

**BACHELOR OF PRINTING ENGINEERING EXAMINATION 2017**  
**(1<sup>ST</sup> YEAR 1<sup>ST</sup> SEMESTER Supplementary)**

**PROGRAMMING LANGUAGE**

**Time: Three Hours**

**Full Marks: 100**

**Answer Question No. 1 and any FOUR Questions from the rest**

1. a) Write the output of the following program snippets and *justify* them in brief :

- i) 

```
#include<stdio.h>
main() {
    int i=5 ;
    switch ( i ) {
        default : i += 1;
        case 4 : i += 2; break;
        case 6 : i += 3; break;
        case 8 : i += 4; break;
    }
    printf ("%d", i);
}
```
- ii) 

```
#include<stdio.h>
main() {
    int i=9;
    for(;i--;i--;i--)
        printf("%d",i);
}
```
- iii) 

```
#include<stdio.h>
main(){
    char txt[5];
    printf("%d", sizeof(txt));
}
```
- iv) 

```
#include<stdio.h>
main() {
    int i=5, j=2;
    float a, b=2, c;
    a=i/j;
    c=i/b;
    printf("%f %f\n", a, c);
}
```
- v) 

```
#include<stdio.h>
void swap(int a, int b)
{
    a=a+b;
    b=a-b;
    a=a-b;
    printf("%d %d",a,b);
}
void main()
{
    int a=5,b=3;
    printf("%d %d",a,b);
    swap(a,b);
    printf("%d %d",a,b);
}
```

- b) Write whether the following statements are TRUE or FALSE.
- Cache memory is faster than RAM.
  - malloc* function requires two parameters.
  - do-while* is an entry control.
  - `int x5, x_y, A_x_2;` is a valid statement.
  - "FILE" is the name of a system-defined structure in C.
- (5×3)+(5×1) = 20
2. a) Write a program in C to display the Fibonacci numbers within a given range, specified by the user.
- b) Write a program in C to concatenate two strings without using `<string.h>`. Check for unequal strings.  
e.g. String-1: *Prin* and, String-2: *ting* Output: *printing*
- 10+10 = 20
3. a) Write a program to find out the roots of a *quadratic equation*? Print the roots in the form of  $x + iy$  if they are imaginary.
- b) Write a program in C to find the reverse of a number.
- c) Briefly discuss Structure in C.
- 10+6+4 = 20
4. a) Write a program in C to display the following pattern. Input the number of lines 'n' from user:
- ```

*****
***
*
```
- b) Distinguish between *call-by-value* and *call-by-reference* function calling mechanisms.
- c) What are pre-processor directives in C?
- 10+6+4 = 20
5. a) Write a program in C, to multiply two matrices. Check the row and column numbers of the matrices for validity of the operation.
- b) Write a program in C to print the highest prime number between 1 and 100.
- 12+8 = 20
6. a) Draw a *flow-chart* to read three numbers and display the maximum and minimum of them.
- b) What are the different looping constructs in C? Discuss with examples.
- c) Write a program in C to compute factorial of a given number.
- 8+6+6 = 20
7. a) Write a program in C to read characters from an existing text file and display the contents in console (screen).
- b) What is Recursion? Discuss with an Example.
- c) Distinguish between *break* and *continue* statements. Explain with suitable examples.
- 10+5+5 = 20