15IT102 – PROGRAM DESIGN AND DEVELOPMENT
(For the candidates admitted during the academic year 2015 – 2016)

Note:
(i)   **Part - A** should be answered in OMR sheet within first 45 minutes and OMR sheet should be handed over to hall invigilator at the end of 45th minute.

(ii)   **Part - B** and **Part - C** should be answered in answer booklet.

Max. Marks: 100

Time: Three Hours

PART – A (20 × 1 = 20 Marks)
Answer ALL Questions

1. Critical thinking is
   (A) Thinking out the box
   (C) Creating ideas
   (B) Analyzing ideas
   (D) Lateral thinking

2. Testing is the process of
   (A) Removing bugs
   (C) Correcting the format
   (B) Finding bugs
   (D) Documenting the code

3. Volatile memory is
   (A) Disk memory
   (C) Secondary storage
   (B) RAM
   (D) Optical disk

4. Which is not a backslash character constant?
   (A) \t
   (C) \z
   (B) \n
   (D) \r

5. What is the output for the following code segment?
   int x = 0; for(x = 1; x < 4; x++);printf("x = %d", x):
   (A) x = 0
   (C) x = 3
   (B) x = 1
   (D) x = 4

6. '*continue*' command cannot be used with
   (A) *for*
   (C) *do-while*
   (B) *Switch*
   (D) *while*

7. Which of the following cannot be checked in a *switch-case* statement?
   (A) Float
   (C) Integer
   (B) User defined data type
   (D) Character

8. Find the value of 'A' at the end of the following program segment B = 10; A = B++:
   (A) 11
   (C) 10
   (B) 12
   (D) 9

9. What is the output of X if X =10 switch (*x*) {case 10 : printf("y"); case 20: printf("z");}?
   (A) yz
   (B) y
   (C) *x*
   (D) *xz*

10. # include <stdio.h>
    int main ( )
    {printf("India");
    main ( );
    }
    Find the output.
    (A) Infinite times
    (B) 32767 times
    (C) One time
    (D) Till stack overflows

11. Which of the following is a valid function call (Assuming the function exists)?
    (A) funct;
    (B) funct *x,y*;
    (C) funct ( );
    (D) int funct ( );

12. Life of static variable is
    (A) Persists between function calls
    (B) Control remains within the block
    (C) Global
    (D) Local

13. Structures are
    (A) Built-in data type
    (B) Composite data type
    (C) Constructed data type
    (D) Compound data type

14. What is the output?
    main ( )
    {char a[15] = "SRM Univ"; printf ("%d",sizeof (a));}
    (A) 20
    (B) 15
    (C) 17
    (D) 8

15. Objects of the defined structure type can be created
    (A) At the time of structure declaration
    (B) After the structure declaration
    (C) Either at the time of structure declaration or after the structure declaration
    (D) Before structure declaration

16. Amount of the memory allocated to a union object is
    (A) The amount of memory necessary to contain its largest member
    (B) The amount of memory necessary to contain its smallest member
    (C) The sum of the memory required by all its members
    (D) The average amount of memory required by all its members

17. Comment on the following declaration:
    int *ptr, p;
    (A) ptr is a pointer to integer, p is not
    (B) ptr, p both are pointers to integer
    (C) ptr is pointer to integer, p may or may not be
    (D) ptr and p both are not pointer to integer

18. The operator used to get the value at address stored in a pointer variable is
    (A) &
    (B) **
    (C) *
    (D) &&

19. Pointer P2 points to pointer P1. How will you denote pointers P1 and P2
    (A) *P1, * P2
    (B) **P1, *P2
    (C) P1, *P2
    (D) *P1, **P2

20. Let P be a pointer to an integer i, which assignment is correct?
    (A) P = i;
    (B) *P = i;
    (C) P = &i
    (D) P = *i;

PART – B (5 × 4 = 20 Marks)
Answer ANY FIVE Questions

21. Explain the typedef data type with an example.

22. Compare in terms of their functionality
    (i)   while and do while
    (ii)   break and continue

23. Compute the summation for the following series 2+4+6+8+....+n?

24. Write a program using recursive function to find the factorial of a given number.

25. Given a list of n elements and a search element. Write a C program to find whether the search element exists in the list or not. If the search element exists, print its position in the array, otherwise print "does not exist".

26. How arrays are different from structures in C language? Explain with example.

27. Find the value of x, y and z by considering the following values:
    a = 8, b = 4, address of A = 2000, address of B = 1500, pointer P1 refers 'a' and pointer P2 refers 'b'.
    (i)   x = *P1 * * P2;
    (ii)   y = P++
    (iii)   z = 4*– *P2 / *P1 ;

PART – C (5 × 12 = 60 Marks)
Answer ALL Questions

28. a. With an algorithm and flow chart explain how the different roots of a quadratic equations are calculated.

(OR)
b. Explain with diagram and scenario the various steps involved in problem solving.

29. a. Write an algorithm and C program to print the following pattern:

```
      *
    *   *
  *   *   *
*   *   *   *
```

(OR)
b. Explain about entry and exit controlled looping with an example program.

30. a. Write functions to perform different arithmetic operation. Get the option from user as 1 for addition, 2 for subtraction 3 for multiplication and 4 for division, and invoke the function according to the user choice and print the output.

(OR)

b. State the importance of recursion and use the recursion concept to generate Fibonacci series.

31. a. Write a program to accept a string and print its reverse.

(OR)

b. i. What is the need for 'Array of structures'? Explain with an example.

ii. Write a C program to print the name of the student, register no., different marks, total marks using structure.

32. a. Write a function that compares two integer arrays to check whether they are identical.

(OR)

b. How to define function arguments in pointers? Explain with an example.

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