2008-09

Time : 3 hours

Full Marks : 80

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Answer from both the Groups as directed.

Group – A

(Compulsory)

Answer all questions : 2×10 = 20

1. Select the correct option from the following :

(a) Which is the correct way to declare a pointer :

(i) int_ptr x ;
(ii) int * ptr ;
(iii) * int ptr ;
(iv) None of these

(b) If you want to exchange two rows in a two dimensional array, the fastest way is to :

(i) Exchange the elements of two rows

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(Turn over)
(ii) Exchange the addresses of each elements in the two rows

(iii) Store the addresses of the rows in the array of pointers and exchange the pointer

(iv) None of these

(c) A typecast is used to:

(i) Define a new data type

(ii) Force a value to be of a particular variable type

(iii) Rename and old type

(iv) None of these

(d) What will be the output of the following C program?

```c
#include <stdio.h>

#define f(x, y) x * y - y * y + 1
#define g(x, y) f(1, 1), f(1, -1)

int main()
{
    int dif;
    dif = f(1, -1) + g(1, -1);
    printf("The difference is = %d", dif);
}
```

(i) The difference is = 12
(ii) The difference is = 1
(iii) The difference is = −1
(iv) None of these

(e) Operator precedence determines which operator?
   (i) Operates on the largest numbers
   (ii) Is used first
   (iii) Is most important
   (iv) None of these

(f) If you don’t initialize a static array, what will be the elements set to?
   (i) Zero
   (ii) An undetermined value
   (iii) A floating point number
   (iv) None of these

(g) What will be the output of the following C program?
    
    #include <stdio.h>
    main()
    {
        int * i, * j, a = 1, b = 2, c;
    
    EL – 9/1                          (3)                        (Turn over)
c = (a = a + b, b = a / b, a = a * b, b = a - b);
i = &c;
printf("%d", - ("i");
}
(i) 93
(ii) 92
(iii) 91
(iv) 90

(h) Which is more appropriate for reading in a multi word string?
(i) Gets()
(ii) Printf()
(iii) Scanf()
(iv) Puts()

(i) Function argument can be:
(i) A structure member
(ii) A pointer variable
(iii) A complete structure
(iv) All of the above

(j) The ternary operator ( ? : ) and size of operator have:
(i) Same associativity
(ii) Different associativity
(iii) No associativity
(iv) None of these

Group – B

Answer any four questions.

2. What do you mean by C Token? Explain each in details using a sampling of CPL.  

3. What is flow chart? Define the symbols used in flow charts. Also discuss the advantages and disadvantages of flow chart.  

4. Write a program in C to accept any year as input through keyboard and check whether the given year is a leap year or not.  

5. Distinguish between the followings:
   (a) Array Variable and Pointer Variable
   (b) Structure and Union  

6. Write a program in C to transpose of r x c matrix.  

7. What are pre-processors in C? Explain each of them with suitable examples.  

EL – 9/1 (5) (Turn over)
8. Write a program in C to calculate the factorial of any given number using recursive function. 15

9. Write a program in C to sort the elements of array in ascending order using Selection Sort Technique. 15

10. Write a program in C to print the below given format:

   * * * * * * *
   * * * * * * *
   * * * * * * *
   * * * * * *
   * * * *
   * * *
   * *

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EL – 9/1 (400) ( 6 ) Comp/II/05/09 — V