MBC-0031031002   Seat No. _____

B. C. A. (Sem. I) (CBCS) Examination

November / December – 2016

CS - 02 : Problem Solving Methodologies & Programming in C

(New Course)

Time : $2\frac{1}{2}$ Hours]   [Total Marks : **70**

Q.1 (A) Attempt following objective questions   **(4)**
1. What is variable?
2. What is constant?
3. A float is _____ bytes wide, whereas a double is _____ bytes wide.
4. Which is the correct order of evaluation for the below expression?
   z = x + y * z / 4 % 2 – 1

(B) Answer in brief (any one)   **(2)**
1. Write down hierarchy of all operators.
2. Explain type casting with example segment.

(C) Answer in detail (any one)   **(3)**
1. Explain logical not operator with example.
2. Explain any three symbol of flowchart.

(D) Write note on following (Any One)   **(5)**
1. Algorithm
2. Pre-Processor:-File inclusion

Q.2 (A) Point out the error, if any and find out output   **(4)**

1. Point out the error, if any in the for loop.

```c
#include<stdio.h>
void main()
{
    int i=1;
    for(;;)
    {
        printf("%d\n", i++);
        if(i>10)
            break;
    }
}
```

2. What will be the output of the program?

```c
#include<stdio.h>
void main()
{
    int i=0;
    for(; i<=5; i++);
        printf("%d", i);
}
```

3. Point out the error, if any in the while loop.

```c
#include<stdio.h>
void main()
{
    int i=1;
    while()
    {
        printf("%d\n", i++);
        if(i>10)
            break;
    }
}
```

4. What will be the output of the program?

```c
#include<stdio.h>
void main()
{
    int a = 500, b = 100, c;
    if(!a >= 400)
        b = 300;
    c = 200;
    printf("b = %d c = %d\n", b, c);
}
```

(B) Attempt any one   **(2)**
   1. Explain nested if...else
   2. Explain break statement

(C) Answer the following question in detail (Any One)   **(3)**
   1. Explain while loop with example.
   2. Explain for loop with example.

(D) Answer the following question (Any One)   **(5)**
   1. Explain switch...case with example.
   2. Explain nested loop with example

Q.3 (A) Answer the following objective questions (4)

1. By default user defined function return _____ type value.
2. How many storage classes available in C Language.
3. Will the following functions work? (if Yes, what is the output)

```c
int f1(int a, int b)
{
    return ( f2(20) );
}
int f2(int a)
{
    return (a*a);
}
```

4. What will be the output of the program?

```c
#include<stdio.h>
void fun(int*, int*);
void main()                    void fun(int *i, int *j)
{                              {
    int i=5, j=2;                  *i = *i**i;
    fun(&i, &j);                   *j = *j**j;
    printf("%d, %d", i, j);    }
}
```

(B) Attempt any one (2)
1. What is UDF? Explain with example.
2. Explain atol() and atof() with example

(C) Answer the following question in detail (Any One) (3)
1. What is pointer? Discuss pointer notation.
2. List out types of UDF and explain any one with example

(D) Answer the following question (Any One) (5)
1. Differentiate call by value and call by reference.
2. Explain recursion with example

Q.4 (A) Answer the following objective questions (4)
1. Name of array refers _____ address of an array.
2. Array index starting from _____ and ending to _____.
3. Give any one difference between structure and union.
4. Give example of 3-D array initialization.

(B) Attempt any one (2)
1. What is structure? Explain in brief
2. What is union? Explain in brief

(C) Answer the following question in detail (Any One) (3)
1. Explain 2-D array with example
2. How to pass entire 1-D array to UDF? Explain with example.

(D) Answer the following question (Any One) (5)
1. Explain nested structure with example.
2. How to pass structure into UDF? Explain with example.

Q.5 (A) Answer the following objective questions (4)
1. _____ Function is used to read the single character from file.
2. Give the syntax of fprintf().
3. Pointer to structure used_____ operator to access structure elements.
4. What will be the output of the program (sample.c) given below if it is
   executed from the command line (turbo c under DOS)?
   cmd\> *sample Good Morning* Yash

   ```
   /* sample.c */
   #include<stdio.h>

   void main(int argc, char *argv[])
   {
      printf("%d %s", argc, argv[1]);
   }
   ```

(B) Attempt any one (2)
1. Explain pointer to pointer
2. Explain any two file mode

(C) Answer the following question in detail (Any One) (3)
1. Differentiate:- Text V/s Binary mode
2. Write a program to write and read student roll number and name into text file.

(D) Answer the following question (Any One) (5)
1. Explain command line arguments with example.
2. Explain any two file handling functions with syntax and example.

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