

BHARATIYA VIDYA BHAVAN
COMPETENCY BASED QUESTIONS
COMPUTER SCIENCE

1. Name of the Topic/Unit	REVISION TOUR GRADE 11
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Expected Learning Outcomes
Students will be able to

1. Recognize and recall the various **keywords** and **data types** in Python programming language.
2. Interpret and compare the various **tokens** in Python.
3. Implement and execute **programs** in Python.
4. Differentiate the **mutable and immutable types** of data.
5. **Apply** their knowledge and **identify** the correct choice from a set of choices.
6. **Construct** statements for solving problems.
7. **Assess** their thinking capabilities and abilities to understand the statement-based questions.

Highlight of the core concept and major areas
dictionary, random, lists, tuples, string

OBJECTIVE TYPE QUESTIONS

1) Consider a dictionary, personal = {"Anitha":19, "Shalik":33}. Choose the correct statement which illustrates the output after executing the expression personal["Rekha"].

- A. As "Rekha" is not a value in the given dictionary, Python raises a KeyError exception.
- B. As "Rekha" is not a key in the dictionary, Python raises a SyntaxError.
- C. As "Rekha" is not a key in the dictionary, Python raises a KeyError exception.
- D. No exception will occur.

Answer: C. As "Rekha" is not a key in the dictionary, Python raises a KeyError exception.

2) Sara is learning Python and she is confused about the output of the following code.

```
import random
values=(101,102,103,104,105)
ll=random.randint(1,3)
ul=random.randint(2,4)
for i in range(ll,ul):
    print(values[i],end="$")
```

Help her in finding the POSSIBLE OUTPUTS from the following:

- A. 102\$104\$
- B. NO OUTPUT
- C. 102\$103\$104\$
- D. 104\$105\$

Answer: B and C

3) What is the output of the following code?

```
print('Coding', end='//')
print('is', end='//')
print('fun', end='//')
```

- A. Coding/is/fun/
- B. Coding//is//fun

- C. Coding//is//fun//
- D. Coding/is/fun

Answer:C Coding//is//fun//

4)To insert the string "python" to the 4th position in the list L, which of the following statement is used?

- A. L.insert(4, "python")
- B. L.insert(3, "python")
- C. L.add(4, "python")
- D. L.append(4, "python")

Answer:B. L.insert(3, "python")

ASSERTION AND REASONING QUESTIONS

1)**Assertion(A):** List is a mutable data type.

Reasoning (R): In Python, the type of variable is determined only during runtime.

Answer:b. Both A and R are True and R is the not the correct explanation for A.

2)S1= "Home" *3

Assertion (A): The value of S1 will be "HomeHomeHome".

Reasoning (R): The operands of operator '*' needs to be a string and any numeric value.

Answer: b. Both A and R are True and R is the not the correct explanation for A.

3) **Assertion (A):** The output of statement print(bool(None)) will be False.

Reasoning (R): In Python, boolean is considered as a subtype of integers.

Answer:b. Both A and R are true and R is not the correct explanation for A

CASE STUDY BASED QUESTIONS

1)Rohit has executed two set of statements on a dictionary dict1:

```
del dict1
print(dict1)
dict1.clear()
print(dict1)
```

Will he get the same output for both sets of statements? Justify your answer.

Answer.No. del statement will delete the dictionary object whereas clear() deletes the key-value pairs in the dictionary, and the dictionary object exists.

2) Kavya is writing a code to generate some numbers. She is not able to complete the code hence the incomplete code she has written looks like the following. Fill in the given blanks and complete the code for her:

```
n, ans=10,1
```

```
if n%2 == 0:
ans = ans + n__2 # Write operator to find square of n
n____1 # Write augmented operator to increment n by 1
_____ # Print value of 'ans' with message like – “Answer is :”_____
```

Answer:

```
n, ans=10,1
if n%2 == 0:
    ans = ans + n**2
    n+=1
print(“Answer is: ”, ans)
```

3) Shubham is learning Python programming and has created the given list:

lst=["We'll", "cross", "that", "bridge", "when", "we", "come", "to", "it"]. He is confused about statements he should write for some tasks. Help him in write Python statements for the following:

- A) To print ['cross', 'bridge', 'we']
- B) To find the index of 'we' in the list

Answer:

- A) lst[1:6:2]
- B) lst.index('we')

<p>1. Name of the Topic/Unit 2. Expected Learning Outcomes 3. Highlight of the core concept and major areas</p>	<p>FUNCTIONS Local and Global Scope of the function Functions returning values Argument Passing Default argument in function call</p>
<p>Assertion Reasoning</p> <p>a. Both the assertion(A) and reasoning(R) are true, and the reasoning(R) is the correct explanation of the assertion. b. Both the assertion(A) and reasoning(R) are true, but the reasoning(R) is not the correct explanation of the assertion. c. The assertion(A) is true, but the reasoning(R) is false. d. The assertion(A) is false, but the reasoning(R) is true.</p> <p>1)Assertion: Functions make code more organized and maintainable. Reasoning: By breaking down a program into smaller functions, it becomes easier to manage and understand.</p> <p>Answer: a. Both the assertion and reasoning are true, and the reasoning is the correct explanation of the assertion.</p> <p>2)Assertion: Recursion is a powerful technique for solving problems, but it can lead to stack overflow errors. Reasoning: Each recursive function call adds a new frame to the call stack, which can lead to memory issues.</p> <p>Answer: a. Both the assertion and reasoning are true, and the reasoning is the correct explanation of the assertion.</p> <p>3)Assertion: Functions in Python can have default parameter values. Reasoning: Default parameter values allow the caller to provide arguments for some parameters while omitting others.</p> <p>Answer: a. Both the assertion and reasoning are true, and the reasoning is the correct explanation of the assertion.</p> <p>4)Assertion: Lambda functions in Python can replace regular functions in all scenarios. Reasoning: Lambda functions are concise and can be used for any function, regardless of complexity.</p> <p>Answer: c. The assertion is true, but the reasoning is false.</p> <p>5)Assertion: In Python, all function arguments are passed by reference. Reasoning: When a function is called with arguments, it can modify the original values of those arguments. Answer: d. The assertion is false, but the reasoning is true.</p>	

6) Consider the following code:

```
p = 250
def pyt():
    global p
    p = 150
print(p)
```

Assertion: 150 will be the output of the above code

Reasoning: variable p used inside the function is of Local scope

Answer: d. The assertion is false, but the reasoning is true.

7) A function code is given as follows:

```
def calc (val1 = 25):
    print(val1 * 15)
```

Assertion: We can call the above function either by statement 'calc(7)' or 'calc()'.

Reasoning: The function in which default arguments is given, it depends on the caller that the function can be called with or without the value.

Answer: a. Both the assertion and reasoning are true, and the reasoning is the correct explanation of the assertion.

8) **Assertion:** Keyword arguments are related to the function calls.

Reasoning: When you use keyword arguments in a function call, the caller identifies the arguments by the parameter name.

Answer: a. Both the assertion and reasoning are true, and the reasoning is the correct explanation of the assertion.

CASE STUDY BASED QUESTIONS:

1) Consider the code below and answer the questions that follow:

```
def Mult(n1, n2): #Line 0
    res = n1*n2 # Line 1
    return (res) # Line 2
    print(n1, "times", n2, "=", n1*n2) #Line 3
ans=Mult(2, 5) # Line 4
```

i) When the code above is executed, what gets printed?

- A. 10
- B. 32
- C. 2 times 5 = 10
- D. Nothing gets printed.

Answer: D) Nothing gets printed.

ii) What will be the value of Variable *ans* equal to after the code is executed.

- A. 10

- B. 32
- C. 2 times 5 = 10
- D. None

Answer: A) 10

iii) What will be the output of the code if we will place Line3 before Line 2.

- A. 10
- B. 32
- C. 2 times 5 = 10
- D. Nothing gets printed.

Answer: C) 2 times 5 = 10

iv) After making the changes according to question (iii) in the code, if we change the Line 0 as “def Mult(n1, n2 =8):”, the output will be

- A. 10
- B. 16
- C. 2 times 8 = 256
- D. 2 times 5 = 10

Answer: D) 2 times 5 = 10

2) **Function Arguments:** These are the values provided in the function call /invoke statement. Required arguments are the arguments passed to a function in correct positional order. Keyword arguments are related to the function calls. When you use keyword arguments to a function call, the caller identifies the arguments by the parameter name. A default argument is the argument that assumes a default value, if a value is not provided in the function call for that argument.

i) Which arguments are also known as positional arguments?

- A. Keyword argument
- B. Default argument
- C. Required argument
- D. Variable length argument

Answer: C.Required argument

ii) How many types of arguments are there in functions?

- A. 2
- B. 3
- C. 4
- D. 5

Answer:B.3

iii) _____ are the values provided in the function call/invoke statement.

- A. Functions
- B. Arguments
- C. Preprocessor
- D. Models

Answer:B.Arguments

iv) Which of these is/are formal argument(s)?

- A. Required argument
- B. Keyword argument
- C. Default argument
- D. All of these

Answer:D.All of these

3)Case Study:

Imagine you are developing a Python program for a library management system. Discuss how you would design and implement functions to handle book checkouts, returns, and tracking late fees. Provide a detailed breakdown of the functions that you would create.

Answer:

Library Management System

We would create functions such as :

checkout_book() / issue_book()

return_book()

calculate_late_fees()

These functions would interact with the database, update records, and perform necessary calculations.

4)Case Study:

You are working on a project to analyze stock market data using Python. Explain how you would use functions to retrieve, process, and display stock price information. Provide a structure for the functions and describe the input and output parameters for each.

Answer:

Stock Market Data Analysis

We would create functions like:

fetch_stock_data() / getdata()

process_data()

display_data() / display()

These functions would use libraries like Pandas to retrieve and manipulate data, then display it in charts or tables.

5)Case Study:

Consider a scenario where you are building a web application with Python and need to create user authentication functions. Explain the design and implementation of functions for user registration, login, and password reset, highlighting any security considerations.

Answer:

User Authentication in a Web Application

We would create functions for user registration, login, and password reset:

register_user()

login_user()

reset_password()

These functions would interact with a database to store user data and handle user authentication securely, with appropriate security measures like hashing passwords (encrypt the password).

OBJECTIVE TYPE QUESTIONS

1) What is the primary purpose of using functions in Python?

- A. To store data
- B. To improve code readability
- C. To create classes and objects
- D. To handle exceptions

Answer: B. To improve code readability

2) In Python, which keyword is used to define a function?

- A. func
- B. def
- C. define
- D. function

Answer: B.def

3) Which of the following is an example of a function call in Python?

- A. `def my_function():`
- B. `my_function(42)`
- C. `return my_function()`
- D. `my_function = 42`

Answer: B. my_function(42)

4) What is the purpose of a function parameter in Python?

- A. To store the function's name
- B. To indicate the function's return type
- C. To pass values into the function
- D. To define local variables

Answer: C. To pass values into the function

5) In Python, which statement is used to exit a function and return a value?

- A. `quit`
- B. `break`
- C. `return`
- D. `exit`

Answer: C.return

6) What is the difference between a function definition and a function call in Python?

- A. There is no difference; they are the same thing.
- B. A definition creates a new function, while a call executes an existing function.
- C. A definition is used in Python 2, while a call is used in Python 3.
- D. A definition contains the main code, while a call specifies the function's name.

Answer: B: A definition creates a new function, while a call executes an existing function.

7) In Python, which of the following keywords is used to indicate a function that doesn't return any value?

- A. void
- B. None
- C. return break
- D. null

Answer: B. None

8) What is the purpose of the `*args` parameter in Python functions?

- A. It defines a list of arguments for the function.
- B. It allows the function to accept a variable number of positional arguments.
- C. It specifies default values for function arguments.
- D. It is used to declare named arguments.

Answer : B. It allows the function to accept a variable number of positional arguments.

9) What is a lambda function in Python?

- A. A function with a large number of parameters
- B. A function that doesn't require parentheses
- C. An anonymous, small, and inline function
- D. A function that returns multiple values

Answer: An anonymous, small, and inline function

10) In Python, what does the `docstring` of a function do?

- A. It provides a name for the function.
- B. It defines the function's return type.
- C. It contains the function's implementation details.
- D. It serves as documentation for the function's purpose and usage.

Answer: It serves as documentation for the function's purpose and usage

<p>1. Name of the Topic/Unit 2. Expected Learning Outcomes 3. Highlight of the core concept and major areas</p>	<p>Database Concepts and SQL Define key terms in RDBMS Identify and write MySQL queries to create, store, manipulate databases/tables. Identify and differentiate Primary/Candidate/Alternate/Foreign/ Composite Key Identify the data types and constraints used to create columns in a table.</p>
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ASSERTION AND REASONING QUESTIONS

- a. Both the assertion(A) and reasoning(R) are true, and the reasoning(R) is the correct explanation of the assertion.
- b. Both the assertion(A) and reasoning(R) are true, but the reasoning(R) is not the correct explanation of the assertion.
- c. The assertion(A) is true, but the reasoning(R) is false.
- d. The assertion(A) is false, but the reasoning(R) is true.

1)**Assertion:** In mysql an aggregate function performs a calculation on a set of values and returns a single value

Reasoning: sum(), min(), max() and count() are aggregate functions

Answer. a. Both the assertion(A) and reasoning(R) are true, and the reasoning(R) is the correct explanation of the assertion. not
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2)**Assertion :**In mysql trim() function performs a calculation on a set of values and returns a single value

Reasoning: sum() is an aggregate function

Answer. d. The assertion(A) is false, but the reasoning(R) is true.

3)**Assertion:** In mysql ALTER is a DML command

Reasoning: ALTER command can be used to change the degree of a relation.

Answer. d. The assertion(A) is false, but the reasoning(R) is true.

4)**Assertion:** Foreign key is used to **join two tables** ?

Reasoning: In a database system alternate key is a primary key.

Answer. c. The assertion(A) is true, but the reasoning(R) is false.

5)**Assertion:** In mysql Like keyword is used with wild card characters.

Reasoning: '*' and '?' are two wild card characters

Answer. c. The assertion(A) is true, but the reasoning(R) is false.

6)**Assertion:** In mysql 'where' clause is used to implement selection(select operation)

Reasoning: Having clause is used with aggregate functions

Answer. b. Both the assertion(A) and reasoning(R) are true, but the reasoning(R) is not the correct explanation of the assertion.

7)**Assertion:** In mysql UNIQUE constraint ensures that all values in a column are different
Reasoning: NOT NULL constraint is used to ensure that a given column of a relation is never assigned the null value.

Answer b. Both the assertion(A) and reasoning(R) are true, but the reasoning(R) is not the correct explanation of the assertion.

8)**Assertion (A):** In SQL, the aggregate function Avg() calculates the average value on a set of values and produces a single result.
Reasoning (R): The aggregate functions are used to perform some fundamental arithmetic tasks such as Min(), Max(), Sum() etc

Answer. b. Both the assertion(A) and reasoning(R) are true, but the reasoning(R) is not the correct explanation of the assertion.

CASE STUDY BASED QUESTIONS

1) Ms. Shalini has just created a table named “Employee” containing columns Ename, Department and Salary. After creating the table, she realized that she has forgotten to add a primary key column in the table. Help her in writing an SQL command to add a primary key column EmpId of integer type to the table Employee. Thereafter, write the command to insert the following record in the table:

EmpId- 999
Ename- Shweta
Department: Production
Salary: 26900

Answer:

```
ALTER TABLE Employee ADD Empid integer primary key;  
INSERT INTO Employee VALUES("Shweta","Production",26900,999);
```

OBJECTIVE TYPE QUESTIONS

1)What is the meaning of “HAVING” clause in SELECT query?

- A. To filter out the summary groups
- B. To filter out the column groups
- C. To filter out the row and column values
- D. None of these

Answer : B To filter out the column groups

2) Consider two tables of a database with the given structure

Sailors(Sid,Sname,Rating,Age)
Reserves(Sid,Bid,Day)

Write SQL query to display unique Sname who has reserved a boat.

- A. Select distinct(Sname) from Sailors s, Reserves r where s.Sid=r.Sid;
- B. Select s.Sname from Sailors s, Reserves r where s.Sid=r.Sid;

- C. Select distinct s.Sname from Sailors, Reserves where s.Sid=r.Sid;
- D. None of these

Answer : B Select s.Sname from Sailors s, Reserves r where s.Sid=r.Sid;

3) Consider the following tables

Table: STUDENTS

ADMNO	NAME	CLASS	SEC	RNO	ADDRESS	PHONE
1211	MEENA	12A	D	4	A-26	3245678
1212	VANI	10A	D	1	B-25	5456789
1213	MEENA	12B	A	1	NULL	NULL
1214	KARISH	10B	B	3	AB-234	4567890

Table: SPORTS

ADMNO	GAME	COACHNAME	GRADE
1215	CRICKET	MR. RAVI	A
1213	VOLLEYBALL	MR. AMANDEEP	B
1211	VOLLEYBALL	MR. GOVARDHAN	A
1212	BASKET BALL	MR TEWARI	B

Choose the command to display name and game of those students whose address is available in STUDENTS table.

- A. SELECT NAME, GAME FROM STUDENTS, SPORTS WHERE STUDENTS.ADMNO=SPORTS.ADMNO AND ADDRESS IS NOT NULL;
- B. SELECT NAME, GAME FROM STUDENTS, SPORTS WHERE STUDENTS.ADMNO=SPORTS.ADMNO AND ADDRESS IS NULL;
- C. SELECT NAME, GAME FROM STUDENTS, SPORTS WHERE STUDENTS.ADMNO=SPORTS.ADMNO, ADDRESS IS NULL;
- D. SELECT NAME, GAME FROM STUDENTS, SPORTS WHERE STUDENTS.ADMNO=SPORTS.ADMNO NOT ADDRESS IS NULL;

Answer:

A. SELECT NAME, GAME FROM STUDENTS, SPORTS WHERE STUDENTS.ADMNO=SPORTS.ADMNO AND ADDRESS IS NOT NULL;

4) The following SQL is an example of which type of join?

```
SELECT CUSTOMER_T. CUSTOMER_ID, ORDER_T. CUSTOMER_ID, NAME, ORDER_ID
FROM CUSTOMER_T,ORDER_T WHERE CUSTOMER_T. CUSTOMER_ID = ORDER_T.
CUSTOMER_ID
```

- A. Natural join
- B. Equi-join
- C. Cross Join
- D. None of the above

Answer : B. Equi join

<p>1.Name of the Topic/Unit 2. Expected Learning Outcomes 3. Highlight of the core concept and major areas</p>	<p>TEXT FILES Recognize operations on files including - Open, opening a file using with clause, close, read a record from a file, search a file, write a record to a file. Write programs using the same.</p>
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ASSERTION AND REASONING QUESTIONS

Given below are ASSERTION AND REASONING based questions. Mark the correct choice as:

- (a) Both A and R are true and R is the correct explanation for A
- (b) Both A and R are true and R is not the correct explanation for A
- (c) A is True but R is False
- (d) A is false but R is True

1) **Assertion (A)** : The 'w' mode opens a text file in write mode.

Reasoning (R): The 'a+' mode opens a text file for both append as well as read mode. It places the file pointer at the end of the file if the file exists and creates a new file if the file does not exists.

Answer:b. Both A and R are true and R is not the correct explanation for A

2) **Assertion (A)** : Text file stores information as ASCII or unicode characters.

Reasoning (R) : Text files, do not have a delimiter for a line.

Answer:c A is True but R is False

3) **Assertion (A)** : write() function takes a string as argument and writes it to a text file.

Reasoning (R) : writelines() function takes a list, tuple or string as argument and writes it to a text file.

Answer:b. Both A and R are true and R is not the correct explanation for A

4) **Assertion (A)**:- If a text file containing text is opened in write mode then the previous contents are overwritten.

Reasoning (R):- When a file is opened in write mode the file pointer is present at the beginning position of the file.

Answer:a. Both A and R are true and R is the correct explanation for A

OBJECTIVE TYPE QUESTIONS

1) The tell() function returns:

- A. Number of bytes remaining to be read from the file
- B. Number of bytes already read from the file
- C. Number of the byte written to the file
- D. Total number of bytes in the file

Answer:B. Number of bytes already read from the file

2) Suppose the file 'Color.txt' contains the following text:

Blue bag

Red cap

Yellow ball
Green book

What will the following code return?

```
f1=open('Color.txt')
f1.readline()
data=f1.readlines()
print(type(data), len(data))
f1.close()
```

- A. <class 'tuple'>4
- B. <class 'str'> 4
- C. <class 'list'> 3
- D. <class 'list'> 4

Answer:C. <class 'list'> 3

3) 'r+' file access mode when used to open a file that does not exist, it does one of the following:

- A. creates an empty file to write
- B. gives runtime error
- C. opens and reads an empty file
- D. No output

Answer:B. gives runtime error

4) Which of the following options can be used to print the last line of a text file 'story.txt'?

- A. disp = fobj.read()
print(disp[-1])
- B. print(fobj.read(-1))
- C. disp = fobj.readline()
print(disp[-1])
- D. disp = fobj.readlines()
print(disp[-1])

**Answer:D disp = fobj.readlines()
print(disp[-1])**

5) Consider the statements given below:

```
fobj = open('student.txt', 'r') # Statement 1
s=fobj.read(5)
fobj.seek(10,0) # Statement 2
```

Choose the option that explains the second statement.

- A. It will place the pointer at 10 bytes ahead of the current file pointer position.
- B. It will place the pointer at 10 bytes behind from the end-of file.
- C. It will place the pointer at 10 bytes from the beginning of the file.
- D. It returns 10 characters from the beginning.

Answer:C. It will place the pointer at 10 bytes from the beginning of the file.

6) What possible outputs(s) will be obtained when the following code is executed?

```
for i in range(5):  
    with open ("d:\\student.txt") as f:  
        if i>3:  
            break  
print(f.closed)
```

- A. True
- B. False
- C. Syntax error
- D. No output

Answer:A.True

<p>1. Name of the Topic/Unit 2. Expected Learning Outcomes 3. Highlight of the core concept and major areas</p>	<p>Binary Files</p> <ul style="list-style-type: none"> ● Students will be able to identify the type of the file based on its contents ● Students will be able to understand how a binary file stores and processes data ● Students will be able to apply the advantages of binary files in real life situations ● Students will be able to understand the processing of data in binary files ● Students will be able to read and write into a binary file. ● Understand the concept of binary file reading and writing. ● Binary files, use of binary files, how data is written in a binary file ● Reading from a binary file, writing to a binary file, pickle module, load() and dump() functions
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OBJECTIVE TYPE QUESTIONS

1) Files that are made up of non-human-readable characters and symbols and require specific programs to access their contents are called _____ files.

- A. CSV files
- B. Binary files
- C. Text files
- D. Delimited files

Answer: B Binary files

ASSERTION AND REASONING QUESTIONS

Given below are ASSERTION AND REASONING based questions. Mark the correct choice as:

- (a) Both A and R are true and R is the correct explanation for A
- (b) Both A and R are true and R is not the correct explanation for A
- (c) A is True but R is False
- (d) A is false but R is True

1) **Assertion(A):** Binary files are more efficient for storing and processing data in computer applications.

Reasoning(R): Binary files do not use character encoding and are better suited for preserving the original data format.

Answer: (a).Both the assertion and reason are true, and the reason is a correct explanation of the assertion.

2. **Assertion(A):** pickle module is used for serializing and de-serializing any python object structure.

Reasoning(R): Once all required operations are done on a binary file, it is to be closed using close() method.

Answer:(b)Both A and R are true and R is not the correct explanation for A

3.**Assertion(A):** Binary file can ^{ed}open in normal text editor but we cannot read the content.

Reasoning(R): Binary files are encoded in the binary format, which can be understood only by the computer

Answer: (a)Both A and R are true and R is the correct explanation for A

4.**Assertion(A):**wb+ mode open file for both writing and reading in binary format.

Reasoning(R): The file pointer will be at the beginning of the file when opened in wb+ mode.

Answer: b) Both A and R are true and R is not the correct explanation for A

CASE STUDY BASED QUESTIONS

1) Mr.Ajith is working on a project to create a program that stores user preferences, such as theme settings and language choices, for a mobile app. He has to decide whether to store these preferences as binary files or text-based files. Help him to make the right choice and provide one specific reason for your choice?

Answer: The right choice will be to use binary files.

Storing user preferences as binary files makes it more difficult for users to tamper with or modify their preferences directly by editing the file. So, it is more secure.

2)A programmer has written a code and created a binary file items.dat with item id, item name and price. The file contains 20 records. He wanted to update a record based on item id entered by the user and update the price. The updated record is then to be written in the file temp.dat. The records which are not to be updated also have to be written to the file temp.dat. If the item id is not found, an appropriate message should to be displayed. complete the following code based on the requirement given above:

```
import _____ #Statement 1
def writing():
    rec={}
    g=open("items.dat","rb")
    h=open_____ #Statement 2
    found=False
    itemid=int(input("Enter item id to update their price :: "))
    while True:
        try:
            rec=_____ #Statement 3
            if rec["item id"]==itemid:
                found=True
                rec["Price"]=int(input("Enter new price: "))
                _____ #Statement 4
            else:
                pickle.dump(rec,h)
        except:
            break
        if found==True:
            print ("The price of item id “, itemid," has been updated.")
        else:
```

```
print ("No item is found")
g.close()
h.close()
```

i) Which module should be imported in the program? (Statement 1)

Answer: Pickle

ii) Write the correct statement required to open a temporary file named temp.dat for writing the updated data. (Statement 2)

Answer: h=open('temp.dat', 'wb')

iii) Which statement should fill in Statement 3 to read the data from the binary file, items.dat and in Statement 4 to write the updated data in the file, temp.dat?

Answer: Statement 3: pickle.load(g)
Statement 4: pickle.dump(rec,h)

3) Mr. Aarayan loves programming. He joined an institute for learning. He learned all concepts of python, but he wants to learn file handling in python. He is trying to learn binary file handling. His teacher gave him partial code to write and read data from "category.dat" having structure catno, catname, price. Help Aarayan to complete the code.

```
_____ #statement1
def addrecords():
    fw=_____ #statement2
    dict={}
    ch='y'
    while ch=='y':
        catno=int(input("enter category number"))
        catname=input("enter category Name")
        price=int(input("enter price"))
        _____ #statement 3
        Ch=input("Add more Record")
        fw.close()
def display():
    dict={}
    fr=_____ #statement 4
    dict=_____ #statement5
    fr.close()
    print(dict)
```

a file

i) Help Aarayan to import the module to perform binary file operation in statement 1

- A. csv
- B. random
- C. pickle
- D. math

Answer: C. pickle

ii) which statement is used from the following for statement 2 to open the binary file in write mode?

- A. `open("category.dat","w")`
- B. `open("category.dat","wb")`
- C. `open("category.dat","w+")`
- D. `open("category.dat","r")`

Answer: B.open("category.dat","wb")

iii) which statement is used from the following for statement 3 to write dictionary data created in above code, namely dict is written in binary file category.dat file?

- A. `pickle.dump(dict,fw)`
- B. `pickle.write(dict,fw)`
- C. `pickle.save(dict,fw)`
- D. `pickle.load(dict)`

Answer: A.pickle.dump(dict,fw)

iv) which statement is used from the following for statement 4 to open the binary file in read mode?

- A. `open("category.dat","r")`
- B. `open("category.dat","r+")`
- C. `open("category.dat","a")`
- D. `open("category.dat","rb")`

Answer: D.open("category.dat","rb")

v) complete statement 5 to read data in dictionary namely dict from the opened binary file?

- A. `dict=pickle.read(fr)`
- B. `dict=pickle.dump(fr)`
- C. `dict=pickle.load(fr)`
- D. `pickle.load(dict,fr)`

Answer: C.dict=pickle.load(fr)

STATE TRUE OR FALSE

1.State True or False:

“Processing of text files is faster than binary files.”

Answer: False

FILL IN THE BLANKS

1. _____ is the process of converting a Python object to a stream of bytes.

Answer: Pickling / Serialization.

<p>1. Name of the Topic/Unit 2. Expected Learning Outcomes</p> <p>3. The Core Concepts and Major Areas of the Unit / Topic</p>	<p>CSV Students will be able to understand about CSV file and to create a csv file and read contents from it. They can distinguish between writerow() & writerows() functions.</p> <p>CSV file- reader() and writer() functions. To create and write to a csv file,read from csv file,writerow() & writerows() function.</p>
--	---

ASSERTION AND REASONING QUESTIONS

- (a) Both A and R are true and R is the correct explanation for A
- (b) Both A and R are true and R is not the correct explanation for A
- (c) A is True but R is False
- (d) A is false but R is True

1) **Assertion(A):** reader() creates a special type of object to read contents from CSV file.
Reasoning(R): To perform read & write operations in csv file, import the built-in module csv.

Answer: (a) Both A and R are true and R is the correct explanation for A

2) **Assertion(A):** CSV files are used to store tabular data.
Reasoning(R): A CSV file stores data in binary format.

Answer: (c) A is True but R is False

3) **Assertion(A):** csv.writer() function returns a writer object that convert's user data into a delimited string.
Reasoning(R): writerows() function writes multiple rows in one go to csv file.

Answer: (b) Both A and R are true and R is not the correct explanation for A

4) **Assertion :** Python's CSV module is commonly used for reading and writing CSV files.
Reasoning : The CSV module in Python provides functions to handle CSV files, making it easier to read and write tabular data in CSV format. It simplifies the process of parsing CSV data and allowing developers to work with data in a structured manner.

Answer: (a) Both A and R are true and R is the correct explanation for A

5) **Assertion :** To read the contents of csv file , we need the reader() function.
Reasoning: The reader() function generates a reader object which is used to read the csv file contents.

Answer: (a) Both A and R are true and R is the correct explanation for A

6) **Assertion :** The csv module in Python allows you to specify custom delimiters when reading and writing CSV files.
Reasoning: Specifying custom delimiters is useful because it enables the handling of non-standard CSV files that use different separator characters.

Answer: (a) Both A and R are true and R is the correct explanation for A

CASE STUDY BASED QUESTIONS

1) Ashvik is creating a CSV file to store Employee details in "emp.csv" file. He couldn't complete the code. Help him in completing the code which creates the desired CSV File.

CSV File

EMPNO	NAME	SALARY
A001	Vinay	30000
A002	Ajay	48000
A003	Smith	36000

```
import _____ #Statement 1
with open(_____, newline='') as csv1: #statement2
    abc=csv. _____ #Statement 3
    abc.writerow(["EMPNO","NAME","SALARY"])
    record=[]
    while True:
        eno=input("Enter Employee no:")
        Name=input("Enter Name\n")
        Sal=int(input("Enter salary\n"))
        data=[_____] #Statement 4
        record.append(_____) #Statement 5
        ch=input("insert more record(y/n):")
        if ch=='n':
            break
        abc._____ (record) #statement6
```

i) Identify the suitable code for blank space in line marked as statement-1

- a) csv file
- b) CSV
- c) csv
- d) Csv

Answer: c) csv

ii) Identify the missing code for blank space in line marked as statement 2?

- a) "csv1.csv","w"
- b) "emp.csv", "w"
- c) "emp.csv","r"
- d) "csv1.csv","r"

Answer: b) "emp.csv", "w"

iii) Choose the function name (with argument) that should be used in the blank space of line marked as Statement-3

- a) reader(csv1)
- b) reader(emp)
- c) writer(csv1,delimiter=',')
- d) writer(emp)

Answer: c) writer(csv1,delimiter=',')

iv) Identify the suitable code for blank space in line marked as statement 4.

- a) EMPNO,NAME, SALARY
- c) empno, name, salary

b) “eno”,“name”,“sal”

d) eno,name,sal

Answer: d) eno,name,sal

v)Identify the suitable code for blank space in the line marked as Statement 5.

a) Data

c) record

b) Insert

d) data

Answer:d)data

6.Choose the function name that should be used in the blank space of the line marked as Statement -6 to create the desired CSV File?

a) dump()

c) writerows()

b) load()

d) writerow()

Answer: c) writerows()

2)Radha Shah a librarian wants to store the details of books and perform the following operations on the given file by creating the user defined functions as given below:

a) CSVOpen() – To create the given CSV file containing book information in the format as [Title,Author,Price]

b) CSVRead(aut) – To display the details of given author books only and display the count also, where author to search is accepted as an argument in the function.

Answer:

```
import csv
def CSVOpen():
    f=open("book.csv",w,newline='')
    head=[Title, Author, Price]
    cw=csv.writer(f,delimiter=',')
    cw.writerow(head)
    while True:
        bt=input("Enter book title:")
        Au=input("Enter Author")
        Pr=int(input("Enter price:"))
        Rec=[bt,Au,Pr]
        cw.writerow(Rec)
        ch=input("want to continue:")
        if ch.lower()=='n':
            break
    f.close()
def CSVRead(aut):
    c=0
    f=open("book.csv",'r')
    cr=csv.readerr(f)
    for i in cr:
        if aut==i[1]:
            print(aut)
            c+=1
    print("No.of people with given author's books:", c)
```

```

        f.close()
#main
CSVOpen()
at=input("Enter author details to search:")
CSVRead(at)

```

3) Rohit has got a job in Vehicle Parking, Instead of manually writing the vehicles details he has used his knowledge of programming studied in class 12th to computerize the vehicle entry details. Each row contains the vehicle details in the format as :['ID', 'Vehicle Number', 'Time_In', 'Vehicle Type']

Help him to complete an incomplete python code (shown below) to create a CSV File 'vehicle Parking.csv' (content shown below).

CSV File

```

ID, 'Vehicle Number', 'Time_In', 'Vehicle Type'
1,MH41-CP1358,9:30 AM,2W
2,MH40-4590,12:45 PM,4W
3,MH31-8912,12:50 PM,4W
4,MH30-1234,12:50 PM,4W
5,MH31-6143,12:55 PM,4W

```

Incomplete Code

```

import csv
fh = open("vehicle.csv", _____, newline="") #Statement-1
Vwriter = _____ #Statement-2
data = []
header = ["V_ID", "V_NUMBER", "TIME_IN", "V_TYPE"]
data._____ #Statement-3
for i in range(5):
    v_id = int(input("Enter vehicle id : "))
    v_number = input("Enter vehicle number: ")
    time_in = input("Enter in time : ")
    v_type = input("Enter vehicle type : ")
    rec = _____ #Statement-4
    data.append(rec)
Vwriter._____ (data) #Statement-5
fh.close()

```

i) Identify the missing code for blank space in line marked as Statement-1?

- a) "vehicle.csv", "r"
- b) "vehicle.csv", "w"
- c) "vehicle.csv", "rb"
- d) "vehicle.csv", "wb"

Answer : b) "vehicle.csv", "w"

ii) Choose the function name (with argument) that should be used in the blank space of line marked as Statement-2

- a) csv.reader(fh)
- b) csv.reader(MyFile)
- c) csv.writer(fh)
- d) csv.writer(MyFile)

Answer: c) csv.writer(fh)

iii) Choose the correct code to be used in blank space marked as Statement-3

- a) data.insert(header)
- b) data.append(header)
- c) data.append()
- d) data.insert()

Answer: b) data.append(header)

iv) Identify the suitable code for the blank space marked as Statement-4

- a) ~~rec = [v_id,v_number,time_in,v_type]~~
- b) ~~rec = ['v_id','v_number','time_in','v_type']~~
- c) ~~rec = (v_id,v_number,time_in,v_type)~~
- d) ~~rec = ('v_id','v_number','time_in','v_type')~~
- e)

Answer: a) rec = [v_id,v_number,time_in,v_type]

v) Choose the function name that should be used in the blank space marked as Statement-5

- a) write()
- b) writeline()
- c) writerow()
- d) writerows()

Answer: d) writerows()

<p>1.Name of the Topic/Unit 2. Expected Learning Outcomes</p> <p>3. Highlight of the core concept and major areas</p>	<p>INTERFACE PYTHON WITH SQL Able to apply the concept of cursor object Understanding how to connect python and MySQL Understand the concept of reading data from user and retrieving from database using queries. Application of format function Application of execute statement in python.</p> <p>To make student familiar with connecting mysql database using Python code.</p>
---	--

ASSERTION AND REASONING BASED QUESTIONS

1)**Assertion (A):** Python can be interfaced with MySQL.

Reasoning (R): The term interface means establishing link between two or more devices, languages etc. When Python is interfaced with MySQL we can run MySQL queries using Python statements.

Answer: (A) Both A and R are True and R is the correct explanation of A.

2)**Assertion (A):** MySQL queries is executed in python using execute() statement

Reasoning (R): While using multiple statements in interface we use executeall() statement.

Answer: (C) A is True but R is False.

3)**Assertion (A) :** In python-mysql connection code, one need to close the connection established via connection object.

Reasoning (R) : If is_connected() function with connection object returns True, then it indicates successful connection between python code and mysql.

Answer : b) Both (A) and (R) are true and (R) is not the correct explanation for (A).

4)**Assertion (A) :** One need to create Cursor to get access of all the records (recordset) that are retrieved by the query.

Reasoning (R) : In python-mysql connectivity, query processing cannot happen as one row at a time.

Answer : a) Both (A) and (R) are true and (R) is the correct explanation for (A).

5)**Assertion (A) :** ~~Like~~ INSERT AND UPDATE SQL commands, you must COMMIT your query after executing SELECT command.

Reasoning (R) : commit() lets a user permanently save all the changes made in the transaction of a database or table.

Answer : a) Both (A) and (R) are true and (R) is the correct explanation for (A).

MULTIPLE CHOICE QUESTIONS

1) _____ acts as link between MYSQL database connection and SQL query.

- A. cursor
- B. Table

- C. Query
- D. row

Answer. A cursor

- 2)_____is used to get number of records stored in cursor(Assuming cursor name is cur)
- A. cur.count
 - B. cur.row.count
 - C. cur.rowcount()
 - D. cur.rowcount

Answer. D. cur.rowcount

CASE STUDY BASED QUESTIONS

1)Arun has written the following Python code to access the record by passing ENO to function. Complete the missing statements:

```
def Search(eno):
    #Assume that statements to import, connection and cursor is already created
    query="select * from emp where empno = _____".format(eno)
    mycursor .execute(query)
    result = mycursor._____
    print(results)
```

- A. fetchone() and { }
- B. %s and fetchone()
- C. { } and fetchone()
- D. %eno and fetchone()

Answer. C) { } and fetchone()

2)Mr. Raja wants to read the records of books from the table “Books” and wants to display only those books which are published by BPB publications.

Database Name – Library Table Name - Books

BookNo	BookTitle	Publisher
B101	Python programming	TMH
B113	MYSQL in easy way	BPB
B199	RDBMS	TMH
B201	Cyber Security	BPB

Help him to complete the task with appropriate statements for Statement No. 1, 2 and 3 in the following code snippet.

```
import _____ as mysql#Statement 1
```

```

defDisplayBooks() :
    mydb = mysql.connect(host = "localhost", user = "root", passwd = "root", database = "Library")
    cursor1 = mydb.cursor()
    _____ #Statement 2
    records = _____ #Statement 3
    for i in records:
        print(i)

```

Statement 1: to import the required library

Statement 2: to execute the query that fetches records of the books published by **BPB**.

Statement 3: to read the complete data of the query (rows whose Publication is **BPB**) into the object named **records**, from the table **Books** in the database.

Answer:

Statement 1:

```
import mysql.connector as mysql
```

Statement 2:

```
cursor1.execute("select * from books where publication = '{ }' ".format('BPB'))
```

Statement 3:

```
records = cursor1.fetchall()
```

3)Observe the following code Segment-1 and Segment-2 and answer the questions a) and b):

#Segment-1

```

    cursor.execute("Select * from student")
    data = _____ Statement-1
    for row in data:
        print(row)

```

#Segment-2

```

    cursor.execute("Select * from student")
    data = _____ Statement-2
    print(data)

```

Write Python Statement-1 and Statement-2 for the following:

- Statement-1 : To print all the students' data
- Statement-2 : To print only first student's data.

Answer :

a) cursor.fetchall()

b) cursor.fetchone()

<p>1.Name of the Topic/Unit 2. Expected Learning Outcomes 3. Highlight of the core concept and major areas</p>	<p>STACK</p> <p>Memory Management: Understanding how stacks are used in memory management, including the call stack in function calls</p> <p>Error Handling: Understanding how stacks are used to handle errors, exceptions, and memory allocation failures.</p> <p>Problem-Solving Skills: Developing problem-solving skills by applying the stack data structure to various computational problems.</p> <p>Data Structure Comparison: Understanding the differences between stacks and other data structures like queues and their respective use cases.</p> <p>Algorithm Design: Designing and implementing algorithms that involve stack-based solutions.</p>
---	---

ASSERTION AND REASONING BASED QUESTIONS

- 1.Assertion (A):**In stack, insertions and deletions are restricted to occur only at one end.
Reasoning (R):Overflow refers to the situation when one tries to push an item in stack that is full.
- Answer: Option (b) - Both A and R are true and R is not the correct explanation for A.**
- 2.Assertion (A):**Stack is a dynamic data structure.
Reasoning (R):A dynamic data structure is the one that has fixed size.
- Answer: Option (c) - A is true but R is false.**
- 3.Assertion (A):**We cannot do the pop operation when the stack is empty.
Reasoning (R):Underflow refers to situation when one tries to delete an item from an empty stack.
- Answer: Option (b) - Both A and R are true and R is not the correct explanation for A**
- 4. Assertion:** A stack is vulnerable to a stack overflow error when pushed to its maximum capacity.
Reasoning: If a program pushes too many items onto a stack without popping them, it can lead to a stack overflow error, which results in a program crash.
- Answer :(a) Both Assertion (A) and Reasoning (R) are true, and the reasoning is the correct explanation of the assertion.**
- 5.Assertion:** A stack is a data structure that follows the Last-In-First-Out (LIFO) principle.
Reasoning: In a stack, elements are inserted and removed from the same end, called the top of the stack. The element that was inserted last is the first one to be removed.
- Answer -(a) Both Assertion (A) and Reasoning (R) are true, and the Reasoning (R) is the correct explanation of the Assertion (A).**

MULTIPLE CHOICE QUESTIONS

- 1) Which of the following best describes the Last-In-First-Out (LIFO) property of a stack?
- A. The first element inserted is the first one to be removed.
 - B. The last element inserted is the first one to be removed.
 - C. Elements can be removed in any order.
 - D. Elements can be inserted in any order.

Answer: B. The last element inserted is the first one to be removed

- 2) If you want to implement a stack to keep track of function calls in a programming language, which of the following operations would be crucial?
- A. Push and pop
 - B. Enqueue and dequeue
 - C. Add and remove
 - D. Sort and search

Answer: A. Push and pop

- 3) Which of the following is an application of stack?
- A. Reversing of a string
 - B. Infix to postfix
 - C. Evaluating a postfix expression
 - D. All of the above

Answer : D.All of the above

4. Pushing an element into the stack already having ten elements and stack has fixed size of 10, then _____ occurs.
- A. Overflow
 - B. Peek
 - C. Underflow
 - D. None of these

Answer : A.Overflow

CASE STUDY BASED QUESTIONS

1) **Case Study:** Suppose you are working on a project to develop a simple web browser. As part of the project, you need to implement the functionality that allows users to navigate backward and forward through their browsing history. To achieve this, you decide to use a stack data structure.

Question: Explain how you can use a stack to implement the backward and forward navigation functionality in the web browser. Discuss the operations you would perform on the stack when a user clicks the "Back" and "Forward" buttons in the browser.

Answer - To achieve this we can use stack data structure, Maintain two stacks: one for backward navigation (let's call it back_stack) and another for forward navigation (let's call it forward_stack).

When the user visits a new page, push the URL onto the back_stack.

When the "Back" button is clicked, pop the URL from the back_stack and push it onto the forward_stack. Then, load the URL that's now on top of the back_stack.

When the user clicks the "Forward" button, pop the top URL from the forward_stack, push it onto the back_stack, and load the URL that's now on top of the forward_stack.

2)**Case Study:** Imagine you are designing a text editor application, and you want to implement the functionality of undoing and redoing text changes. To accomplish this, you decide to use a stack data structure.

Question: Describe how you can utilize a stack to implement the undo and redo functionality in your text editor. Explain the operations that need to be performed on the stack when a user clicks the "Undo" and "Redo" buttons, and how this stack will help maintain the history of text changes.

Answer - To implement undo and redo functionality in a text editor using a stack, maintain two stacks: one for undo (changes to revert) and one for redo (changes to reapply). When the user clicks "Undo," pop the top change from the undo stack, apply the inverse operation, and push it onto the redo stack. When the user clicks "Redo," pop the top change from the redo stack, apply it, and push it onto the undo stack.

<p>1.Name of the Topic/Unit 2. Expected Learning Outcomes 3. Highlight of the core concept and major areas</p>	<p>EXCEPTION HANDLING</p> <ul style="list-style-type: none"> • The students will be able to identify different types of errors. • The students will be able to identify different exceptions raised in different erroneous conditions. • The students will be able to handle exceptions through try and except block. • Testing and Debugging: Gain proficiency in testing and debugging code that includes exception handling. Understand how to write test cases that cover different error scenarios. • Error Recovery and Graceful Degradation: Learn how to design your code to gracefully handle errors and continue running in a degraded state when possible, rather than crashing completely. • Handle errors and exceptions when they occur.
---	--

ASSERTION AND REASONING BASED QUESTIONS

1. Assertion (A): Exception handling in Python allows for graceful recovery from errors and prevents program crashes.

Reasoning (R): When an error occurs during program execution, Python's exception handling mechanism allows the program to gracefully handle the error and take corrective action.

Answer: a)Both A and R are correct, and R is the correct explanation of A.

2. Assertion : ValueError is raised when a number is divided by 0

Reasoning : Dividing by 0 is not defined

Answer d) A is False but R is True

3. Assertion: Exception handling separates error-handling code from normal code.

Reasoning: The code which handles the exception can be written separately in except clause.

Answer a) Both A and R are true and R is the correct explanation for A

MULTIPLE CHOICE QUESTIONS

1)What is the purpose of the try block in Python's exception handling?

- A. To define code that always executes
- B. To specify code that may raise an exception
- C. To catch exceptions and handle them
- D. To re-throw exceptions

Answer: B. To specify code that may raise an exception

2.What is the purpose of the finally block in a try-except-finally construct?

- A. To raise an exception

- B. To specify code that may raise an exception
- C. To execute cleanup code that always runs, regardless of whether an exception occurs
- D. To handle exceptions

Answer: C. To execute cleanup code that always runs, regardless of whether an exception occurs

3. What will happen if an exception is raised but not caught in a Python program?
- A. The program will continue running as if nothing happened
 - B. The program will terminate
 - C. The Python interpreter will automatically catch the exception
 - D. The program will prompt the user for input

Answer: B. The program will terminate

4. What is the purpose of the else block in a try-except-else construct?
- A. To specify code that always executes
 - B. To execute code when no exception is raised in the try block
 - C. To re-throw exceptions
 - D. To handle multiple exceptions

Answer: B. To execute code when no exception is raised in the try block

5. The python statement `print ("3" + 2)` results in
- A. Run Time Error
 - B. Compile time Error
 - C. Logical Error
 - D. Data Error

Answer: B. Compile time Error

6. The code that may generate an exception is written in the _____ block:
- A. try
 - B. except
 - C. finally
 - D. both a and b

Answer: A. try

CASE STUDY BASED QUESTIONS

1) Ravi is writing a program to find the inverse of a number. He is writing code to handle all the possible errors that can occur during the execution of the program. Help him to complete the code.

```
try:
    x = float(input("Your number:"))
    inverse = 1.0/x
except _____: # Statement 1
    print ("Enter only numeric value")
except _____: # Statement 2
    print ("Infinity")
_____ : # Statement 3
```

```
print("An unexpected Error occurred")
_____:# Statement 4
print ("There may or may not have been an exception.")
```

1) Identify the suitable Exception which is invoked on entering incorrect datatype values for blank space in line marked as Statement-1.

- A. ValueError
- B. TypeError
- C. IOError
- D. IndexError

Answer: B. TypeError

2) Identify the suitable Exception raised when the value entered by the user is zero for blank space in line marked as Statement 2.

- A. EOFError
- B. IndexError
- C. ZeroDivisionError
- D. DivideByZeroError

Answer: C. ZeroDivisionError

3) Identify the suitable keyword to execute the block in case of any other exception raised in line marked as Statement 3.

- A. try:
- B. except:
- C. raise
- D. finally

Answer: B. except

4) Identify the suitable keyword to execute the block at the end of the program whether exception is raised or not for blank space in line marked as Statement 4.

- A. try:
- B. except:
- C. raise
- D. finally

Answer: D. finally

2) Write the following statements to complete the code:

statement 1 : to enter only integers.

statement 2 : Denominator should not be zero.

statement 3 : to be executed at the end.

```
try:
    num1=int(input("Enter the first number"))
    num2=int(input("Enter the second number"))
    quotient=num1/num2
    print("Both the numbers entered were correct")
except _____:          #statement 1
    print("Please enter only numbers")
except _____:          #statement 2
    print("Number 2 should not be zero")
else:
    print("Great.. you are a good programmer")
    _____:          #statement 3
    print("Thank you!")
```

Answer: statement 1 : ValueError
statement 2 : ZeroDivisionError
statement 3 : finally

<p>1.Name of the Topic/Unit 2. Expected Learning Outcomes 3. Highlight of the core concept and major areas</p>	<p>NETWORK</p> <ul style="list-style-type: none"> • Scenario-based questions are intended to test both your comprehension of fundamental computer network concepts and your ability to apply that knowledge in real-world situations. • Helps to identify hardware needed to constitute computer networks • Helps to identify the measures taken to protect our data from unauthorized attacks • Child acquires knowledge of analyzing various protocols used in networking
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ASSERTION AND REASONING QUESTIONS

- 1)**Assertion** : A domain name is essential for hosting your website.
Reasoning : It allows people to access your website by typing the domain name into their web browsers.
- Answer: B. Both the assertion and reason are true, but the reason is not the correct explanation of the assertion.**
- 2)**Assertion:** A MAC address uniquely identifies a device on a network.
Reasoning: MAC addresses are burned into network interface cards and are used for local network communication.
- Answer: A. Both the assertion and reason are true, and the reason is the correct explanation of the assertion.**
- 3)**Assertion:** The Internet is an example of a WAN (Wide Area Network).
Reasoning: WANs cover a large geographic area and connect LANs and MANs.
- Answer : A. Both the assertion and reason are true, and the reason is the correct explanation of the assertion.**
- 4)**Assertion(A):** A bridge is a network device that can handle networks that follow same protocols
Reasoning(R):A Router is a network device works like a bridge but can handle different protocols
- Answer : B. Both A and R are true and R is not the correct explanation of A**
- 5)**Assertion(A):** Computer virus is a malicious executable code attached to another executable file which can be harmless or can modify or delete data. It can spread from computer to computer and can replicate themselves
Reasoning(R): Trojan Horse is a virus and can replicate themselves
- Answer: C.A is True but R is False**

CASE STUDY BASED QUESTIONS

1. A small business is concerned about the security of its network. They have heard about firewalls but are unsure about how they work and what they can protect against. Explain the concept of a firewall, its role in network security, and provide examples of threats that firewalls can help mitigate.

Answer: Firewalls are a fundamental element of network security, and they work in conjunction with other security measures, such as antivirus software, intrusion detection systems and security patches, to create a layered defence strategy that safeguards network resources and data from a wide range of threats.

2. A company has multiple branch offices across different cities, and they want to connect all branch offices. They came to know that routers or switches can be used for the same. Help them to understand more on these two network devices.

Answer : Routers are used for interconnecting different networks, routing data between them, and enforcing security policies at network boundaries. Switches are used for efficient local data forwarding within the same network segment, optimizing local network performance. Both devices play essential roles in networking branch offices effectively.

3. Kavya, a student of Madras IIT has interested to know about network protocols. Help her to learn with the below question-answers.

- 1) Which protocol is used to send or receive files?
- 2) Which protocol is used to send or receive emails?
- 3) Which protocol is used to surf the web?
- 4) Which protocol is used to surf the web securely?
- 5) Expand SMTP

Answers:

- 1) FTP
- 2) IMAP *or* SMTP, POP3
- 3) HTTP
- 4) HTTPS
- 5) Simple Mail Transfer Protocol

MULTIPLE CHOICE QUESTIONS

1) URLs are fundamental for navigating the web, as they provide the addressing structure necessary for locating and accessing web resources, files, and services. Match the following and choose the correct option

1. https://www.example.com 2. ftp://ftp.example.com/files 3. http://www.example.com/search?q=query 4. https://www.example.com/page#section3	a. A secure website with the domain "www.example.com." b. An FTP server for accessing files on "ftp.example.com." c. A search query using the HTTP protocol. d. A link to a specific section within a web page.
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- i. 1 - a, 2 - b, 3 - c, 4 - d
- ii. 1 - d, 2 - b, 3 - c, 4 - a
- iii. 1 - a, 2 - b, 3 - d, 4 - c
- iv. 1 - c, 2 - b, 3 - a, 4 - d

Answer :i. 1 - a, 2 - b, 3 - c, 4 - d

2) The rules and regulations that are applicable for controlling, monitoring and regulating a network is

- A. Switching techniques
- B. Bandwidth
- C. Protocol
- D. Firewall

Answer: C. Protocol

3) The complete path(address of website) provided to access information from the web

- A. URL
- B. domain name
- C. MAC address
- D. IP address

Answer: A.URL