

Programming Assignment-19

Question 1:

Ans.

```
def double_char(s):  
    return ''.join([char * 2 for char in s])
```

Examples

```
print(double_char("String"))    # → "SSttrriinnngg"  
print(double_char("Hello World!")) # → "HHeellllloo WWoorrrlddd!!"  
print(double_char("1234!_ "))  # → "11223344!!__ "
```

Question 2:

Ans.

```
def reverse(value):  
    if isinstance(value, bool):  
        return not value  
    else:  
        return "boolean expected"
```

Examples

```
print(reverse(True))  # → False  
print(reverse(False)) # → True  
print(reverse(0))     # → "boolean expected"  
print(reverse(None))  # → "boolean expected"
```

Question 3:

Ans.

```
def num_layers(n):
```

```
thickness_mm = 0.5 * (2 ** n) # Thickness in mm after folding n times
thickness_m = thickness_mm / 1000 # Convert to meters
return f"{thickness_m}m"
```

Examples

```
print(num_layers(1)) # → "0.001m"
print(num_layers(4)) # → "0.008m"
print(num_layers(21)) # → "1048.576m"
```

Question 4:

Ans.

```
def index_of_caps(s):
    return [i for i, char in enumerate(s) if char.isupper()]
```

Examples

```
print(index_of_caps("eDaBiT")) # → [1, 3, 5]
print(index_of_caps("eQuINoX")) # → [1, 3, 4, 6]
print(index_of_caps("determine")) # → []
print(index_of_caps("STRIKE")) # → [0, 1, 2, 3, 4, 5]
print(index_of_caps("sUn")) # → [1]
```

Question 5:

Ans.

```
def find_even_nums(n):
    return [i for i in range(1, n + 1) if i % 2 == 0]
```

Examples

```
print(find_even_nums(8)) # → [2, 4, 6, 8]
```

```
print(find_even_nums(4)) # → [2, 4]
```

```
print(find_even_nums(2)) # → [2]
```