Programming Assignment-17

Question 1:

Ans.

```
def evenly_divisible(a, b, c):
    return sum(num for num in range(a, b + 1) if num % c == 0)

# Examples
print(evenly_divisible(1, 10, 20))  # Output: 0
print(evenly_divisible(1, 10, 2))   # Output: 30
print(evenly_divisible(1, 10, 3))   # Output: 18
```

Question 2:

Ans.

```
def correct_signs(expression):
    # Evaluate the expression using the eval function safely
    return eval(expression)

# Examples
print(correct_signs("3 < 7 < 11"))       # Output: True
print(correct_signs("13 > 44 > 33 > 1"))   # Output: False
print(correct_signs("1 < 2 < 6 < 9 > 3"))  # Output: True
```

Question 3:

```
def replace_vowels(string, char):
    vowels = "aeiou"
    return ''.join(char if letter in vowels else letter for letter in string)

# Examples
print(replace_vowels("the aardvark", "#"))      # Output: "th# ##rdv#rk"
```

```
print(replace_vowels("minnie mouse", "?"))      # Output: "m?nn?? m??s?"
print(replace_vowels("shakespeare", "*"))       # Output: "sh*k*sp**r*"
```

Question 4:

Ans.

```
def factorial(n):
    if n == 0 or n == 1:
        return 1
    return n * factorial(n - 1)

# Examples
print(factorial(5))  # Output: 120
print(factorial(3))  # Output: 6
print(factorial(1))  # Output: 1
print(factorial(0))  # Output: 1
```

Question 5:

Ans.

```
def hamming_distance(str1, str2):
    # Ensure the two strings are of equal length
    if len(str1) != len(str2):
        raise ValueError("Strings must be of the same length")
    return sum(ch1 != ch2 for ch1, ch2 in zip(str1, str2))

# Examples
print(hamming_distance("abcde", "bcdef"))  # Output: 5
print(hamming_distance("abcde", "abcde"))  # Output: 0
print(hamming_distance("strong", "strung")) # Output: 1
```