

Total No. of printed pages = 4

CAI-302/Prog. in C/3rd Sem/2014/N

PROGRAMMING IN C / C++

Full Marks – 70

Pass Marks – 28

Time – Three hours

The figures in the margin indicate full marks
for the questions.

Answer question No.1 and any *four* from the rest.

1. Differentiate the following : 5×2=10
 - (i) while and do while
 - (ii) break and continue
 - (iii) array and structure
 - (iv) actual arguments and formal arguments
 - (v) call-by-value and call-by-reference.

2. (a) Discuss any two types of operators available in C. 4

- (b) Evaluate the following using operator precedence rule : 4
$$I = (a*b + c) / e + d / c + (d - a) + e*d / d$$

where $a = 2$, $b = 3$, $c = 4$, $d = 8$ and $e = 5$.

[Turn over

- (c) What is the use of a switch statement ? Write a C program to determine whether a given character is vowel or consonant. $2+5=7$

3. (a) Write a C program to evaluate the following series : 5

$$1 + \frac{1}{2!} + \frac{1}{3!} + \dots + \frac{1}{n!}$$

- (b) Write down the output of the following code segment : 5

```
int main ( )
{
    int i = 0, a = 6, b ;
    while ( i <= 10)
    {
        a = a + 5 ;
        b = 0 ;
        i ++ ;
    }
    printf ( "a = %d, b = %d", a, b ) ;
    return 0 ;
}
```

Show the steps explicitly.

- (c) Write a C program to arrange the elements of an array in ascending order. 5
4. (a) Write a C program to count the number of prime numbers available in an array of 10 numbers read through the keyboard. Also display those prime numbers. 8
- (b) Write a C program to perform the multiplication of two matrices of order 2×3 and 3×2 . 7
5. (a) Write a C program to swap two numbers using functions. 6
- (b) What do you mean by recursion ? Write a C program to find out the factorial of a number using recursion. $3+6=9$
6. (a) What do you mean by pointers in C ? 3
- (b) Write a C program to find the average of 10 numbers using pointers. 6
- (c) Write a C program to define a structure with tag student and fields student name, roll number and department. Read and display the data. 6

7. (a) What do you mean by a union ? Give an example. 3

(b) What is the use of the following standard string functions ? 3×2=6

(i) strlen ()

(ii) strcpy ()

(iii) strcmp ()

(c) Write a C program to count the number of characters, tabs, spaces and new lines in a file.

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