Programming for Problem Solving (BCS101)
Question Bank

Unit-1

1. Brief the Generations of the Programming languages with examples.
2. Write the short notes on (i) Compiler (ii) Interpreter (iii) Linker (iv) Loader
3. Define flowchart and draw a flowchart to find largest among three numbers.
4. Explain in detail about all storage classes with proper example.
5. Draw block diagram of computer and explain each of its components in brief.
6. Discuss the various symbols used in flow chart and draw the flow chart to find the reverse of a number.
7. What is operating System? Explain its type.
8. Explain Basic data type with their size and range and format specifier.
9. Differentiate between :
    a) Compiler and Interpreter.
    b) Linker and loader
    c) Source code and object code
    d) High level and Low-Level Programming
    e) .obj and .exe files
    f) Syntax error and logical error

Unit-2

1. What do you mean by Operator and Operands? Discuss the operator precedence and associativity of all the operators.
2. What is meant by type conversion? Explain about implicit and explicit type conversion with examples.
3. Explain different type of control statements used in c programming with example.
4. Differentiate between type conversion and typecasting. Write a program to input a floating-point number and find leftmost digit of integral part of a number.
5. Explain Logical, Unary and Bitwise operators in detail.
6. What is use of break in switch case? Write a program to develop a calculator using case in character format.
7. Explain different type of operators in C programming. Which concept makes the difference between operators when precedence is same?
8. What are different conditional statements in c programming? Explain with proper example of each.
9. If three sides of triangle are input through keyboard, draw a flowchart to check whether a triangle is isosceles, equilateral, scalene or right-angled triangle. Also write a program in C for the same.
10. Write a program to find out the greatest number out of three numbers.

UNIT-3

1. Write short notes on while, do while and for loops.
2. Differentiate between:
    a) while and do-while loops
    b) while and for loops
    c) break and continue statements
    d) Entry controlled and exit controlled loops
3. Explain break and continue statements with an example.
4. Write a Program to find the entered number is Palindrome number or not.

5. Write a program to print the pattern:

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

6. Write a program in C to generate the Fibonacci series up to the last Fibonacci number less than 100. Also finds the sum of all Fibonacci numbers and total count of all Fibonacci numbers.

7. Write a program in C to print the following pattern:

```
234567
34567
4567
567
67
7
```

8. Write a Program to print the all prime numbers between 1 to 500.
9. Write a program that prints the real roots of a quadratic equation. Also draw flowchart for the same.
10. Write a program to find the sum of series using function
    1! + 2! + 3! + 4! +---------- n terms.
11. Write a program to print the following pattern.

```
1
22
333
4444
```

12. Write a Program to find the entered number is Armstrong number or not.
13. Write a program to print the pattern

```
1
2 3
4 5 6
7 8 9 10
```

14. What is an array? How is it declared and initialized?
15. What are the advantages of using array?
16. Define and explain multidimensional arrays.
17. Write the program for matrix multiplication of two matrix elements.
18. Write a program to find the product of two 2-dimensional array and print the output in separate array.
19. Write a program to find out the odd place and even place numbers from the array elements and print the sum of these numbers respectively.
20. Write a program to find maximum and minimum element of an array.
21. Write a program to find transpose of matrix.
22. Write a program to store a record of 100 student like name, marks and roll number and print using structure.
23. Write a program two find out the odd and even number from the array elements and its count.
24. Create a suitable structure in C language for keeping the records of the employees of an organization about their code, Name, Designation, Salary, Department, and City of posting. Also write a program in C to enter the records of 100 employees and displays the name of those who earn more than 20,000.

25. Define a structure for a student having roll number, name and Marks obtained in six objects. Write a program that input the details of 50 students and print the details of only those students who have scored more than 80%marks overall.
26. Write short notes on:
    a) Structures
    b) Unions
    c) Enumerated data types

27. Differentiate between:
    a) Arrays and structures
    b) Structures and unions

Unit-4

1. What is function? Explain its types.
2. Define recursive function? Write a program to find the factorial of a number with recursive function.
3. Write a program to print Fibonacci series using recursion.
4. Differentiate between call by value and call by reference. Write a program in C that computes the area and circumference of a circle with radius taken as input using call by reference in functions.
5. Write a program for the selection sort and explain it with example.
6. Implement sorting technique using bubble sort on the following sequence:

   34, 78, 12, 5, 3, 98, 101, 15

7. What is searching? Write a program to implement linear search and binary search.
8. What do you mean by sorting? Write a program in C to sort 'n' positive integers using bubble sort. Also draw the flow chart for the same.

Unit-5

1. What is string? Explain string handling functions. Write a program to find the number of vowels in a string.
2. State the features of a pointer. Explain pointer arithmetic.
3. Explain dynamic memory allocation concept with proper example. What is lifetime of a variable which is created dynamically?
4. Differentiate between malloc () and calloc () with proper example.
5. Why are preprocessor required? Explain all preprocessor directives with example.
6. What do you mean by Macro? Explain types of Macro with example.
7. Discuss about the command line argument with example.
8. Explain the concept of pointer in self-referential structure with proper example.
9. What are pointers? Why are they required? How do you declare and initialize them? Write a program to read two integers 'x' and 'y' and double the contents of the two variables 'x' and 'y' using pointers.

FILE HANDLING:

10. Explain the different type of modes and I/O function in file handling.
11. Explain file handling and write a program for copying the content of one file into another file.
12. Difference between read and write mode in file handling.
13. WAP to copy content of one file into another file and also count the no. of characters copied.
14. Write short notes on:

a) Text file and binary file
b) fseek() and ftell()
c) fopen() and fread()
d) fscanf() and fprintf()