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# FIRST SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2016

(CUCBCSS-UG)

Core Course—Computer Science

## BCS 1B 01—PROBLEM SOLVING USING C

Time: Three Hours

Maximum: 80 Marks

- I. Answer the following:
  - 1 Define algorithm.
  - 2 What is the output of the following code?

```
# include <studio.h>
  int main()
  {
    int i=1;
    printf("%d %d %d", ++i, i++, ++i);
    return (0);
}
```

- 3 Differentiate between Keyword and Identifier.
- .4 Define symbolic constant.
- 5 What is the associativity of conditional operator?
- 6 Name the command that is used to skip the rest of a loop and carry on from the top of the loop again.
- 7 Define a pointer variable.
- 8 What is printed when this program is executed?

```
int f(int x) {
    if (x<=4)
        return x;
        return f(--x);
    }
    void main () {
        printf ("%d/n", f(7));
    }</pre>
```

- 9 Define Union.
- 10 Define macros.

(10 × 1 = 10 marks) **Turn over** 

#### II. Answer all questions:

- 11 What is bottom up approach in C?
- 12 What is the general form of conditional operator? Give an example.
- 13 Write a program to read three numbers and print them in ascending order.
- 14 Distinguish between break and continue statement.
- 15 Explain the use of \* operator.

 $(5 \times 2 = 10 \text{ marks})$ 

### III. Answer any five questions:

- 16 Explain the basic structure of C program.
- 17 Write a program to find the product of two matrices.
- 18 Differentiate with suitable examples, actual and formal arguments in C function.
- 19 Write a program to count the number of boys whose weight is less than 50 kg. and height is greater than 170 cm. from a list of n boys using for loop.
- 20 Write any four string handling functions and explain with example.
- 21 What are pointers? Explain how to perform arithmetic operations on pointers.
- 22 What are files? Explain how files are opened.
- 23 Explain dynamic memory allocation.

 $(5 \times 4 = 20 \text{ marks})$ 

#### IV. Answer any five questions:

- 24 Explain different looping structures available in C with examples.
- 25 Write short ntoes on:
  - (a) Global variables.
  - (b) Structures in C.
  - (c) Multidimensional arrays.
- 26 Write a program to find the roots of a quadratic equation.
- 27 Define a structure called cricket that will describe the following information:

Player name, team name, batting average. Using *cricket* declare an array player with 50 elements and write a program to read the information about all the 50 players and print a team-wise list containing names of players with their batting average.

- 28 (a) Write a program to merge two sorted array in to a single sorted array in ascending order.
  - (b) Write a function to remove duplicates from an ordered array.
- 29 Write a recursive function to generate and print first n Fibonacci numbers.
- 30 What are preprocessor directives in C? Explain various forms of macro substitution.
- 31 Two files DATA1 and DATA2 contain sorted list of integers. Write a program to produce a third file DATA which holds a single sorted, merged list of these two lists.

 $(5 \times 8 = 40 \text{ marks})$