Code: DC05 Time: 3 Hours Subject: PROBLEM SOLVING THROUGH 'C'

Max. Marks: 100

JUNE 2011

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	Cł	Choose the correct or the best alternative in the following:			(2×10)
	a.	In the following code fragment, the int a = 12; printf("%o", a);	outp	ut will be:	
		(A) 14(C) 10	(B) (D)	12 syntax error	
	b.	The void type is used for			
		(A) returning the value(C) creating functions		creating generic pointers avoid error	
	c.	% e represents			
		(A) a real number(C) unsigned integer		expression a pointer	
	d.	. The variable that are declared outside all the function are called			
		(A) local variable(C) auto variable		global variable 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	ne ab	ove expression are:-	
		(A) $y = 8, z = 8, x = 6$ (C) $y = 9, z = 7, x = 8$		y = 6, x = 8, z = 8 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](C) char s[6]		string s[5] string s[6]	

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g. The && and || operators

(A)	compare two numeric value	(B)	combine two	numeric value
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- (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) []
$(\mathbf{C}) \rightarrow$	(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.	e (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.	e (8)
Q.5	a.	Why do we use function? Give advantageous features of user-defined function.	d (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.	d (10)
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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.)
	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?	n (10)
	b.	Write brief note on the following:	

(i) Basic path testing.(ii) Black box testing.(6)