1. Let the variable x be "dog" and the variable y be "cat". Write the values returned

by the following operations: a) x\*4 + ' ' + 4\*y b) x\*len(x+y) (UQ-MAY 2024)

Ans: a)dogdogdogdog catcatcatcat

b)dogdogdogdogdogdog

2. What will be the output if the following code fragments are executed? (UQ-MAY 2024)

for j in range(2,10,4):

print(j)

Ans: 2

6

3. Enumerate the various selection structures and control statement types in Python

and elucidate each with suitable examples. (UQ-MAY 2024)

Ans: Selection Structures – If-else, Match case

If statement: Used to execute a block of code if a condition is true.

Eg: x = 10

if x > 5:

print("x is greater than 5")

If-else statements: The computer must pause to examine or test a condition. If the condition is true, the computer executes the first alternative action and

skips the second alternative. If the condition is false, the computer skips the first alternative action and executes the second alternative.

Eg: x = 3

if x > 5:

print("x is greater than 5")

else:

print("x is less than or equal to 5")

Multiway If statement: Used to test multiple conditions in sequence.

Eg: x = 10

if x < 5:

print("x is less than 5")

elif x == 10:

print("x is equal to 10")

else:

print("x is greater than 5 but not 10")

Match case: A Python match-case statement takes an expression and compares its value to

successive patterns given as one or more case blocks. Only the first pattern that matches gets executed.

Eg: n = int(input("Enter the number: "))

match n:

case 0: print("Monday")

case 1: print("Tuesday")

case 2: print("Wednesday")

case 3: print("Thursday")

case 4: print("Friday")

case 5: print("Saturday")

case 6: print("Sunday")

case default: print("Invalid day number")

Control Statements : For loop, While loop

For loop: Used to iterate over a sequence. It can be written using range function ,ie,range()

Eg: for i in range(5):

print(i)

While Loop: Executes a block of code as long as a condition is true.

Eg: x = 3

while x > 0:

print(x)

x += 1

Loop control statements:

i)break statement: used to immediately exit a loop, even if the loop condition is still true.

Eg:

for i in range(5): output

if i == 3: 0

break 1

print(i) 2

ii)continue statement: is used to skip the rest of the code inside the current loop iteration and move on to the next iteration of the loop.

Eg:

for i in range(5): output

if i == 3: 0

continue 1

print(i) 2

4

iii)pass statement: is a placeholder used when a statement is required syntactically, but no action is needed. It allows you to write empty blocks of code without causing an error.

Eg: if num > 0:

print(“positive”)

else:

pass

4.Explain type conversion with example. (UQ-JAN 2024)

A type conversion function is a function with the same name as the data type to which

it converts.

Eg:

radius = input("Enter the radius: “) ->3.2

int(radius) ->3

int function converts a float to an int by truncation, not by rounding to the

nearest whole number.

5. Illustrate the use of range() in Python. (UQ-JAN 2024)

Ans: The range() function returns a sequence of numbers, mainly used when working with for loops.

The range() function can be represented in three different ways, or you can think of them as three range() parameters:

► range(stop\_value) : starting from 0 by default, and increments by 1 (by default) upto stop\_value

► range(start\_value, stop\_value): This generates the sequence based on the start and stop value increments by 1 (by default).

► range(start\_value, stop\_value, step\_size): It generates the sequence by incrementing the start value using the step size until it reaches the stop value.

Eg: for i in range(6):

print(i)

6. Jack says that he will not bother with analysis and design but proceed directly to coding his programs. Why is that not a good idea? (UQ-JUNE 2023)

Ans: Skipping analysis and design leads to:

Unclear Requirements: The program may not meet user needs.

Poor Structure: Results in messy, unmaintainable code.

Increased Bugs: Overlooking potential issues leads to more errors.

Time Wastage: Fixing problems later is more costly and time-consuming.

Inefficiency: Lack of planning can result in redundant or poorly optimized code.

Proper analysis and design ensure clarity, efficiency, and long-term success of the project.

7. Write the output of the following python statements : . (UQ-JUNE 2023)

i) round(12.57) ii) 5//2 iii) int(6.5)

Ans**i)** 13

**ii)** 2

**iii)** 6

8. What is the output of the following Python code. Justify your answer. . (UQ-MAY 2023)

x = 'abcd'

for i in range(len(x)):

print(i)

Ans: 0

1

2

3

9. Write the syntax and semantics of the multiway-if statement. (UQ-MAY 2023)

Ans: Syntax:

if condition1:

# Block of code if condition1 is True

elif condition2:

# Block of code if condition1 is False and condition2 is True

elif condition3:

# Block of code if condition3 is True

else:

# Block of code executed if all the above conditions are False

Semantics:

Evaluate if:

* Check the first condition. If True, execute its block and skip the rest.

Evaluate elif:

* Sequentially check elif conditions if the if condition is False. Execute the first True block and skip the rest.

Execute else:

* If none of the if or elif conditions are True, execute the else block as a fallback.

10. What is the output of the following print statement in Python? (UQ-JUNE 2022)

(a) print (9//2) (b) print (9/2)

Ans: (a) 4  
(b) 4.5