may be suitably assumed and stated.

Q.1 Choose the correct or the best alternative in the following: (2 × 10)

- a. In the following code fragment, the output will be:
- ```
int a = 12;
printf("%o", a);
```
- (A) 14 (B) 12  
(C) 10 (D) syntax error
- b. The void type is used for
- (A) returning the value (B) creating generic pointers  
(C) creating functions (D) avoid error
- c. % e represents
- (A) a real number (B) expression  
(C) unsigned integer (D) a pointer
- d. The variable that are declared outside all the function are called
- (A) local variable (B) global variable  
(C) auto variable (D) none of the above
- e. Consider the following statements
- ```
int x = 6, y = 8, z, w;
y = x++;
z = ++x;
```
- The value of x, y, z by calculating the above expression are:-
- (A) y = 8, z = 8, x = 6 (B) y = 6, x = 8, z = 8
(C) y = 9, z = 7, x = 8 (D) y = 7, x = 8, z = 7
- f. To declare an array s that holds a 5 character string, you would write:-
- (A) char s[5] (B) string s[5]
(C) char s[6] (D) string s[6]

- g. The && and || operators
- (A) compare two numeric value (B) combine two numeric value
(C) compare two boolean value (D) none of these
- h. Each C pre-processor directive begin with
- (A) # (B) include
(C) main() (D) {
- i. The C language includes the header file standard input & output in
- (A) stdlip.h library (B) stdio.h library
(C) conio.h library (D) math.h library
- j. Array element reference operator is
- (A) () (B) []
(C) → (D) &

**Answer any FIVE Questions out of EIGHT Questions.
Each question carries 16 marks.**

- Q.2** a. Explain loop construct briefly. Give suitable examples. (8)
- b. Write an algorithm that reverses digits of an integer. (8)
- Q.3** a. Explain the use of the following special operators in C
- (i) Ternary operator (ii) Pointer operator
(iii) Size of operator (iv) Address operator (8)
- b. Write a program to display the name of the day depending upon the number entered from the keyboard using switch-case loop. (8)
- Q.4** a. What is expression? Explain rules governing type conversion & expression. (8)
- b. Write a program to find the factorial of the given number using the recursive function. (8)
- Q.5** a. Why do we use function? Give advantageous features of user-defined function. (8)
- b. Write a program to find the largest value of any three numbers. (8)
- Q.6** a. Describe the qualities and capabilities of a good algorithm. (6)
- b. Write an algorithm that read a set of numbers from the standard input and sort them in ascending order. (10)

- Q.7** a. Define a structure for a student having name, roll number and marks obtained in six subjects. Write a program to input the details for 20 students and print the details of the students who have scored more than 80% marks overall. (12)
- b. Differentiate between run-time errors and logical errors. (4)
- Q.8** a. Write any four file-related functions and explain their use. (8)
- b. Write a C program that removes duplicates from an ordered array. (8)
- Q.9** a. Discuss the various aspects of program design. How does program design relate to program efficiency? (10)
- b. Write brief note on the following:
- (i) Basic path testing.
 - (ii) Black box testing. (6)