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Instructions : [MAX Marks: 100 Time : 90 minutes]

- Answer all the questions.
- Each question carries 2 marks.
- There is no negative marking.

SECTION – A : Loops and Control Structures [40 marks]

Q1. Write a C++ program to display the first 10 natural numbers.

Q2. Write a C++ program to find the sum of all even numbers between 1 and 100.

Q3. Write a C++ program to print the Fibonacci series up to a given number.

Q4. Write a C++ program to check whether a given number is prime or not.

Q5. Write a C++ program to calculate the factorial of a given number.

Q6. Write a C++ program to check whether a given number is Armstrong or not.

Q7. Write a C++ program to find the sum of digits of a positive integer.

Q8. Write a C++ program to reverse a given number.

Q9. Write a C++ program to check whether a given number is a palindrome or not.

Q10. Write a C++ program to display the multiplication table of a given number.

Q11. Write a C++ program to print the pattern:

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

Q12. Write a C++ program to print the pattern:

```
1
22
333
4444
55555
```

Q13.Write a C++ program to print the pattern:

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

Q14.Write a C++ program to print the pattern:

```
1
12
123
1234
12345
```

Q15. Write a C++ program to find the factorial of a given number using recursion.

Q16. Write a C++ program to print the sum of the series: 1 + 1/2 + 1/3 + ... + 1/n.

Q17. Write a C++ program to calculate the LCM (Least Common Multiple) of two numbers.

Q18. Write a C++ program to check whether a given number is a perfect number or not.

Q19. Write a C++ program to find the reverse of a given string using recursion.

Q20. Write a C++ program to generate all possible permutations of a string using recursion.

SECTION – B : Functions and Recursion [30 marks]

Q1. What is a function in C? Why is it used?

Q2. Write a C++ program to calculate the power of a number using recursion.

Q3. Write a C++ program to find the GCD (Greatest Common Divisor) of two numbers using recursion.

Q4. Write a C++ program to check whether a given string is a palindrome or not using a recursive function.

Q5. Write a C++ program to swap two numbers using call by value.

Q6. Write a C++ program to swap two numbers using call by reference.

Q7. Write a C++ program to check whether a given year is a leap year or not using a function.

Q8. Write a C++ program to check whether a given number is even or odd using a function.

Q9. Write a C++ program to check whether a given number is a prime number or not using a function.

Q10. Write a C++ program to find the sum of digits of a positive integer using recursion.

Q11. Write a C++ program to find the length of a string using recursion.

Q12. Write a C++ program to calculate the power of a number using a recursive function.

Q13. Write a C++ program to check whether a given number is a perfect square or not using a recursive function.

Q14. Write a C++ program to find the factorial of a given number using iteration.

Q15. Write a C++ program to find the maximum of three numbers using a function.

SECTION – C : Switch Cases and Conditional Statements [30 marks]

Q1. Write a C++ program to check whether a given character is a vowel or a consonant using switch case.

Q2. Write a C++ program to find the largest among three numbers using switch case.

Q3. Write a C++ program to check whether a given number is positive, negative, or zero using if-else statements.

Q4. Write a C++ program to check whether a given year is a leap year or not using if-else statements.

Q5. Write a C++ program to calculate the sum of digits of a positive integer using while loop and if-else statements.

Q6. Write a C++ program to display the day of the week based on the given number using switch cases.

Q7. Write a C++ program to check whether a given number is divisible by 5 and 11 using if-else statements.

Q8. Write a C++ program to check whether a given character is an alphabet, digit, or special character using if-else statements.

Q9. Write a C++ program to check whether a given number is a perfect square or not using if-else statements.

Q10. Write a C++ program to calculate the average of three numbers using if-else statements.

Q11. Write a C++ program to perform basic arithmetic operations (addition, subtraction, multiplication, division) based on user input using switch cases.

Q12. Write a C++ program to check whether a given number is a prime number or a composite number using if-else statements.

Q13. Write a C++ program to calculate the factorial of a given number using while loop and if-else statements.

Q14. Write a C++ program to check whether a given number is a palindrome or not using if-else statements.

Q15. Write a C++ program to check whether a given year is a leap year or not using nested if-else statements.

GOOD LUCK