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44 (1) INCP/BCA-HC-1016

2021

(Held in 2022)

INTRODUCTION TO C PROGRAMMING

Paper : BCA-HC-1016

Full Marks : 80/60

Time : Three hours

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

For CBCS students **only two** questions are to be answered from Q. No. **6**.

1. Write the following terms with suitable example. **(any five)** 2×5=10
 - (a) Syntax of declaring and accessing elements of an array.
 - (b) Function definition, function call and function prototype.
 - (c) Pointer Declaration and Definition.
 - (d) Syntax of for loop.
 - (e) Syntax of structure definition and accessing structure variable through data operator.
 - (f) Opening and closing a file.

Contd.

2. Differentiate the following with suitable example : $2 \times 5 = 10$

- (a) While and do-while loop.
- (b) Call by reference and call by value.
- (c) Recursive and non-recursive functions.
- (d) Arrays and structures.
- (e) Binary file and Text file.

3. What will be the output of the following program segment? (Assuming no syntax error) $2 \times 5 = 10$

(a) If $x = 3$, $y = 0$ and $z = -4$, what is the value of the following expression?

(i) $x \& \& y \parallel z$

(ii) $x \parallel y \& \& z$

(b)

```
for (int x = 1; x <= 20; x++)
    printf ( "% d / n ", x);
```

(c)

```
for (int x = 1; x <= 20; x++)
{
    for (int y = 1; y <= 5; y++)
        printf ( " % d " , x );
    printf ( " / n " );
}
```

(d) Given the following declaration :

```
int a = 5 ;
```

```
int b = 7 ;
```

```
int * p = & a ;
```

```
int * q = & b ;
```

what is the value of each of the following expression ?

(i) ++a (ii) ++(*p)

(e) for (int x = 12; x < 7; x --)

```
printf ("%d\n", X );
```

4. Answer the following : **(any three)** 4×3=12

(a) What do you mean by two dimensional array ? State some situations that can easily be represented by these.

(b) Distinguish between variables and keywords.

(c) Write a program in C to generate factorial of a number.

(d) What do you mean by precedence of operators in C ? Explain with example.

5. Print out the errors, if any in the following C statements. Also give proper justification.

1×8=8

(a) int x = 10 ;

(b) printf (a);

- (c) `int a, b;`
`scanf ("% f % f", & a, & b);`
- (d) `int a, p;`
`p = & a;`
- (e) `X = (a + b) ÷ (a - b);`
- (f) `while (z ≥ 0)`
`sum + z = z;`
- (g) `int sum (int x, y);`
- (h) `fun (void);`

6. Write C program for the following :

5×6=30

- (i) Write a program to sort elements of an array.
- (ii) Write a program to check wheather a number is perfect or not.
- (iii) Write a program to add a 2×2 matrix.
- (iv) Write a program to swap two numbers using function.
- (v) Write a program to find the roots of a quadratic equations.
- (vi) Write a program to read a string and count the number of vowels present in the string.