BCA(SEC)

(NEP)

B.Sc. Second Semester End Examination - 2024

PAPER - SEC-202P

Full Marks : 20 ***Time : 2 hours***

The figures in the right-hand margin indicate marks.

Candidates are required to give their answers in their own words as far as practicable.

Illustrate the answers wherever necessary.

Answer any one question : 1×15

1. Write a program in Python to print the highest prime factor of a number. For example, the prime factors of 30 are 2, 3, 5. So the program will print the highest prime factor 5.

2. Write a program a Python that finds and displays the record of a student who has achieved the second highest marks.

3. Using function, write a program in Python that calculates the Greatest Common Divisor (GCD) of two numbers without using in-built function, prints the GCD and also displays whether this number is even or odd.

4. Display the following pyramid of prime numbers depending on the number of lines (n) taken as input from the user. For example, if n=4, the pattern is as follows.

   2

   3 5

   7 11 13

   17 19 23 29

5. Write a program in Python that finds and displays the highest palindrome in a given string.

6. Write a program in Python that checks whether a given number taken as input from the user is perfect number or not. Note : A perfect number is a positive integer that is equal to the sum of its positive divisors, excluding the number itself. A divisor of an integer x is an integer that can divide x evenly. For example, if number =28, the sum of divisors excluding 28 is 1+2+4+7+14=28 is perfect number. Another example is 6.

7. Write a program to convert a number from Integer to Binary using Python.

(Continued)

8. Write a program in Python that checks whether a given number taken as input from the user is Armstrong number or not. Note : Armstrong number is a number that is equal to the sum of cubes of its digits. For example, 153=1^3 + 5^3+3^3 =153 is a Armstrong number. Another example is 370.

9. Write a program in Python that reads a string, counts the number of vowels and consonants and prints the product of these two values. For example, for input string "Computer", no. of vowels =3, no. of consonants = 5. So output to be displayed is 3×5=15.

10. Write a program in Python that displays the nth Fibonacci number. For example, consider the Fibonacci series 0, 1, 1, 2, 3, 5, 8, 13..... If n=6, the output is 5.

Viva - 03

PNB - 02