QUESTIONS FROM CBSE QUESTION PAPER, YEAR 2024,2025

CLASS: XII

COMPUTER SCIENCE (083)

CHAPTER-1 PYTHON REVISION TOUR

Q No.	1 MARK QUESTIONS	MAIN EXAM/ COMPTT. EXAM	YEAR
1.	State True or False: A Python List must always contain all its elements of same data type. **False**	MAIN EXAM	2025
2.	What will be the output of the following statement? `print(14 % 3 * * 2 * 4)` (A) 16 (B) 64 (C) 20 (D) 256 **(C) 20**	MAIN EXAM	2025

3.	Identify the correct output of the following code snippet:
	`game="Olympic2024"`
	`print(game.index("C"))`
	(A) 0 (B) 6
	(C) -1 (D) ValueError
	
	(D) ValueError
		MAIN EXAM	2025

4.	Which of the following is the correct identifier? (A) global (B) Break (C) def (D) with **(B) Break**	MAIN EXAM	2025
5.	Identify the invalid Python statement out of the following options: (A) `print("A",10,end="*")` (B) `print("A",sep="*",10)` (C) `print("A",10,sep="*")` (D) `print("A"*10)` **(B) print("A",sep="*",10)**	MAIN EXAM	2025

6.	Consider the statements given below and then choose the correct output from the given options:
	`L=['Tic', 'TAC']`
	`print(L[: : -1])`
	(A) `['CIT', 'CAT']` **(B)** `['TIC', 'TAC']`
	(C) `['CAT', 'CIT']` **(D)** `['TAC', 'TIC']`
	(D) ['TAC', 'TIC']
		MAIN EXAM	2025

7.	Which of the following operator evaluates to **`True`** if the variable on either side of the operator points towards the same memory location and **`False`** otherwise? **(A)** `is` **(B)** `is not` **(C)** `and` **(D)** `or` **(A) is**	MAIN EXAM	2025

8.	Consider the statement given below and then choose the correct output from the given options:
	`D={'S01' : 95, 'S02' : 96 }`
	`for I in D:`
	`print(I,end='#')`
	(A) `S01#S02` **(B)** `95#96#`
	(C) `S01,95#S02, 96#` **(D)** `S01#95#S02#96#`
	(A)S01#S02
		MAIN EXAM	2025

9.	Consider the statements given below and then choose the correct output from the given options:
	`def Change(N):`
	`N=N+10`
	`print(N,end='$$')`
	`N=15`
	`Change(N)`
	`print(N)`
	(A) `25$$15` **(B)** `15$$25`
	(C) `25$$25` **(D)** `2525$$`
	(A)25$$15
		MAIN EXAM	2025

10.	Which of the following built-in function/method returns a dictionary? **(A) dict( )** **(B) keys( )** **(C) values( )** **(D) items( )** **(A)dict( )**	MAIN EXAM	2025
11.	State if following statement is True or False : If **T** is a tuple and **L** is a list, then **T+L** is a valid statement in Python. **False**	COMPTT. EXAM	2025

12.	Identify the output of the following code segment:
	`s = "an apple. a toy."`
	`s=s.find('a',2)`
	`print(s)`
	(A) 0 **(B) 1**
	(C) 3 **(D) 'a'**
	
	(C) 3
		COMPTT. EXAM	2025

13.	What is the value of the following expression? `3 + 3.00, 3**3.0` **(A) [6·0, 27·0]** **(B) (6·0, 9·0)** **(C) (6, 27)** **(D) (6·0, 27·0)** **(D) (6·0, 27·0)**	COMPTT. EXAM	2025

14.	What is the output of the following expression?
	`Sports="Paralympic Games"`
	`print (Sports.split("m"))`
	
	(A) ['Paraly','m','pic Ga','m','es']
	(B) ('Paraly','m','pic Games')
	(C) ('Paraly','pic Ga','es')
	(D) ['Paraly','pic Ga','es']
	
	(D)['Paraly','pic Ga','es']
		COMPTT. EXAM	2025

15.	What will be the output of the following code segment?
	`p=list("Session 2024-25")`
	`print(p[10:20:])`
	
	['2', '4', '-', '2', '5']
		COMPTT. EXAM	2025

16.	Which of the following is a mapped data type? **(A) List** **(B) Sets** **(C) Dictionary** **(D) Boolean** **(C) Dictionary**	COMPTT. EXAM	2025
17.	If the dictionary D1 is defined as: `D1={1:'a',2:'b'}` then which of the following statements is ***incorrect*** and hence will result in an error? **(A) D1.get(1)** **(B) D1.get(3)** **(C) D1.del(1)** **(D) D1.clear()** **(C) D1.del(1)**	COMPTT. EXAM	2025
18.	Which of the following list methods accepts exactly 2 parameters ? **(A) append()** **(B) extend()** **(C) insert()** **(D) pop()** **(C) insert( )**	COMPTT. EXAM	2025
19.	State whether the following statement is True or False. In Python, the `print()` evaluates the expression before displaying it on the screen. **True**	COMPTT. EXAM	2025
20.	State True or False: While defining a function in Python, the positional parameters in the function header must always be written after the default parameters. **False**	MAIN EXAM	2024

21.	What will be the output of the following statement: `print (16•5/4•2/5-8)` (a) **-3. 33** (b) 6. 0 (c) 0.0 (d) -13. 33 **(C). 0.0**	MAIN EXAM	2024
22.	Identify the invalid Python statement from the following: **(a) d = dict( ) (b) e = { }** **(c) f = [ ] (d) g = dict{ }** **(d) g = dict{ }**	MAIN EXAM	2024

23.	Consider the statements given below and then choose the correct output from the given options:
	`myStr="MISSISSIPPI"`
	`print(myStr[:4]+"#"+myStr[-5:])`
	(a) MISSI#SIPPI (b) MISS#SIPPI
	(c) MISS#IPPIS (d) MISSI#IPPIS
	
	(b) MISS#SIPPI
		MAIN EXAM	2024

24.	Identify the statement from the following which will raise an error: **(a) print("A"*3) (b) print(5*3)** **(c) print("15"+3) (d) print("15"+111311)** **(c) print("15" + 3)**	MAIN EXAM	2024

25.	Select the correct output of the following code:
	`event="G20 Presidency@2023"`
	`L=event.split(' ')`
	`print (L [ : : -2] )`
	
	(a) 'G20' (b) Presidency@2023']
	(c) ['G20'] (d) 'Presidency@2023'
	
	(b) 'Presidency@2023']
		MAIN EXAM	2024

26.	Observe the given Python code carefully:
	`a=20`
	`def convert(a):`
	`b=20`
	`a=a+b`
	
	`convert (10)`
	`print(a)`
	Select the correct output from the given options:
	`(a) 10` `(b) 20`
	`(c) 30` `(d) Error`
	
	(b) 20
		MAIN EXAM	2024

27.	State **`True`** or **`False:`** "In Python, tuple is a mutable data type". **False**	COMPTT. EXAM	2024

28.	What will be the output of the following statement ?
	`print(6+5/4**2//5+8)`
	`(A) -14.0` `(B) 14.0`
	`(C) 14` `(D) 14`
	
	(B) 14.0
		COMPTT. EXAM	2024

29.	Select the correct output of the code:
	`S = "text#next"`
	`print(S.strip("t"))`
	`(A) ext#nex` `(B) ex#nex`
	`(C) text#nex` `(D) ext#next`
	
	(A) ext#nex
		COMPTT. EXAM	2024

30.	Identify the valid Python identifier from the following:
	`(A) 2user` `(B) user@2`
	`(C) user_2` `(D) user 2`
	
	C) user_2
		COMPTT. EXAM	2024

31.	Consider the statements given below and then choose the correct output from the given options:
	`Game="World Cup 2023"`
	`print(Game[-6::-1])`
	(A) `CdrW` **(B)** `ce o`
	(C) `puC dlroW` **(D)** `Error`
	
	(C) puC dlroW
		COMPTT. EXAM	2024

32.	What will be the output of the given code?
	`a=10`
	`def convert(b=20):`
	`a=30`
	`c=a+b`
	`print(a,c)`
	`convert(30)`
	`print(a)`
	
	30 60
	10
		COMPTT. EXAM	2024

33.	For the following Python statement: `N= (25)` What shall be the type of N? **(A)** `Integer` **(B)** `String` **(C)** `Tuple` **(D)** `List` **(A) Integer**	COMPTT. EXAM	2024
	Q34 and Q35 are Assertion(A) and Reason(R) 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**		

34.	***Assertion (A):*** Every object in Python is assigned a unique identity (ID). ***Reason (R):*** ID remains the same for the lifetime of that object. **(A) Both A and R are true and R is the correct explanation for A**	COMPTT. EXAM	2025
35.	**Assertion (A):** The expression **"HELLO".sort( )** in Python will give an error. **Reason (R):** **sort ()** does not exist as a method/function for strings in Python. **(B) Both A and R are true and R is the correct explanation for A**	MAIN EXAM	2024
	2 MARK QUESTIONS		
36.	What does the **return** statement do in a function? Explain with the help of an example. **SUGGESTIVE VALUE POINT:** Example : **def Add(A, B):** **return A+B** **Result=Add(5,3)** **print(Result)** **Output:** **8** ***(1 Mark for writing the correct explanation)*** ***(1 Mark for writing the correct example)*** **OR** ***(Full 2 Marks for correct explanation with the help of a suitable example)***	MAIN EXAM	2025
37.	Write one example of each of the following in Python: i. Syntax Error ii. Implicit Type Conversion **SUGGESTIVE VALUE POINT:**	MAIN EXAM	2025

	(i) Syntax Error **print(2 ; 5)** **(ii) Implicit Type conversion** **x=10** **y=20.5** **print(x+y)** **Note:** ● The above examples are just suggestive. Accept all correct examples ***(1 Mark for writing each correct example)***		
38.	Consider the following dictionaries, D and D1: **D={"Suman": 40. "Raj":55, "Raman":60}** **D1={"Aditi":30, "Amit":90, "Raj":20}** (Answer using built-in Python functions only) (i) (a) Write a statement to display/return the value corresponding to the key **"Raj"** in the dictionary **D.** **OR** (b) Write a statement to display the length of the dictionary **D1.** (ii) (a) Write a statement to append all the key-value pairs of the dictionary **D** to the dictionary **D1.** **OR** **(b)** Write a statement to delete the item with the given key **"Amit"** from the dictionary **D1.** **SUGGESTIVE VALUE POINT:** (i) (a) **D.get("Raj") # OR D["Raj"] may also be considered** **OR** (b) **len(D1) # OR len(D1.items())** **# OR len(D1.keys())** **# OR len(D1.values())** (ii) (a) **D1.update(D)** **OR** (b) **D1.pop("Amit") # OR del D1["Amit"] # may also be considered** ***(i) (1 Mark for writing the correct statement)*** ***(ii) (1 Mark for writing the correct statement)***	MAIN EXAM	2025

39.	The code given below accepts N as an integer argument and returns the sum of all integers from 1 to N. Observe the following code carefully and rewrite it after removing all syntax and logical errors. Underline all the corrections made.
	`def Sum(N):`
	`  for I in range(N):`
	`  S=S+I`
	`  return S`
	`print(Sum(10))`
	
	SUGGESTIVE VALUE POINT:
	
	`def Sum(N):`
	`  S=0`
	`  for I in range(1,N+1): # OR  for I in range(N+1):`
	`  S=S+I`
	`  return S`
	`print(Sum(10))`
	(Full 2 Marks for writing all required corrections)
	OR
	(½ Mark for writing the : after `def Sum(N)` ***)***
	(½ Mark for correctly initialising `S`***)***
	(½ Mark for calculating the correct/required sum `S`***)***
	(½ Mark for writing the ' `)` ***' at the end of*** `print(Sum(10))`
	OR
	(1 Mark for only identification of all/any three errors without correction)
		MAIN EXAM	2025

40.	What is the difference between = and == in Python? Give an example of each. **SUGGESTIVE VALUE POINT:** **=** is an assignment operator to assign a value to a variable, whereas **==** is a relational operator to check whether two values are equal. Example: **a=5** assigns value to variable **a**. **a==5** returns True if a has the value **5**. ***(1 Mark for the difference)*** ***(½ Mark for each example)***	COMPTT. EXAM	2025
41.	Give an example of each of the following: (i) An expression using any one identity operator. (ii) An arithmetic expression which uses any one augmented	COMPTT. EXAM	2025

	assignment operator. **SUGGESTIVE VALUE POINT:** (i) `Num1=5` **`print(type(Num1) is int) # Output True`** **OR** **`Num1=False`** **`print(type(Num1) is int) # Output False`** **(ii)** **`Num1=5`** **`Num1+=5`** **OR** **`Num1-=5`** **OR** **`Num1*=5`** **OR** **`Num1/=5`** **OR** **`Num1%=5`** ***(1 Mark for writing each correct example)***		
42.	Assuming that D1 and D2 are Python dictionaries, write the following statements using built-in functions/methods : (I) (a) To delete all the elements of D1. **OR** (b) To generate a list of values of D1. (II) (a) To update dictionary D2 with the elements of D1. **OR** (b)To generate a tuple of keys of D2. **SUGGESTIVE VALUE POINT:** I) (a) **`D1.clear()`** **OR** (b) **`list(D1.values())`** (II) (a) **`D2.update(D1)`** **OR** (b) **`tuple(D2) # OR tuple(D2.keys())`** ***(I) (1 Mark for writing the correct statement)*** ***(II) (1 Mark for writing the correct statement)***	COMPTT. EXAM	2025

43.	The code provided below is intended to input a positive integer from the user and display the total number of its factors. However, there are syntax and logical errors in the code. Rewrite the code after removing all the errors. Underline all the corrections made.
	`n=int(input("Enter a positive integer:")`
	`c=0`
	`for i in range(n+1):`
	`  if n%i=0:`
	`  c+=1`
	`print(c)`
	
	SUGGESTIVE VALUE POINT:
	
	`n=int(input("Enter a positive integer:"))`
	`  # Close bracket`
	`c=0`
	`for i in range(1,n+1):  # range to start at 1`
	`  if n%i==0:  # ==`
	`  c+=1  # indentation`
	`print(c)`
	
	(½ x 4 = 2 Marks for any four error correction)
	OR
	(1 Mark for only identification of all/any three errors without correction)
		COMPTT. EXAM	2025

44.	(A) Write a user defined function in Python named **showGrades(S)** which takes the dictionary S as an argument. The dictionary, S contains **Name: [Eng, Math, Science] as key:value** pairs. The function displays the corresponding grade obtained by the students according to the following grading rules: **Average of Eng, Math, Science** | **Grade** **>=90** | **A**	MAIN EXAM	2024

<90 but >=60	**B**
<60	**C**

For example : Consider the following dictionary

```
S={ "AMIT": [92, 86, 64] , "NAGMA": [65, 42, 43], "DAVID": [92, 90,88]}
```

The output should be:

AMIT – B

NAGMA – C

DAVID - A

SUGGESTIVE VALUE POINT:

```
def showGrades(S):
    for K, V in S. items():
        if sum(V)/3>=90:
            Grade="A"
        elif sum(V)/3>=60:
            Grade="B"
        else:
            Grade="C"
        print(K,"-",Grade)
S={"AMIT":[92,86,64],"NAGMA":[65,42,43],"DAVID":[92,90,88]}
showGrades(S)
```

OR

```
def showGrades(S):
    for K in S:
        Sum=0
        for i in range(3):
            Sum+=S[K][i]
        if Sum/3>=90:
            Grade="A"
        elif Sum/3>=60:
            Grade="B"
        else:
            Grade="C"
        print(K,"-",Grade)
S={"AMIT":[92,86,64],"NAGMA":[65,42,43],"DAVID":[9
```

	2,90,88]} **showGrades(S)** ***(½ Mark for the loop to process individual students from the dictionary)*** ***(1 Mark for calculating grades)*** ***(½ Mark for displaying grades)***		
45.	Write the output displayed on execution of the following Python code: **LS=["HIMALAYA", "NILGIRI", "ALASKA", "ALPS"]** **D={ }** **for S in LS:** **if len(S)%4 == 0:** **D[S] = len(S)** **for K in D:** **print(K,D[K],sep = "#")** **SUGGESTIVE VALUE POINT:** HIMALAYA#8 ALPS#4 ***(1 Mark for each line of output)*** ***(Deduct ½ Mark if the entire output is correct but the formatting or line break or separating characters is/are incorrect)***	MAIN EXAM	2024
46.	(A) Write the Python statement for each of the following tasks using built-in functions/methods only (i) To remove the item whose key 1s **"NISHA"** from a dictionary named **Students.** For example, if the dictionary **Students** contains **{"ANITA":90, "NISHA":76, "ASHA":92},** then after removal the dictionary should contain { **"ANITA" : 90, "ASHA" : 92}** (ii) To display the number of occurrences of the sub string **"is"** in a string named **message.** For example if the string **message** contains **"This is his book",** then the output will be 3.	MAIN EXAM	2024

SUGGESTIVE VALUE POINT:

(A) (i)

```
Students.pop("NISHA")
```

OR

```
del(Students["NISHA"])
```

OR

```
del Students["NISHA"]
```

OR

Any other correct variation of the code

(ii)

```
print(message.count("is"))
```

OR

```
message.count("is")
```

OR

Any other correct variation of the code

(1 Mark for each correct command)

OR

(B) A tuple named **subject** stores the names of different subjects. Write the Python commands to convert the given tuple to a list and thereafter delete the last element of the list.

SUGGESTIVE VALUE POINT:

(B)

```
subject=list(subject)
subject.pop()
```

OR

```
subject=list(subject)
subject.pop(-1)
```

OR

	`subject=list(subject)`
	`del(subject[-1])`
	`OR`
	`subject=list(subject)`
	`del subject[-1]`
	OR
	Any other correct variation of the code
	
	(1 Mark for correctly converting to list)
	(1 Mark for correctly popping the last element/name)		

47.	The code given below accepts five numbers and displays whether they are even or odd:
	Observe the following code carefully and rewrite it after removing all syntax and logical errors:
	Underline all the corrections made.
	`def EvenOdd ()`
	`for i in range(S):`
	`num=int (input ("Enter a number" )`
	`if num/2==0:`
	`print("Even")`
	`else:`
	`print ("Odd")`
	
	`EvenOdd()`
	
	SUGGESTIVE VALUE POINT:
	
	`def EvenOdd():` # Error 1
	`for i in range(5) :`
	`num=int(input("Enter a number"))` # Error 2
	`if num%2==0:` # Error 3
	`print("Even")`
	`else:`
	`print("Odd")` # Error 4
	`EvenOdd()`
	(½ Mark for each correction made)
		MAIN EXAM	2024

48.	Predict the output of the following code:
	`def callon(b=20,a=10):`
	`  b=b+a`
	`  a=b-a`
	`  print(b, "#" ,a)`
	`  return b`
	`x=100`
	`y=200`
	`x=callon(x,y)`
	`print(x, "@",y)`
	`y=callon(y)`
	`print(x, "@",y)`
	
	SUGGESTIVE VALUE POINT:
	
	`300#100`
	`300@200`
	`210#200`
	`300@210`
	
	(½ Mark for each line of correct output)
	(Deduct ½ mark only if all the numeric parts of the output are correct but formatting or/and separators are incorrect
		MAIN EXAM	2024

49.	Observe the following code carefully and rewrite it after removing **all syntactical errors.** Underline all the corrections made.
	`def 1func():`
	`  a=input("Enter a number"))`
	`  if a>=33`
	`  print("Promoted to next class")`
	`  ELSE:`
	`  print("Repeat")`
	
	SUGGESTIVE VALUE POINT:
	
	`def func1():  # Correction 1`
	`  a=int(input("Enter a number"))# Correction 2`
		COMPTT. EXAM	2024

	`if a>=33:` `#Correction 3`
	`print("Promoted to next class")`
	`else:` `#Correction 4`
	`print("Repeat")`
	
	(½ Mark for each of the four corrections)		

50.	(a) Write the definition of a method/function **`SearchOut(Teachers, TName)`** to search for TName from a list Teachers, and display the position of its presence.
	For example :
	If the Teachers contain **`["Ankit", "Siddharth", "Rahul", "Sangeeta", "rahul"]`**
	and TName contains "Rahul"
	The function should display
	`Rahul at 2`
	`rahul at 4`
	
	SUGGESTIVE VALUE POINT:
	
	(a)
	`def SearchOut(Teachers, TName):`
	`  for I in range(len(Teachers)):`
	`  if TName.lower() == Teachers[I].lower():`
	`  print(Teachers[I],"at",I)`
	
	OR
	Any other correct variation of the code
	
	(½ Mark for the loop to process individual names in the list Teachers)
	(1 Mark for non-case sensitive correct comparison with Tname)
	(½ Mark for printing in correct format)
	
	(b) Write the definition of a method/function **`Copy_Prime(lst)`** to copy all the prime numbers from the list **`lst`** to another list **`lst_prime`**.
	SUGGESTIVE VALUE POINT:
	
	(b)
		COMPTT. EXAM	2024

	def Copy_Prime(lst): **lst_prime=[]** **for L in lst:** **for N in range(2,L//2+1):** **if L%N==0:** **break** **else:** **lst_prime.append(L)** **return lst_prime** ***(½ Mark for the loop to select the number from the list lst)*** ***(1 Mark for correctly identifying prime number)*** ***(½ Mark for appending the prime number in the list lst_prime)***		
51.	Predict the output of the following code: **d={"IND":"DEL","SRI":"COL","CHI":"BEI"}** **str1=""** **for i in d:** **str1=str1+str(d[i])+"@"** **str2=str1[:-1]** **print(str2)** **SUGGESTIVE VALUE POINT:** **DEL@COL@BEI** ***(1 Mark for writing DEL COL BEI)*** ***(1 Mark for correct format and placement of @)***	COMPTT. EXAM	2024
52.	(a) Write the Python statement for each of the following tasks using BUILT-IN functions/methods only : (i) To delete an element 10 from the list **lst.** **SUGGESTIVE VALUE POINT:** (a) `(i) lst.remove(10)` ***(1 Mark for writing correct command using valid BUILT-IN method/function)*** ***Note:*** ***½ Mark to be awarded if answer is lst.pop(9) or lst.pop(10)*** (ii) To replace the string "**This**" with "**That**" in the string str1. **SUGGESTIVE VALUE POINT:**	COMPTT. EXAM	2024

	(ii) str1.replace("This","That") **OR** Any other correct Python command using valid BUILT-IN method/function ***(1 Mark for writing correct command using valid BUILT-IN method/function)*** **OR** (b) A dictionary dict2 is copied into the dictionary dict1 such that the common key's value gets updated. Write the Python commands to do the task and after that empty the dictionary **dict1.** **SUGGESTIVE VALUE POINT:** (b) **dict1.update(dict2)** **dict1.clear()** **OR** Any other correct variation of the commands ***(1 Mark for correctly updating the dictionary dict1 by dict2)*** ***(1 Mark for correctly emptying the dictionary dict1)***		
53.	Predict the output of the following code: **def Total (Num=10):** **Sum=0** **for C in range(1,Num+1):** **if C%2!=0:** **continue** **Sum+=C** **return Sum** **print(Total(4),end="$")** **print(Total(),sep="@")** **SUGGESTIVE VALUE POINT:**	COMPTT. EXAM	2024

	`6$30` ***1 Mark for each value of correct output)*** ***Note:*** ***Deduct ½ mark only if $ not written correctly***		
	3 MARK QUESTIONS		

54.	(a) Predict the output of the following code:
	`def ExamOn(mystr):`
	`  newstr = ""`
	`  count= 0`
	`  for i in mystr:`
	`  if count%2 != 0:`
	`  newstr = newstr + str(count-1)`
	`  else:`
	`  newstr = newstr + i.lower()`
	`  count+= 1`
	`  newstr = newstr + mystr[:2]`
	`  print("The new string is:", newstr)`
	`ExamOn("GenX")`
	SUGGESTIVE VALUE POINT:
	(a) The new string is: g0n2Ge
	(½ Mark for each correct letter/digit in the right order)
	Note:
	(2½ Marks only to be awarded, if all the parts of `g0n2Ge is` ***written correctly without the text '***`The new string is:`***')***
	OR
	(b) Write the output on execution of the following Python code:
	`def Change(X):`
	`  for K,V in X.items():`
	`  Ll.append(K)`
	`  L2.append(V)`
	`D={1: "ONE", 2: "TWO", 3: "THREE"}`
	`Ll=[]`
	`L2=[]`
	`Change(D)`
	`print(Ll)`
		MAIN EXAM	2025

	`print(L2)`
	`print(D)`
	
	SUGGESTIVE VALUE POINT:
	
	(b)
	Note: Considering two lines after the for loop indented
	`[1, 2, 3]`
	`['ONE', 'TWO', 'THREE']`
	`{1: 'ONE', 2: 'TWO', 3: 'THREE'}`
	OR
	Note: Considering only first line after the for loop to be indented
	`[1, 2, 3]`
	`['THREE']`
	`{1: 'ONE', 2: 'TWO', 3: 'THREE'}`
	
	(1 Mark for writing each correct line of output)
	OR
	(Full 3 Marks for writing indentation error)		

55.	Write the output on execution of the following Python code:
	`S="Racecar Car Radar"`
	`L=S.split()`
	`for W in L:`
	`  x=W.upper()`
	`  if x==x [: :-1]:`
	`  for I in x:`
	`  print(I,end="*")`
	`  else:`
	`  for I in W:`
	`  print(I,end="#")`
	`  print()`
	
	SUGGESTIVE VALUE POINT:
	
	`R*A*C*E*C*A*R*`
	`C#a#r#`
	`R*A*D*A*R*`
	
	(1 Mark for each line of correct output)
		MAIN EXAM	2024

	Note: ***Deduct ½ mark only if all the alphabets are correct but some cases - lower/upper are incorrectly written*** ***Deduct ½ mark only if all the alphabets are correct but separators - */# are incorrectly written OR new line not considered***		

56.	Predict the output of the Python code given below:
	`s="India Growing"`
	`n = len(s)`
	`m=""`
	`for i in range (0, n) :`
	`  if (s[i] >= 'a' and s[i] <= 'm') :`
	`  m = m + s [i].upper()`
	`  elif (s[i] >= 'O' and s[i] <= 'z') :`
	`  m = m +s [i-1]`
	`  elif (s[i].isupper()):`
	`  m = m + s[i].lower()`
	`  else:`
	`  m = m + '@'`
	`print (m)`
	
	SUGGESTIVE VALUE POINT:
	
	`iIDIA@gGroIiG  #Considering capital O in the 7th line of code`
	OR
	`i@DIA@gGroI@G #Considering small o in the 7th line of code`
	
	(1 Mark for correctly writing the part `iIDIA or i@DIA`***)***
	(1 Mark for correctly placing the character `@` ***at the*** `5th` ***position)***
	(1 Mark for correctly writing the part `gGroIiG or gGroI@G`***)***
	Note:
	Deduct only ½ if the output content is correct but written in different lines or format is incorrect
		COMPTT. EXAM	2024

CHAPTER 2: FUNCTIONS

1.	What will be the output of the following code segment?
	`a=5`
	`def func_1(b=10):`
	`  global a`
	`  a=b-10`
	`  b+=a`
	`  print(a,b)`
	`func_1(a)`
	(A) 0 5 (B) 5 0
	(C)0 -5 (D) -5 0
	
	(D)-5 0
		COMPTT. EXAM	2025

2.	What possible output from the given options is expected to be displayed when the following Python code is executed?
	`import random`
	`Signal = ['RED', 'YELLOW', 'GREEN']`
	`for Kin range(2, 0, -1) :`
	`R = random.randrange(K)`
	`print (Signal[R], end= '#')`
	(a) YELLOW # RED # (b) RED # GREEN #
	(c) GREEN # RED # (d) YELLOW # GREEN #
	
	(a) YELLOW # RED #
		MAIN EXAM	2024

3.	Predict the output of the following Python statements:
	`>>>import statistics as s`
	`>>>s.mode ([10, 20, 10, 30, 10, 20, 30])`
	(a) 30 (b) 20
	(c) 10 (d) 18.57
	
	(c)10
		COMPTT. EXAM	2024

4.	Which of the following output will never be obtained when the given code is executed?
	`import random`
	`Shuffle = random.randrange(10)+1`
	`Draw = 10*random.randrange(5)`
	`print ("Shuffle", Shuffle, end="#")`
	`print ("Draw", Draw)`
		COMPTT. EXAM	2024

	(a) Shuffle 1 # Draw 0 **(b) Shuffle 10 # Draw 10** **(c) Shuffle 10 # Draw 0** **(d) Shuffle 11 # Draw 50** **(d) Shuffle 11 # Draw 50**		
	Q5 and Q6 are Assertion(A) and Reason(R) 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**		
5.	**Assertion (A):** Global variables are accessible in the whole program **Reason (R):** Local variables are accessible only within a function or block in which it is declared. (A) . Both Assertion (A) and Reason (R) are true, but Reason (R) is **not** the correct explanation of Assertion (A).	COMPTT. EXAM	2024
6.	**Assertion (A):** To use a function from a particular module, we need to import the module. **Reason (R):** import statement can be written anywhere in the program before using a function from that module. (B) Both A and R are true and R is not the correct explanation for A	MAIN EXAM	2023
	2 MARK QUESTIONS		

7.	What possible output from the given options is expected to be displayed when the following code is executed? **import random** **Cards = ["Heart","Spade","Club","Diamond"]** **for i in range(2):** **print(Cards[random.randint(1,i+@)],end="#")** **(A) Space#Diamond#** **(B) Spade#Heart#** **(C) Diamond#Club#** **(D) Heart#Spade#** a. **Spade#Diamond#** ***(2 Marks for writing the correct option)***	MAIN EXAM	2025
8.	Identify the correct possible output(s) of the following code segment. Also write the minimum and the maximum possible values of the variable b. **import random** **s="War and Peace"** **a=len(s)//2** **for i in range(4):** **b=random.randrange(i,a)** **print(s[b],end='+')** **(A) n+P+d+a+** **(B) W+r+n+n+** **(C) e+r+W+a+** **(D) a+P+e+r+** **SUGGESTIVE VALUE POINT:** **Correct output:** **(B) W+r+n+n+** Minimum possible value of **b is 0,** Maximum possible value of **b** is **5.** ***(1 Mark for correct output)*** ***(½ Mark each for correct Minimum and Maximum values of b)*** ***Note:*** ***Only ½ Mark to be awarded for the first part, if option (B) is mentioned along with other option***	COMPTT. EXAM	2025
	3 MARK QUESTIONS		

9.	(a) Write the output on execution of the following Python code :
	`P=[3,5,7,4]`
	`P.insert(2,3)`
	`P.extend([10, 6])`
	`print(P)`
	`print(P.index(7))`
	`print(P[::2])`
	SUGGESTIVE VALUE POINT:
	`[3, 5, 3, 7, 4, 10, 6]`
	`3`
	`[3, 3, 4, 6]`
	Line1 of output:
	(1 Mark for all correct values)
	OR
	(½ Mark for writing first four values of output correctly)
	Line2 of output: (1 Mark for correct line of output)
	Line3 of output:
	(1 Mark for all correct values)
	OR
	(½ Mark for writing first two values of output correctly)
		COMPTT. EXAM	2025

	OR
	(b) Write the output on execution of the following Python code :
	`def ALTER(Y=25):`
	`  global X Y += X`
	`  X += Y`
	`  print(X,Y,sep="#")`
	`X=5; Y=15`
	`ALTER(Y)`
	`ALTER()`
	`print(X,Y,sep="@")`
	SUGGESTIVE VALUE POINT:
	`25#20`
	`75#50`
	`75@15`
	(½ Mark for writing each correct numeric value of output)
	Note: Deduct only ½ mark if # or @ or newline is not considered in the output		

CHAPTER: 3, EXCEPTION HANDLING

1.	Consider the statements given below and then choose the correct output from the given options:
	`N='5'`
	`try:`
	`    print('WORD' + N, end='#')`
	`except:`
	`    print('ERROR', end='#')`
	`finally:`
	`    print('OVER')`
	
	(A) ERROR# **(B) WORD5#OVER**
	(C) WORD5# **(D) ERROR#OVER**
	
	(B) WORD5#OVER
		MAIN EXAM	2025

2.	State whether the following statement is True or False: While handling exceptions in Python, name of the exception has to be compulsorily added with **except** clause. **False**	MAIN EXAM	2024

CHAPTER: 4, FILE HANDLING

1.	A text file **song.txt** contains the following contents in it : ***Life goes on as it never ends*** What will be the output of the following code snippet? **f1=open("song.txt","r")** **s1=f1.read(5)** **s2=f1.readline(4)** **s3=f1.read(3)** **print(s1,s3,sep="#")** **(A) goes# on** **(B) Life #goes# on** **(C) Life # on** **(D) Error** **(C) Life # on**	COMPTT. EXAM	2025
2.	Consider the following Python statement: **F=open('CONTENT.TXT')** Which of the following is an invalid statement in Python? **(a) F. seek (1, 0)** **(b) F.seek(0,1)** **(c) F.seek(0,-1)** **(d) F . seek (0, 2)** **(c)F.seek(0,-1)**	MAIN EXAM	2024
3.	_____ files are stored in a computer in a sequence of bytes. **(a) Text** **(b) Binary** **(c) CSV** **(d) Notepad** **(b)Binary**	COMPTT. EXAM	2024
	Q4 to Q6 are Assertion(A) and Reason(R) 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**		
4.	**Assertion (A)** : For binary file opened using **'rb'** mode, the **pickle.dump( )** method will display an error. **Reason (R)** : The **pickle.dump( )** method is used to read from a binary file.	MAIN EXAM	2025

	(C) A is True but R is False		
5.	**Assertion (A):** CSV file is a human readable text file where each line has a number of fields, separated by comma or some other delimiter. **Reason (R):** **writerow** () method is used to write a single row in a CSV file. **(B) Both A and R are true and R is not the correct explanation for A**	MAIN EXAM	2024
6.	**Assertion (A):** If numeric data are to be written to a text file, the data needs to be converted into a string before writing to the file. **Reason (R):** write( ) method takes a string as an argument and writes it to the text file. **(A) Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).**	COMPTT. EXAM	2024
	3 MARK QUESTIONS		
7.	(a) Write a Python function that displays all the lines containing the word 'vote' from a text file "**Elections.txt**". For example, if the file contains : ***In an election many people vote to choose their representative.*** ***The candidate getting the maximum share of votes stands elected.*** ***Normally, one person has to vote once.*** ***The process of voting may vary with time and region.*** **Then the output should be:** ***In an election many people vote to choose their representative.*** ***Normally, one person has to vote once.*** **SUGGESTIVE VALUE POINT:** (a)	MAIN EXAM	2025

```
def PrintVote():
    F=open("Elections.txt")
    Lines=F.readlines()
    for Line in Lines:
        L=Line.split()
        if "vote" in L:
            print(Line)
    F.close()
OR
def PrintVote():
    with open("Elections.txt") as F:
        Lines=F.readlines()
        for Line in Lines:
            L=Line.split()
            if "vote" in L:
                print(Line)
OR
Any other equivalent correct code
```

(½ Mark for opening the file in default/correct mode)
(½ Mark for correct reading & iteration)
(½ Mark for correct logic of extracting the word 'vote')
(1 Mark for correct condition)
(½ Mark for displaying line)

OR

(b) Write a Python function that displays all the words starting and ending with a vowel from a text file "**Report. txt**". The consecutive words should be separated by a space in the output. For example, if the file contains:

Once there was a wise man in a village.
He was an awesome story-teller.
He was able to keep people anchored while listening to him.

Then the output should be:

Once a a awesome able.

SUGGESTIVE VALUE POINT:

(b)

```
def vowels():
    F=open('Report.txt')
    Data=F.read()
    Words=Data.split()
```

	for Word in Words:
	if Word[0] in 'aeiouAEIOU':
	if Word[-1] in 'aeiouAEIOU':
	print(Word,end=' ')
	F.close()
	OR
	def vowels():
	with open('Report.txt') as F:
	Data=F.read()
	Words=Data.split()
	for Word in Words:
	if Word[0].upper() in 'AEIOU'
	and Word[-1].upper() in 'AEIOU':
	print(Word,end=' ')
	OR
	Any other equivalent correct code
	
	(½ Mark for opening the file in default/correct mode)
	(½ Mark for correct reading & iteration)
	(½ Mark for correct logic to process each word)
	(1 Mark for correct condition)
	(½ Mark for displaying word)		

8.	(a) Write a Python function that displays all the lines ending with a dot (.) from a text file "**Colors.txt**". For example, if the file contains: ***White is a mix of seven colors.*** ***What are these seven colors ?*** ***VIBGYOR – violet, indigo, blue, green, orange and red.*** ***When we mix all these colors we just get one light*** ***which is the WHITE light.*** **Then the output should be :** ***White is a mix of seven colors.*** ***VIBGYOR – violet, indigo, blue, green, orange and red.*** ***which is the WHITE light.*** (Hint: You will have to ignore trailing white spaces to check the last character) **SUGGESTIVE VALUE POINT:** (a) def Colors(): with open("colors.txt") as F: Lines=F.readlines()	COMPTT. EXAM	2025

```
        for L in Lines:
            if L[-1]=='.':
                print(L)
```

OR

Any other equivalent correct code

(½ mark for the function header)
(½ mark for opening the file)
(½ mark for reading the file)
(½ mark for stripping the line)
(½ mark for checking the condition)
(½ mark for displaying the line)

OR

(b) Write a function in Python to display the line which has the maximum number of vowels from a text file, "**Novel.txt**".

SUGGESTIVE VALUE POINT:

(b)

```
def words():
    with open("Novel.txt") as F:
        Lines=F.readlines()
        MaxV=0;LV=""
        for L in Lines:
            CV=0
            for C in L:
                if C in "AEIOUaeiou":
                    CV+=1
        if CV>MaxV:
            MaxV=CV
            LV=L
    print(LV)
```

OR

Any other equivalent correct code

(½ mark for correct function header)
(½ mark for correctly opening the file)
(½ mark for correctly reading from the file)
(½ mark for correctly using the outer for loop)
(½ mark for correctly using the inner for loop)
(½ mark for correctly using the if statement)

9.	(A) Write a user defined function in Python	MAIN EXAM	2024

named **showinLines()** which reads contents of a text file named **STORY. TXT** and displays every sentence in a separate line.

Assume that a sentence ends with a full stop (.), a question mark(?), or an exclamation mark(!).

For example, if the content of file **STORY. TXT** is as follows:

```
Our parents told us that we must eat vegetables to be healthy. And it turns out, our parents were right! So, what else did our parents tell?
```

Then the function should display the file's content as follows:

```
Our parents told us that we must eat vegetables to be healthy.
And it turns out, our parents were right!
So, what else did our parents tell?
```

SUGGESTIVE VALUE POINT:

(A)

```
def showInLines():
    with open("STORY.TXT",'r') as F:
        S=F.read()
        for W in S:
            if W="." or W="?" or W="!":
                print(W)
            elif W="\n":
                print(end="")
            else:
                print(W,end="")
   F.close()
```

OR

```
    def showInLines():
        F = open("STORY.TXT",'r')
        S=F.read()
        for W in S:
           if W.endswith(".") or W.endswith("?") or
           W.endswith("!"):
                print(W)
            elif W="\n":
                print(end="")
            else:
                print(W,end="")
        F.close()
```

OR

Any other correct variation of the

code

(½ Mark for correctly opening the file)
(½ Mark for reading the content of file using any correct method/mode)
(½ Mark for the correct loop)
(½ Mark for correctly checking end of sentence terminating characters)
(½ Mark for correctly printing normal text without sentence terminator)
(½ Mark for correctly printing text with sentence terminator)

OR

(B) Write a function, `c_words()` in Python that separately counts and displays the number of uppercase and lowercase alphabets in a text file, `Words.txt`.

SUGGESTIVE VALUE POINT:

(B)

```
def c_words():
    f=open("Words.txt","r")
    Txt=f.read()
    CLower=CUpper=0
    for i in Txt:
        if i.islower():
            CLower+=1
        elif i.isupper():
            CUpper+=1
    print(CLower, CUpper)
    f.close()
```

OR

Any other correct variation of the code

(½ Mark for correctly opening the file)
(½ Mark for reading the content of file using any correct method/mode)
(½ Mark for the correct loop)
(½ Mark for correctly checking and incrementing for uppercase alphabets)
(½ Mark for correctly checking and incrementing for lowercase alphabets)
(½ Mark for printing/returning required output)

10.	(a) Write a method/function **COUNTWORDS()** in Python to read contents from a text file **DECODE.TXT**, to count and return the occurrence of those words, which are having 5 or more characters.
	
	SUGGESTIVE VALUE POINT:
	
	(a)
	`def COUNTWORDS():`
	`    NW=0`
	`    with open("DECODE.TXT",'r') as F:`
	`        S=F.read().split()`
	`        for W in S:`
	`            if len(W)>=5:`
	`                NW+=1`
	`    return NW`
	
	OR
	
	Any other correct variation of the code
	(½ Mark for correctly opening the text file in read mode using any valid method)
	(1 Mark for processing each word in the text file)
	(1 Mark for counting words having 5 or more characters)
	(½ Mark for returning the desired value)
	
	OR
	
	(b) Write a method/function **COUNTLINES()** in Python to read lines from a text file **CONTENT.TXT**, and display those lines, which have @ anywhere in the line. 3
	
	For example :
	If the content of the file is :
	Had an amazing time at the concert last night with @MusicLoversCrew.
	Excited to announce the launch of our new website!
	G20 @ India
		COMPTT. EXAM	2024

	The method/function should display **Had an amazing time at the concert last night with @MusicLoversCrew** **G20 @ India** **SUGGESTIVE VALUE POINT:** (b) **def COUNTLINES():** **f=open("CONTENT.TXT","r")** **LS=f.readlines()** **for L in LS:** **if "@" in L:** **print(L)** **f.close()** OR Any other correct variation of the code ***(½ Mark for correctly opening the text file in read mode using any valid method)*** ***(1 Mark for processing each line in the text file)*** ***(1 Mark for checking whether a line contains the character @ or not)*** ***(½ Mark for displaying the desired line)***		
	4 MARK QUESTIONS		
11.	A csv file "**P_record. csv**" contains the records of patients in a hospital. Each record of the file contains the following data: • Name of a patient • Disease • Number of days patient is admitted • Amount For example, a sample record of the file may be : **["Gunjan", "Jaundice" ,4,15000]** Write the following Python functions to perform the specified operations on this file : (i) Write a function **read_data ()** which reads all the data from the file and displays the details of all the **'Cancer'** patients. **SUGGESTIVE VALUE POINT:** i)	MAIN EXAM	2025

```
import csv
def read_data():
    F=open("P_record.csv","r")
    Records=list(csv.reader(F))
    for R in Records :
        if R[1]=="Cancer":
            print(R)
    F.close()
```

(½ Mark for opening the csv file in correct mode)
(½ Mark for reading the records from csv file)
(½ Mark for iteration of records)
(½ Mark for checking and displaying the matched records correctly)

(ii) Write a function **count_rec ()** which counts and returns the number of records in the file.

SUGGESTIVE VALUE POINT:

(ii)

```
def count_rec():
    with open("P_record.csv","r") as F:
        Records=list(csv.reader(F))
        print(len(Records))
```

(½ Mark for opening the csv file in correct mode)
(½ Mark for reading the records from csv file)
(1 Mark for finding/counting & displaying the number of records)

12. Suman is an intern at a software startup. The company has assigned her a task to create a CSV file named **CLUB.CSV**, to store the records of the Club members. After discussing with Club Incharge, Suman has planned to store the following content of members in the file **CLUB.CSV** :
[Mno, Name, Mobile, Fee]
Where

Mno	Member Number
Name	Name of the Member
Mobile	Mem's Mobile Number
Fee	Fee amount

Assuming you are asked to help Suman in her assignment, write a Python code for performing the following tasks with the help of user-defined functions:

NewMembers() : to accept records of members from the

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	user and add them to the file **CLUB.CSV**. **PriorityMember()** : to find and display those members from the file **CLUB.CSV**, who are paying Fee more than 35000. **SUGGESTIVE VALUE POINT:** **import csv** **def NewMembers():** **with open("CLUB.CSV","a") as F:** **# File Mode "w" also acceptable** **Writer = csv.writer(F)** **while True:** **Mno = input("Member Number: ")** **Name = input("Name: ")** **Mobile = input("Mobile : ")** **Fee = float(input("Fee : "))** **Writer.writerow([Mno, Name, Mobile, Fee])** **Ch = input("More? (Y/N): ")** **if Ch in 'nN': # or if Ch=="N":** **break** **def PriorityMember():** **with open("CLUB.CSV","r") as F:** **# File Mode is optional** **Recs = csv.reader(F)** **for R in Recs:** **Fee = float(R[3])** **if Fee > 35000:** **print(R)** **(Marking Scheme for NewMembers())** ***(½ Mark for opening the csv file in correct mode)*** ***(1 Mark for accepting the records from the user)*** ***(½ Mark for writing in csv file)*** **(marking Scheme for PriorityMember())** ***(½ Mark for opening the csv file in correct mode)*** ***(½ Mark for reading the records from csv file)*** ***(1 Mark for finding & displaying the of records according to given condition)***		
13.	Sangeeta is a Python programmer working in a computer hardware company. She has to maintain the records of the peripheral devices. She created a csv file named **Peripheral.csv**, to store the details. The structure of **Peripheral .csv** is: **[P_id,P_name,Price]**	MAIN EXAM	2024

where

P_id is Peripheral device ID (integer)

P_name is Peripheral device name (String)

Price is Peripheral device price (integer)

Sangeeta wants to write the following user defined functions:

Add_Device(): to accept a record from the user and add it to a csv file, **Peripheral.csv.**

Count_Device(): To count and display number of peripheral devices whose price is less than 1000.

SUGGESTIVE VALUE POINT:

```
import csv
def Add_Device():
    F=open("Peripheral.csv","a",newline='')
    W=csv.writer(F)
    P_id=int(input("Enter the Peripheral ID"))
    P_name=input("Enter Peripheral Name")
    Price=int(input("Enter Price"))
    L=[P_id,P_name,Price]
    W.writerow(L)
    F.close()
def Count_Device():
    F=open("Peripheral.csv","r")
    L=list(csv.reader(F))
    Count=0
    for D in L:
        if int(D[2])<1000:
        Count+=1
    print(Count)
    F.close()
```

OR

Any other correct variation of the code

(½ Mark for opening the csv file correctly in the function Add_Device())

	(½ Mark for reading the data from the user in the function Add_Device()) ***(½ Mark for writing the data correctly into the csv file in the function Add_Device())*** ***(½ Mark for opening the csv file correctly in the function Count_Device())*** ***(½ Mark for reading the data from the file in the function Count_Device())*** ***(½ Mark for loop in the function Count_Device())*** ***(½ Mark for checking the condition and counting correctly in the function Count_Device())*** ***(½ Mark for printing the output correctly in the function Count_Device())*** ***Note:*** ***Full 4 mark should be awarded if the examinee has mentioned that there is no mention of the task in the question***		
14.	Mr. Mahesh is a Python Programmer working in a school. He has to maintain the records of the sports students. He has created a csv file named sports.csv, to store the details. The structure of sports.csv is: **`[sport_id, competition, prize_won]`** where **`sport_id`**, is Sport id (integer) **`competition`** is competition name (string) **`prize_won`** is ("Gold", "Silver", "Bronze") Mr. Mahesh wants to write the following user-defined functions : **`Add_detail():`** to accept the detail of a student and add to a csv file, **`"sports.csv".`** **`Count_Medal():`** to display the name of competitions in which students have won **`"Gold"`** medal. Help him in writing the code of both the functions. **SUGGESTIVE VALUE POINT:**	COMPTT. EXAM	2024

```
import csv
def Add_detail():
    F=open("sports.csv","a")
    W=csv.writer(F)
    sport_id=int(input("Sport id:"))
    competition=input("Competition:")
    prize_won=input("Prize won:")
    L=[sport_id,competition,prize_won]
    W.writerow(L)
    F.close()

def Count_Medal():
    F=open("sports.csv","r")
    L=list(csv.reader(F))
    for D in L:
        if D[2]=="Gold":
            print("Competition:",D[1])
    F.close()
```

(½ Mark for opening the csv file correctly in the function `Add_detail()`)

(½ Mark for reading the data from the user in the function `Add_detail()`)

(½ Mark for writing the data correctly into the csv file in the function `Add_detail()`)

(½ Mark for opening the csv file correctly in the function `Count_Medal()`)
(½ Mark for reading the data from the file in the function `Count_Medal()`)
(½ Mark for loop in the function `Count_Medal()`)
(½ Mark for checking the condition correctly in the function `Count_Medal()`)
(½ Mark for printing the output correctly in the function `Count_Medal()`)
Note:
Ignore importing of CSV

	5 MARK QUESTIONS		
15.	(A) (i) Differentiate between **'w'** and **'a'** file modes in Python. **SUGGESTIVE VALUE POINT:** i) **'w'**: Open the file in write mode.	MAIN EXAM	2024

If the file doesn't exist, then a new file will be created.
The file pointer is in the beginning of the file.
If the file exists, the contents of the file, if any, are lost/truncated and the new data is added as fresh data into the file.

'a':
Open the file in append mode.
If the file doesn't exist, then a new file will be created.
The file pointer is at the end of the file.
If the file exists, the new data is added at the end of the file without deleting the previous contents of the file.

(1 Mark each for any one correct characteristics of 'w' mode)
(1 Mark each for any one correct characteristics of 'a' mode)

(ii) Consider a binary file, **items . dat,** containing records stored in the given format:

{item_id: [item_name,amount]}

Write a function, **Copy_new ()**, that copies all records whose amount is greater than 1000 from **items.dat** to **new_items. dat.**

SUGGESTIVE VALUE POINT:

(ii)

```
import pickle
def Copy_new():
    F2=open("new_items.dat","wb")
    try:
        F1=open("items.dat","rb")
        Data1=pickle.load(F1)
        Data2={}
        for K,V in Data1.items():
            if V[1]>1000:
                Data2[K]=V
        pickle.dump(Data2,F2)
        F2.close()
    except:
        print("File not found!")
```

```
    F1.close()
```

OR

Any other correct variation of the code

(½ Mark for opening the file items.dat in correct mode)

(½ Mark for opening the file new_items.dat in correct mode)

(½ Mark for reading the content of the file items.dat)

(½ Mark for the correct loop)

(½ Mark for checking the condition)

(½ Mark for writing the required contents into the file new_items.dat)

Note: Ignore f.close() and f1.close()

OR

(B) (i) What is the advantage of using **with** clause while opening a data file in Python? Also give syntax of **with** clause.

SUGGESTIVE VALUE POINT:

(B) (i) The advantage of using **with** clause is that any file that is opened using this clause is closed automatically, once the control comes outside the with clause.

Example:

```
with open("myfile.txt","r+")as file_object:
content = file_object.read()
```

In Python, we can open a file using **with** clause/statement.

The syntax of **with** clause is:

with open (file_name, access_mode) as file_object:

(1 Mark for writing any one advantage of with statement)

(1 Mark for writing syntax OR any valid example of with statement)

(ii) A binary file, **EMP. DAT** has the following structure :

[Emp_Id, Name, Salary]

Where

Emp_ Id : Employee id

Name : Employee Name

Salary : Employee Salary

Write a user defined function, **disp_Detail ()**, that would read the contents of the file **EMP. DAT** and display the details of those employees whose salary is below **25000.**

SUGGESTIVE VALUE POINT:

(ii)

```
def disp_Detail():
    try:
        with open("EMP.DAT","rb") as F:
            Data=pickle.load(F)
            for D in Data:
                if D[2]<25000:
                    print(D)
    except:
        print("File Not Found!!!")
```

OR

	Any other correct variation of the code ***(½ Mark for opening the file items.dat in correct mode)*** ***(1 Mark for reading the content of the file items.dat)*** ***(½ Mark for the correct loop)*** ***(½ Mark for checking the condition)*** ***(½ Mark for printing the desired output)***		
16.	(a) (i) What is the main purpose of **seek()** and **tell()** method? **SUGGESTIVE VALUE POINT:** (a) (i) **seek()** - it is a Python method, which moves the file pointer to the location specified in the parameter. **tell()** - it is a Python method, which returns the present location of a file pointer. ***(1 Mark for correct purpose of seek() method with or without syntax/example)*** ***(1 Mark for correct purpose of tell() method with or without syntax/example)*** (ii) Consider a binary file, Cinema.dat containing information in the following structure : **[Mno, Mname, Mtype]** Write a function, **search_copy()**, that reads the content from the file **Cinema.dat** and copies all the details of the **"Comedy"** movie type to file named movie.dat. **SUGGESTIVE VALUE POINT:** (ii) **import pickle**	COMPTT. EXAM	2024

```
def search_copy():
    try:
        F1=open("Cinema.dat","rb")
        F2=open("movie.dat","wb")
        Data1=pickle.load(F1)
        Data2=[]
        for D in Data1:
            if D[2]=="Comedy":
                Data2.append(D)
        pickle.dump(Data2,F2)
        F1.close()
        F2.close()
    except:
        print("File not found!")
```

OR

```
import pickle
def search_copy():
    try:
        F1 = open("Cinema.dat","rb")
        F2 = open("movie.dat", "wb")
        try:
            while True:
                Data1=pickle.load(F1)
                if Data1[2]=="Comedy":
                    pickle.dump(Data1,F2)
        except:
            print("Done!")
        F1.close()
        F2.close()
    except:
        print("File not found!")
```

(½ Mark for opening the file Cinema.dat in correct mode)

(½ Mark for opening the file movie.dat in correct mode)

(½ Mark for reading the content of the file Cinema.dat)

(½ Mark for the correct loop)
(½ Mark for checking the condition)
(½ Mark for writing the required contents into the file movie.dat)

Note: Ignore import pickle, F1.close() and F2.close()

OR

(b) (i) Give one difference between **`write()`** and **`writeline()`** function in text file.

SUGGESTIVE VALUE POINT:

(b) (i) **write** function - writes the content of a string onto a text file object .

writelines function - writes the content of a list of strings onto a text file object .

Example:

```
file.write("Hello World")
file.writelines(["Hello","World"])
```

(2 Mark for writing the difference between write and writelines with/without using examples)

OR

(1 Mark for explaining uses of write function using/without using example)

(1 Mark for explaining uses of writelines function using/without using example)

Note:

As there is no function `writeline`, give full 2 Marks for correctly explaining the write function only.

(ii) A Binary file, **`"Items.dat"`** has the following

structure: **[Icode, Description, Price]**

Where

Icode – Item code

Description – Detail of item

Price – Price of item

Write a function **Add_data()**, that takes **Icode**, **Description** and **Price** from the user and writes the information in the binary file **"Items.dat".**

SUGGESTIVE VALUE POINT:

ii)

```
import pickle
def Add_data():
    F=open("Items.dat","wb")
    Icode=input("Icode:")
    Description=input("Detail of item:")
    Price=float(input("Price:")
    pickle.dump([Icode,Description,Price], F)
    F.close()
```

OR

Any other correct variation of the code

1 Mark for opening the file items.dat in correct mode)

(1 Mark for correctly accepting the content from user)
(1 Mark for the correctly using dump command to write the content on file)

Note:

Ignore ***`import pickle`*** ***and*** ***`F.close()`***

CHAPTER: 5, DATA STRUCTURE

	3 MARK QUESTIONS		

1.	(a) A stack, named **ClrStack,** contains records of some colors. Each record is represented as a tuple containing four elements - **ColorName, RED, GREEN, BLUE . ColorName** is a string, and **RED, GREEN, BLUE** are integers. For example, a record in the stack may be **('Yellow', 237, 250, 68)**
	
	Write the following user-defined functions in Python to perform the specified operations on **ClrStack:**
	
	(i) **push_Clr (ClrStack, new_Clr):** This function takes the stack **ClrStack** and a new record **new_Clr** as arguments and pushes this new record onto the stack.
	
	SUGGESTIVE VALUE POINT:
	
	(a)
	
	(i)
	
	`def push_Clr(ClrStack, new_Clr):`
	`    ClrStack.append(new_Clr)`
	
	(1 Mark for correct definition of **push_Clr(ClrStack, new_Clr)*)***
	
	(ii) **pop_Clr (ClrStack):** This function pops the topmost record from the stack and returns it. If the stack is already empty, the function should display the message **"Underflow".**
	
	SUGGESTIVE VALUE POINT:
	
	(ii)
	
	`def pop_Clr(ClrStack):`
	`    if len(ClrStack) == 0:`
	`    # OR if not ClrStack:`
	`    # OR if ClrStack == []:`
	`        print("Underflow")`
	`    else:`
		MAIN EXAM	2025

```
        return(ClrStack.pop())
```

(½ Mark for correctly checking and displaying "Underflow")

(½ Mark for correctly popping and returning popped tuple/data)

(iii) **isEmpty (ClrStack) :** This function checks whether the stack is empty. If the stack is empty, the function should return True, otherwise the function should return **False.**

SUGGESTIVE VALUE POINT:

```
(iii)
def isEmpty(ClrStack):
    if len(ClrStack) == 0:
    # OR if not ClrStack:
    # OR if ClrStack == []:
        return True
    else:
        return False
```

(½ Mark for correctly checking whether the Stack is Empty or not)

(½ Mark for correctly returning/printing the required values)

OR

(b) Write the following user-defined functions in Python:

(i) **push_trail(N,myStack):** Here **N** and **mystack** are lists, and **myStack** represents a stack. The function should push the last 5 elements from the list **N** onto the stack **myStack**. For example, if the list **N** is **[1, 2, 3, 4, 5, 6, 7]**, then the function push_trail() should push the elements **3,4,5,6,7** onto the stack. Therefore the value of stack will be **[3, 4, 5, 6, 7]**.

Assume that N contains at least 5 elements.

SUGGESTIVE VALUE POINT:

(i)

```
def push_trail(N,myStack):
    for i in range(-5,0,1):
    # Any other correct loop
        myStack.append(N[i])
```

(1 Mark for correct definition of **`push_trail(N,myStack)`***)*

(ii) **`pop_one(myStack):`** The function should pop an element from the stack **`myStack`**, and return this element. If the stack is empty, then the function should display the message **`'Stack Underflow'`**, and return **`None.`**

SUGGESTIVE VALUE POINT:

(ii)

```
def pop_one(myStack):
    if not myStack:
    #OR if myStack==[]:
    #OR if len(myStack)==0:
        print('Stack Underflow')
    else:
        return myStack.pop()
```

(½ Mark for correctly checking and displaying "Stack Underflow")

(½ Mark for correctly popping and returning last element

(iii) **`display_all (myStack):`** The function should display all the elements of the stack **`myStack`**, without deleting them. If the stack is empty, the function should

	display the message **'Empty Stack'.** **SUGGESTIVE VALUE POINT:** (iii) **def display_all(myStack):** **if not myStack:** **#OR if myStack==[]:** **#OR if len(myStack)==0:** **print("Empty Stack")** **else:** **for i in myStack[::-1]:** **# print(myStack[::-1])** **print(i,end=' ') # -** ***(½ Mark correctly checking Empty condition)*** ***(½ Mark correctly displaying content till the last value in the stack)***		
2.	(a) A stack named **KeyStack** contains records of some computer keyboards. Each record is represented as a list containing **Make, Keys, Connectivity**. The **Make** and **Connectivity** are strings, and Keys is an integer. For example, a record in the stack may be ('Hitech', 105, 'USB'). Write the following user-defined functions in Python to perform the specified operations on **KeyStack :** (I) **push_key(KeyStack, new_key):** This function takes the stack **KeyStack** and a new record **new_key** as arguments and pushes this new record onto the stack. **SUGGESTIVE VALUE POINT:** (i) **def push_key(KeyStack, new_Key):** **KeyStack.append(new_Key)** ***(1 Mark for correct definition of*** **KeyStack.append(new_Key))**	COMPTT. EXAM	2025

(II) **pop_key(KeyStack) :** This function pops the topmost record from the stack and returns it. If the stack is already empty, the function should display the message **"Underflow".**

SUGGESTIVE VALUE POINT:

(ii)

```
def pop_key(KeyStack):
    if not KeyStack:
        print("Underflow")
    else:
        return(KeyStack.pop())
```

(½ Mark for correctly checking and displaying "Underflow")

(½ Mark for correctly popping and returning popped tuple/data)

(III) **isEmpty(KeyStack) :** This function checks whether the stack is empty. If the stack is empty, the function should return True, otherwise the function should return False.

SUGGESTIVE VALUE POINT:

(iii)

```
def isEmpty(KeyStack):
    return KeyStack==[]:
```

(½ Mark for correctly checking whether the Stack is Empty or not)

(½ Mark for correctly returning/printing the required values)

OR

(b) Write the following user-defined functions in Python:

(I) **push_vowels(S,St) :** Here **S** is a string and St is a list representing a stack. The function should push all the

vowels of the string S onto the stack St. For example, if the string **S** is **"Easy Concepts"**, then the function **push_vowels()** should push the elements **'E','a','o','e'** onto the stack.

SUGGESTIVE VALUE POINT:

(i)
```
def push_vowels(S, St):
    vowels = 'AEIOUaeiou'
    for ch in S:
        if ch in vowels:
            St.append(ch)
```

(1 Mark for correct definition of push_vowels(S, St))

(II) **pop_one(St)** : The function should pop an element from the stack St, and return this element. If the stack is empty, then the function should display the message 'Stack Underflow', and return None.

SUGGESTIVE VALUE POINT:

(ii)
```
def pop_one(St):
    if len(St) == 0:
        print("Stack Underflow")
        return None
    else:
        return St.pop()
```

(½ Mark for correctly checking and displaying "Stack Underflow")

(½ Mark for correctly popping and returning last element)

(III) **display_all(St):** The function should display all the elements of the stack St, without deleting them. If the stack is empty, the function should display the message **'Empty Stack'**.

	SUGGESTIVE VALUE POINT:
	
	(iii)
	`def display_all(St):`
	`    if len(St) == 0:`
	`        print("Empty Stack")`
	`    else:`
	`        print("Stack contents:", St)`
	
	(½ Mark correctly checking Empty condition)
	(½ Mark correctly displaying content in the stack)		

3.	Consider a list named **Nums** which contains random integers. Write the following user defined functions in Python and perform the specified operations on a stack named **BigNums.** (i) **PushBig()** : It checks every number from the list **Nums** and pushes all such numbers which have **5 or more digits** into the stack, **BigNums.** (ii) **PopBig()** : It pops the numbers from the stack, **BigNums** and displays them. The function should also display **"Stack Empty"** when there are no more numbers left in the stack. For example: If the list **Nums** contains the following data : **Nums = [213, 10025, 167, 254923, 14, 1297653, 31498, 386, 92765]** Then on execution of **PushBig()**, the stack **BigNums** should store: **[10025, 254923, 1297653, 31498, 92765]** And on execution of **PopBig()**, the following output should be displayed : **92765**	MAIN EXAM	2024

```
31498
1297653
254923
10025
Stack Empty
```

SUGGESTIVE VALUE POINT:

```
def PushBig(Nums,BigNums):
    for N in Nums:
        if len(str(N)) >= 5:
            BigNums.append(N)
def PopBig(BigNums):
    while BigNums:
        print(BigNums.pop())
    else:
        print("Stack Empty")
```

OR

```
def PushBig():
    for N in Nums:
        if N >= 10000:
            BigNums.append(N)
def PopBig():
    while BigNums:
        print(BigNums.pop())
    print("Stack Empty")
```

OR

Any other correct variation of the code

(½ Mark for the correct loop in the function PushBig)

(½ Mark for correctly checking the number of digits in the function PushBig)

(½ Mark for pushing the correct number into BigNums in the function PushBig)

(½ Mark for the correct loop in the function

	PopBig) ***(½ Mark for correctly checking the underflow condition and printing* "Stack Empty" *in the function PopBig)*** ***(½ Mark for popping and printing the correct number in the function PopBig)*** ***Note:*** ***Ignore the declarations of Nums and/or BigNums***		
4.	A dictionary, d_city contains the records in the following format: **{state:city}** Define the following functions with the given specifications: (i) **push_city(d_city):** It takes the dictionary as an argument and pushes all the cities in the stack **CITY** whose states are of more than 4 characters. (ii) **pop_city():** This function pops the cities and displays **"Stack empty"** when there are no more cities in the stack. **SUGGESTIVE VALUE POINT:** (i). **CITY=[]** **def push_city(d_city):** **for c in d_city:** **if len(c) > 4:** **CITY.append(d_city[c])** (ii) **def pop_city():** **while CITY:** **print(CITY.pop())** **else:** **print("Stack empty")** OR Any other correct variation of the code	COMPTT. EXAM	2024

	(½ Mark for the correct loop in the function push_city) ***(½ Mark for correctly checking the number of chars in the function push_city)*** ***(½ Mark for pushing the correct cities into CITY in the function push_city)*** ***(½ Mark for the correct loop in the function pop_city)*** ***(½ Mark for correctly checking the underflow condition and printing*** `"Stack Empty"` ***in the function pop_city)*** ***(½ Mark for correctly popping in the function pop_city)*** ***Note:*** ***Ignore the declaration of CITY***		

CHAPTER:6, COMPUTER NETWORK

1.	Which of the following networking devices is used to regenerate and transmit the weakened signal ahead? **(A) Hub** **(B) Ethernet Card** **(C) Repeater** **(D) Modem** **(C) Repeater**	MAIN EXAM	2025
2.	Which of the following options is the correct protocol used for phone calls over the internet? **(A) PPP** **(B) FTP** **(C) HTTP** **(D) VoIP** **(C) VoIP**	MAIN EXAM	2025
3.	Expend ARPANET Advanced Research Projects Agency Network	MAIN EXAM	2025
4.	Which of the following devices is essential to set up a wired LAN? **(A) Modem** **(B) NIC** **(C) Repeater** **(D) Firewall** **(C)NIC**	COMPTT. EXAM	2025
5.	Which network device serves as the entry and exit point of a network, as all data coming in or going out of a network must first pass through it ? **(A) Modem** **(B) Gateway** **(C) Switch** **(D) Repeater** **(B) Gateway**	COMPTT. EXAM	2025
6.	Which of the following IP addresses is valid? **(A) 122.94.96.212** **(B) 212.254.258.210** **(C) 210.10.12.156.209** **(D) 122.294.56.68**	COMPTT. EXAM	2025

	(A) 122.94.96.212		
7.	Which protocol out of the following is used to send and receive emails over a computer network? **(a) PPP** **(b) HTTP** **(c) FTP** **(d) SMTP** **(d) SMTP**	MAIN EXAM	2024
8.	Which of the following options 1s the correct unit of measurement for network bandwidth? **(a) KB** **(b) Bit** **(c) Hz** **(d) Km** **(c) Hz**	MAIN EXAM	2024
9.	Fill in the blank: _____ is a set of rules that needs to be followed by the communicating parties in order to have a successful and reliable data communication over a network. **Name of any protocol** ***(1 mark for writing correct answer)***	MAIN EXAM	2024
10.	The primary key is selected from the set of _____. **(A) composite keys** **(B) alternate keys** **(C) candidate keys** **(D) foreign keys** **(C) candidate keys**	COMPTT. EXAM	2024
11.	**'L'** in **HTML** stands for: **(A) Large** **(B) Language** **(C) Long** **(D) Laser**	COMPTT. EXAM	2024

	(B) Language		
12.	Ethernet card is also known as: **(A) LIC** **(B) MIC** **(C) NIC** **(D) OIC** **(C)NIC**	COMPTT. EXAM	2024
13.	Fill in the blank: The full form of **WWW** is _____. **World Wide Web**	COMPTT. EXAM	2024
	2 MARK QUESTIONS		
14.	(a) Expand and explain the term **URL**. **SUGGESTIVE VALUE POINT:** **(a)** URL (Uniform Resource Locator): It is the unique address of any resource on the Internet. ***(1 Mark for writing correct explanation) (1 Mark for writing correct expansion)*** **OR** **(b)** Expand the term **PPP**. What is the use of **PPP**? **SUGGESTIVE VALUE POINT:** (b)PPP (Point to Point Protocol): This protocol is used to establish a dedicated and direct connection between two communicating devices. (1 Mark for writing correct expansion) ***(1 Mark for writing correct use)*** ***OR*** ***(½ Mark for writing any two words of correct expansion)***	MAIN EXAM	2025
15.	(I) (a) Expand the following terms: **POP, TCP** (b) Write any one difference between a hub and a switch used in computer networks.	COMPTT. EXAM	2025

SUGGESTIVE VALUE POINT:

(I) (a)

Post Office Protocol

Transmission Control Protocol

(b)

Hub (Any one point)	Switch (Any one point)
• It is a multi-port device without any intelligence. • It is less efficient as compared to switch. • It is less expensive as compared to switch.	• It is a multi-port device, but with intelligence. • It is more efficient as compared to hub. • It is more expressive as compared to hub.

OR

(II) (a)

HTTP	HTTPS
• It is not a secured Protocol. • Hyper Text Transfer Protocol.	• It is a secured Protocol. • Hyper Text Transfer Protocol Secure.

(I) (a) (½ Mark for writing each correct expansion)
(b) (1 Mark for writing correct difference)

OR

(II) (a) Write any one difference between **`HTTP`** and **`HTTPS`**.

(b) Write names of any two wireless transmission media.

(b) Commonly used wireless communication media are:

- Radio wave
- Microwave
- Infrared

(Any two)

SUGGESTIVE VALUE POINT:

(II) (a) (1 Mark for writing correct difference)

(b) (½ Mark each for writing any two correct name of wireless media)

16. (A) (i) Expand the following terms:

XML, PPP

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SUGGESTIVE VALUE POINT:

(A)

(i) eXtensible Markup Language

Point-to-Point Protocol

(½ Mark for writing correct expansion of XML)

(½ Mark for writing correct expansion of PPP)

(ii) Give one difference between circuit switching and packet switching.

SUGGESTIVE VALUE POINT:

(ii)

Circuit Switching	Packet Switching
A dedicated path is established between the sender and the receiver before starting data transmission. Entire data is transmitted in one go.	Data to be transmitted is divided into small packets which are transmitted via nearest service provider till all packets reach the recipient where the packets are reassembled.

(½ Mark for writing correct technique for Circuit Switching)

(½ Mark for writing correct technique for Packet Switching)

	OR (B) (i) Define the term web hosting. **SUGGESTIVE VALUE POINT:** (B) (i) Web hosting is a service that allows users to put a website or a webpage onto the internet, and make it a part of the World Wide Web. ***(1 Mark for writing the correct definition of Web hosting)*** (ii) Name any two web browsers. **SUGGESTIVE VALUE POINT:** (ii) Google Chrome, Microsoft Edge, Safari, Mozilla Firefox, Opera etc. ***(1 mark for writing names of any two web browsers)***		
17.	(a) (i) Expand the following terms: **`URL, XML`** **SUGGESTIVE VALUE POINT:** (i) **Uniform Resource Locator** **eXtensible Markup Language** ***(½ Mark for writing correct expansion of URL)*** ***(½ Mark for writing correct expansion of XML)*** (ii) Give one difference between **`HTTP`** and **`FTP`**. **SUGGESTIVE VALUE POINT:** (ii) **HTTP** | **FTP**	COMPTT. EXAM	2024

Hypertext Transfer Protocol	File Transfer Protocol
HTTP is used for accessing Web pages	FTP is used to transfer Files from one computer to another computer over the internet

OR

Any other correct difference with or without supporting examples.

OR

(1 Mark for writing any one valid difference between HTTP and FTP with or without supporting example)

OR

(½ Mark for writing anyone correct characteristic for HTTP)
(½ Mark for writing anyone correct characteristic for FTP)

OR

(b) (i) Define the term IP address with respect to network.

SUGGESTIVE VALUE POINT:

(i) IP Address: It is the unique address for each computer on a network.

(1 Mark for writing correct meaning or any one appropriate purpose of IP address)

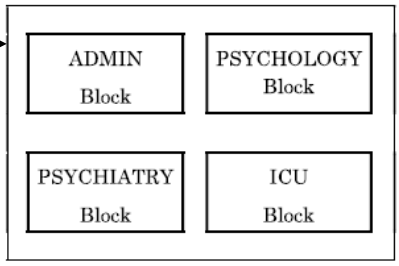
(ii) What is the main purpose of a Router?

SUGGESTIVE VALUE POINT:

(ii). A router is a device that:

a. connects two or more packet-switched networks or subnetworks.
b. manages traffic between networks by forwarding data packets to their intended IP addresses
c. allows multiple devices to use the same Internet connection.

(1 Mark for writing correct meaning or any one appropriate purpose of Router)

	5 MARK QUESTIONS		
18.	**'Swabhaav'** is a big NGO working in the field of Psychological Treatment and Counselling, having its Head Office in Nagpur. It is planning to set up a center in Vijayawada. The Vijayawada Center will have four blocks - **ADMIN, PSYCHIATRY, PSYCHOLOGY**, and **ICU**. You, as a Network Expert, need to suggest the best network-related solutions for them to resolve the issues/problems mentioned in questions (i) to (v), keeping the following parameters in mind : **Vijayawada Center** →  Block to Block distances (in metres): **From** / **To** / **Distance** **ADMIN** – **PSYCHIATRY** – **65 m** **ADMIN** – **PSYCHOLOGY** – **65 m** **ADMIN** – **ICU** – **65 m** **PSYCHIATRY** – **PSYCHOLOGY** – **100 m** **PSYCHIATRY** – **ICU** – **50 m** **PSYCHOLOGY** – **ICU** – **50 m** Distance of **Nagpur Head Office** from **Vijayawada Center – 700 km** Number of Computers in each block is as follows: **Block** / **No. of Computers** **ADMIN** – **16** **PSYCHIATRY** – **40** **PSYCHOLOGY** – **19** **ICU** – **20** (i) Suggest the most appropriate location of the server inside the Vijayawada Center. Justify your choice. **SUGGESTIVE VALUE POINT:** (i) **PSYCHIATRY** Block as it has the maximum number of Computers.	MAIN EXAM	2025

OR

ADMIN Block as is generally the most secure.

OR

ADMIN Block as is closest to all the blocks.

OR

Any other location with valid justification.

(1 Mark for suggesting a block with valid justification)

(ii) Which hardware device will you suggest to connect all the computers within each block of Vijayawada Center?

SUGGESTIVE VALUE POINT:

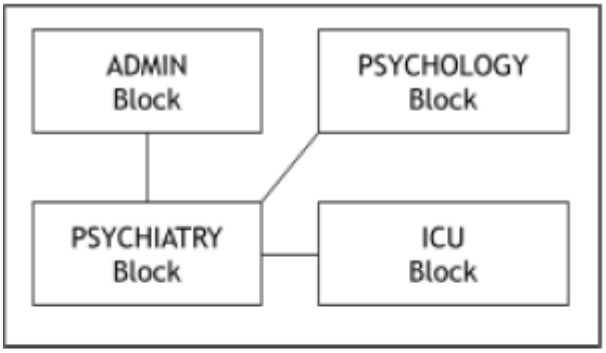
Switch/Hub/Router (Any one)

(1 Mark for writing correct answer)

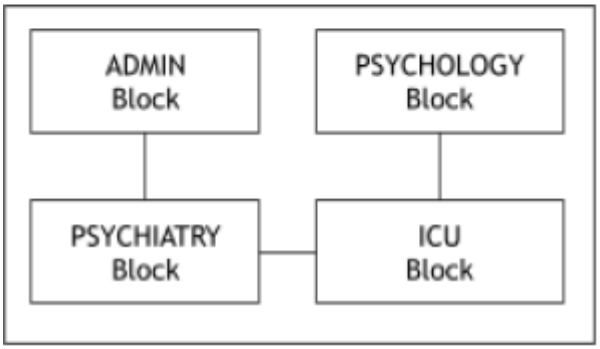
(iii) Draw a cable layout to efficiently connect various blocks within the Vijayawada Center.

SUGGESTIVE VALUE POINT:

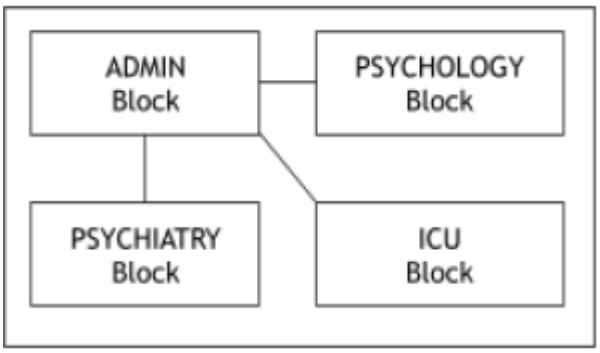
(iii)



OR



OR



OR

Any other valid efficient cable layout

(1 Mark for drawing the correct cable layout)

(iv) Where should the router be placed to provide internet to all the computers in the Vijayawada Center?

SUGGESTIVE VALUE POINT:

(iv) Router should be placed where the server is placed.

Note: As per the recent network technologies, Router can be connected in any of the blocks as all the blocks are networked. So, the marks should be awarded accordingly.

(1 Mark for writing the correct answer)

(v) (a) The Manager at Nagpur wants to remotely access the computer in Admin block in Vijayawada. Which protocol will be used for this?

SUGGESTIVE VALUE POINT:

(a) TELNET
(a) ***(1 Mark for writing the correct answer)***

OR

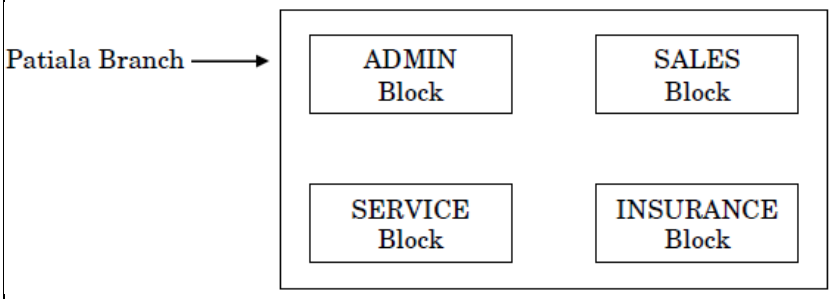
(b) Which type of Network (PAN, LAN, MAN or WAN) will be set up among the computers connected with Vijayawada Center ?

SUGGESTIVE VALUE POINT:

(b) LAN or MAN or WAN (Not PAN)
(b) ***(1 Mark for writing the correct answer)***

19.	**'CKNG Auto'** is a big car-selling agency having its **Head Office** in **Delhi**. It is planning to set up a new branch in Patiala. The Patiala branch will have four blocks – **ADMIN,**	COMPTT. EXAM	2025

SALES, SERVICE and INSURANCE. You, as a network expert, need to suggest the best network-related solutions for them to resolve the issues/problems mentioned in points (I) to (V), keeping the following parameters in mind.



Block to Block distances (in Metres)

From	To	Distance
ADMIN	SALES	70 m
ADMIN	SERVICE	60 m
ADMIN	INSURANCE	65 m
SALES	SERVICE	80 m
SALES	INSURANCE	100 m
SERVICE	INSURANCE	60 m

Distance of Delhi Head Office from Patiala branch = 250 km

Number of computers in each block is an follows:

Block	No. of Computers
ADMIN	18
SALES	30
SERVICE	20
INSURANCE	10

(I) Suggest the most appropriate location of the server inside the Patiala branch. Justify your choice.

SUGGESTIVE VALUE POINT:

(I) SALES Block as it has the maximum number of Computers.
OR
ADMIN Block as is closest to all the blocks.
OR
Any other location with valid justification.
(1 Mark for suggesting a block with valid justification)

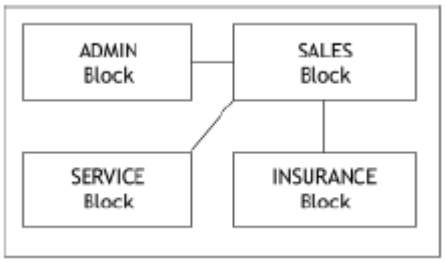
(II) What kind of network (PAN/LAN/MAN/WAN) will be formed by interconnecting all the computers inside a block?

SUGGESTIVE VALUE POINT:

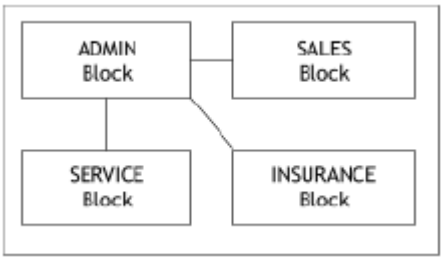
(II) LAN
(1 Mark for writing correct answer)

(III) Draw the most effective cable layout to connect all four blocks of Patiala branch.

(III)



OR



OR

Any other valid efficient cable layout

(1 Mark for drawing the correct cable layout)

(IV) Which device should be used to provide Internet connection to all the computers in the Patiala branch?

SUGGESTIVE VALUE POINT:

(IV) Router (most preferred)
Switch/Hub (may be considered)

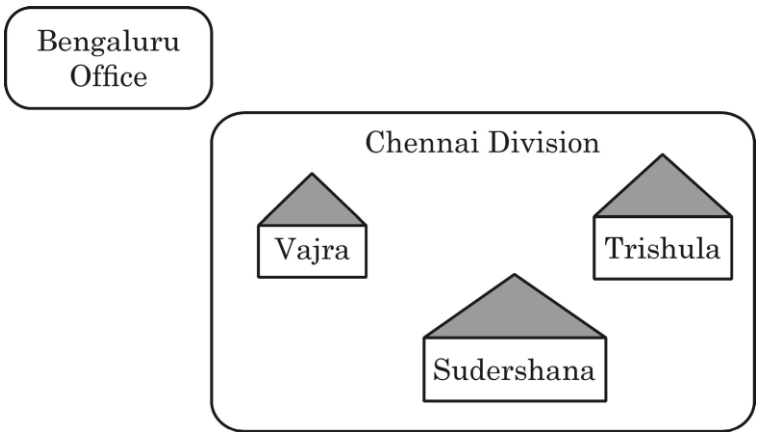
(1 Mark for writing the correct answer)

(V) (a) Which is the best wired medium to connect server of Patiala office to the head office at Delhi?

SUGGESTIVE VALUE POINT:

(a) Optical fibre
(a) ***(1 Mark for writing the correct answer)***

OR

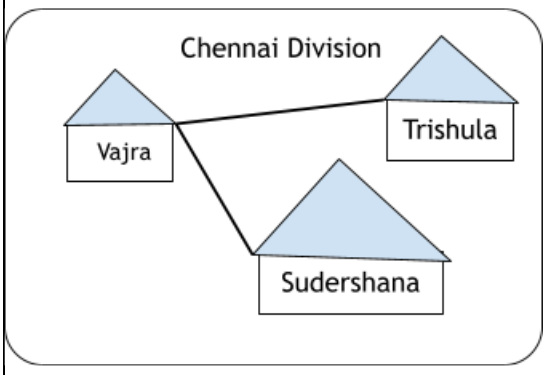
	(b) Is there a need for repeater(s) in Patiala branch ? Why, or why not ? **SUGGESTIVE VALUE POINT:** **(b)** Repeater is not required as distances are within the permissible limits. **OR** Repeater is recommended as some of the distances are around permissible limits **OR** Repeater is not required if Optical Fiber is used. **(b)** ***(1 Mark for writing the correct answer)***		
20.	**Infotainment Ltd**. is an event management company with its prime office located in Bengaluru. The company is planning to open its new division at three different locations in Chennai named as - **Vajra, Trishula** and **Sudershana**. You, as a networking expert need to suggest solutions to the questions in part (i) to (v), keeping in mind the distances and other given parameters.  Distances between various locations: **Vajra to Trishula** — **350m** **Trishula to Sudershana** — **415 m** **Sudershana to Vajra** — **300m** **Bengaluru Office to Chennai** — **2000 km**	MAIN EXAM	2024

Number of computers installed at various locations:

Vajra	**120**
Sudershana	**75**
Trishula	**65**
Bengaluru Office	**250**

(i) Suggest and draw the cable layout to efficiently connect various locations in Chennai division for connecting the digital devices.

SUGGESTIVE VALUE POINT:



(Full 1 Mark for drawing any valid layout with OR without mentioning topology)

OR

(Only ½ mark for mentioning only topology without cable layout)

(ii) Which block in Chennai division should host the server? Justify your answer.

SUGGESTIVE VALUE POINT:

(ii)Vajra can host the server as it has a maximum number of computers.

OR

Any other answer with valid justification

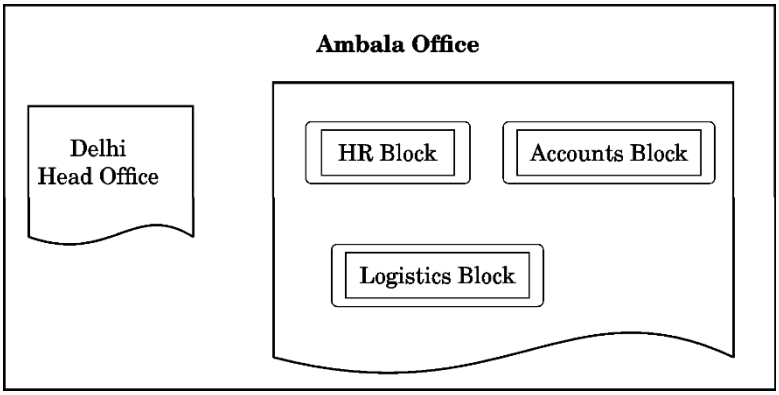
(½ Mark for the correct answer)

(½ Mark for the correct justification)

(iii) Which fast and effective wired transmission

	medium should be used to connect the prime office at Bengaluru with the Chennai division? **SUGGESTIVE VALUE POINT:** (iii)Optical Fiber ***(1 Mark for the correct answer)*** (iv) Which network device will be used to connect the digital devices within each location of Chennai division so that they may communicate with each other? **SUGGESTIVE VALUE POINT:** (iv)Switch/Hub/Router ***(1 Mark for the correct answer)*** (v) A considerable amount of data loss is noticed between different locations of the Chennai division, which are connected in the network. Suggest a networking device that should be installed to refresh the data and reduce the data loss during transmission to and from different locations of Chennai division. **SUGGESTIVE VALUE POINT:** (v)Repeater **OR** **Mentioning any other valid reason or solution for data loss** ***(1 Mark for the correct answer)***		
21.	**Logistic Technologies Ltd.** is a Delhi based organization which is expanding its office set-up to Ambala. At Ambala office campus, they are planning to have 3 different blocks for **HR, Accounts** and **Logistics** related work. Each block has a number of computers, which	COMPTT. EXAM	2024

are required to be connected to a network for communication, data and resource sharing.



As a network consultant, you have to suggest the best network related solutions for them for issues/problems raised in (i) to (v), keeping in mind the distances between various block/locations and other given parameters.

Distances between various blocks/locations :

HR Block to Accounts Blocks	**400 meters**
Accounts Block to Logistics Block	**200 meters**
Logistics Block to HR Block	**150 meters**
Delhi Head Office to Ambala Office	**220 Km**

Number of computers installed at various blocks are as follows:

HR Block	**70**
Accounts Block	**40**
Logistics Block	**30**

(i) Suggest the most appropriate block/location to house the SERVER in the Ambala office. Justify your answer.

SUGGESTIVE VALUE POINT:

(i) HR Block as it has maximum number of computers

(½ Mark for the correct answer)

(½ Mark for the valid justification)

OR

Any other block/location with valid justification

(ii) Suggest the best wired medium to efficiently connect various blocks within the Ambala office compound.

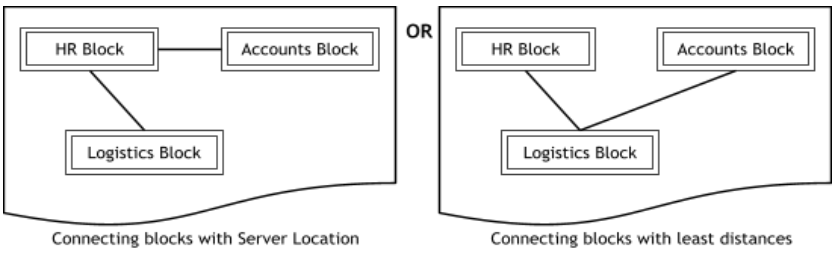
SUGGESTIVE VALUE POINT:

(ii) Optical Fiber

(1 Mark for the correct answer)

(iii) Draw an ideal cable layout (Block to Block) for connecting these blocks for wired connectivity.

SUGGESTIVE VALUE POINT:



(Full 1 Mark for drawing any valid cable layout)

(iv) The company wants to schedule an online conference between the managers of Delhi and Ambala offices. Which protocol will be used for effective voice communication over the Internet?

SUGGESTIVE VALUE POINT:

(iv) VoIP

OR

Any valid protocol used for voice communication

(1 Mark for the correct answer)

(v) Which kind of network will it be between Delhi office and Ambala office?

SUGGESTIVE VALUE POINT:

(v) WAN

(1 Mark for the correct answer)

CHAPTER: 7, DATABASE MANAGEMENT SYSTEM

Q No.	1 MARK QUESTIONS	MAIN EXAM/ COMPTT. EXAM	YEAR
1.	While creating a table, which constraint does not allow insertion of duplicate values in the table? **(A) UNIQUE** **(B) DISTINCT** **(C) NOT NULL** **(D) HAVING** **(A) UNIQUE**	MAIN EXAM	2025
2.	Which of the following is a DML command in SQL? **(A) UPDATE** **(B) CREATE** **(C) ALTER** **(D) DROP** (A) **UPDATE**	MAIN EXAM	2025
3.	Which aggregate function in SQL displays the number of values in the specified columns ignoring the NULL values? **(A) len( )** **(B) count( )** **(C) number( )** **(D) num( )** (B) **count()**	MAIN EXAM	2025
4.	In MYSQL, which type of value should not be enclosed within quotation marks? **(A) DATE** **(B) VARCHAR** **(C) FLOAT** **(D) CHAR** (C) **FLOAT**	MAIN EXAM	2025
5.	State True or False: If table **A** has 6 rows and 3 columns, and table **B** has 5 rows and 2 columns, the Cartesian product of **A** and **B** will have 30 rows and 5 columns. **True**	MAIN EXAM	2025

6.	In a particular examination, there are 50 candidates with roll numbers from 997601 to 997650. The data of these candidates is stored in a table in a database. What is the domain of the column which stores the roll numbers of the candidates? ***(1 Mark for writing the correct answer)***	COMPTT. EXAM	2025
7.	Write any two DDL commands. ***(½ Mark each for any correct DDL command - maximum 2 commands)***	COMPTT. EXAM	2025
8.	Which of the following is not a valid relational operator used with WHERE clause in SQL? **(A) >** **(B) <=** **(C) =>** **(D) <>** (C) **=>**	COMPTT. EXAM	2025
9.	What is the default format of date in MySQL? **(A) DD-MM-YYYY** **(B) MM-DD-YYYY** **(C) YYYY-MM-DD** **(D) YYYY-DD-MM** (C) **YYYY-MM-DD**	COMPTT. EXAM	2025
10.	Ginni has created a table, **SCORES** in MySQL to store runs scored by players in a cricket match. The table contains the following records : **Table: Scores** **PLAYER** | **SCORE** **Ranveer** | **50** **Sukesh** | **35** **Mirza** | **10** **John** | **51** **Murugan** | **70** Which of the following statements will give **10** as output?	COMPTT. EXAM	2025

	(A) SELECT MAX(Score) FROM Scores; **(B) SELECT MIN(Score) FROM Scores;** **(C) SELECT SUM(Score) FROM Scores;** **(D) SELECT AVG(Score) FROM Scores;** (B) **SELECT MIN(Score) FROM Scores;**		
11.	The **SELECT** statement when combined _____ with clause, returns records without repetition. **a) DISTINCT** **(b) DESCRIBE** **c) UNIQUE** **(d) NULL** **(a) DISTINCT**	MAIN EXAM	2024
12.	In SQL, the aggregate function which will display the cardinality of the table is _____. **(a) sum()** **(b) count(*)** **(c) avg ()** **(d) sum(*)** **(b) count(*)**	MAIN EXAM	2024
13.	Which of the following is not a DDL command in SQL? **(a) DROP** **(b) CREATE** **(c) UPDATE** **(d) ALTER** **(c) UPDATE**	MAIN EXAM	2024
14.	In SQL, which command will be used to add a new record in a table? **(a) UPDATE** **(b) ADD** **(c) INSERT** **(d) ALTER TABLE** **(c) INSERT**	COMPTT. EXAM	2024
15.	Mr. Ravi is creating a field that contains alphanumeric values and fixed lengths. Which MySQL data type should he choose for the same? **(A) VARCHAR** **(B) CHAR** **(C) LONG** **(D) NUMBER**	COMPTT. EXAM	2024

	(B) CHAR		
	Q16 and Q17 are Assertion(A) and Reason(R) 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**		
16.	**Assertion (A)** : We can retrieve records from more than one table in MYSQL. **Reason (R)** : Foreign key is used to establish a relationship between two tables. (B) Both Assertion (A) and Reason (R) are true and Reason (R) is not the correct explanation for Assertion (A	MAIN EXAM	2025
17.	***Assertion (A):*** Foreign key column of a table cannot have **NULL** entries. ***Reason (R):*** Primary key column of a table cannot have **NULL** entries. (D) Assertion (A) is false but, Reason (R) is true.	COMPTT. EXAM	2025
	2 MARK QUESTIONS		
18.	Nisha is assigned the task of maintaining the staff data of an organization. She has to store the details of the staff in the SQL table named **EMPLOYEES** with attributes as **EMPNO, NAME, DEPARTMENT, BASICSAL** to store Employee's Identification Number, Name, Department and Basic Salary respectively. There can be two or more Employees with the same name in the organization. (i) (a) Help Nisha to identify the attribute which should be designated as the PRIMARY KEY. Justify your answer. **SUGGESTIVE VALUE POINT:** (i) **(a) EMPNO** (i) Employee's Identification Number always contains unique and not null values.	MAIN EXAM	2025

(ii) Other attributes may have duplicate values (assuming 2 or more employees may have same Name, Department or Basic Salary) and an attribute with possible duplicate values can not be considered as the Primary Key.
(Any one valid justification)

(½ Mark for suggesting the correct attribute for PRIMARY KEY)
(½ Mark for any one valid justification)

OR

(b) Help Nisha to identify the constraint which should be applied to the attribute **NAME** such that the Employees' Name cannot be left empty or **NULL** while entering the records but can have duplicate values.

SUGGESTIVE VALUE POINT:

(b) NOT NULL

(1 Mark for writing the correct constraint for attribute NAME)

(ii) (a) Write the SQL command to change the size of the attribute **BASICSAL** in the table **EMPLOYEES** to allow the maximum value of **99999.99** to be store in it.

SUGGESTIVE VALUE POINT:

(ii)
(a) ALTER TABLE EMPLOYEES MODIFY COLUMN BASICSAL FLOAT(7,2); # OR DECIMAL(7,2)

(a) ***(½ Mark for writing*** **ALTER TABLE EMPLOYEES)**

(½ Mark for correctly writing remaining part of the command)

OR

(b) Write the SQL command to delete the table **EMPLOYEES.**

SUGGESTIVE VALUE POINT:

	(b) `DROP TABLE EMPLOYEES;` ***(1 Mark for writing*** `DROP TABLE EMPLOYEES` **correctly*)*** ***OR*** ***(½ Mark for writing*** `DROP TABLE` ***only)***		
19.	(I) (a) Write any one difference between **`CHAR`** and **`VARCHAR`** data types in MySQL. **OR** (b) Write one difference between `Primary key` and `Unique` constraint. **SUGGESTIVE VALUE POINT:** I) (a) **`CHAR`** – It is a fixed length data type. **`VARCHAR`** – It is a variable length data type. OR (b) **`PRIMARY KEY`** constraint does not allow **`NULL`** entries in the column, whereas **`UNIQUE`** constraint allows **`NULL`** entries in the column. **(I)** ***(1 Mark for one difference)*** (II) (a) Write an SQL command to remove a column named `ADDRESS`, from a table named `CUSTOMER`. **OR** (b) Write an SQL command to add a column named `ADDRESS`, of type `VARCHAR(20)` in a table named `CUSTOMER`. **SUGGESTIVE VALUE POINT:** (II) (a) **`ALTER TABLE CUSTOMER DROP COLUMN ADDRESS;`** OR (b) **`ALTER TABLE CUSTOMER ADD COLUMN ADDRESS VARCHAR(20);`** Note : Keyword **`COLUMN`** is optional **(II)** *(½ Mark for* ***`ALTER`*** *part ½ Mark for* ***`ADD/DROP`*** *part)*	MAIN EXAM	2024
20.	(A) Ms. Veda created a table named **`Sports`** in a	MAIN EXAM	2024

MySQL database, containing columns **Game_id, P_Age and G_name.**

After creating the table, she realized that the attribute, **Category** has to be added. Help her to write a command to add the **Category** column. Thereafter, write the command to insert the following record in the table :

Game_id : G42

P_ Age : Above 18

G_name : Chess

Category : Senior

SUGGESTIVE VALUE POINT:

ALTER TABLE SPORTS

ADD CATEGORY VARCHAR(10);

OR

ALTER TABLE SPORTS

ADD COLUMN CATEGORY VARCHAR(10);

OR

ALTER TABLE SPORTS

ADD CATEGORY CHAR(10);

OR

ALTER TABLE SPORTS

ADD COLUMN CATEGORY CHAR(10);

INSERT INTO SPORTS

VALUES("G42","Above 18","Chess","Senior");

OR

INSERT INTO SPORTS(Game_id, P_Age, G_name, Category)

VALUES("G42","Above 18","Chess","Senior");

(½ Mark for* ALTER TABLE *command)

(½ Mark for* ADD CATEGORY part*)

	(½ Mark for* INSERT INTO *command) ***(½ Mark for* VALUES part *)*** **OR** (B) Write the SQL commands to perform the following tasks: (i) View the list of tables in the database, **Exam.** (ii) View the structure of the table, **Term1.** **SUGGESTIVE VALUE POINT:** **(i)SHOW TABLES;** **(ii)DESCRIBE TERM1** **OR** **DESC TERM1** ***(1 Mark for each correct command)***		
21.	(a) Mr. Atharva is given a task to create a database, Admin. He has to create a table, users in the database with the following columns : **User_id** – int **User_name** – varchar(20) **Password** – varchar(10) Help him by writing SQL queries for both tasks. **OR** (b) Ms. Rita is a database administrator at a school. She is working on the table, student containing the columns like Stud_id, Name, Class and Stream. She has been asked by the Principal to strike off the record of a student named Rahul with student_id as 100 from the school records and add another student who has been admitted with the following details : **Stud_id** – 123 **Name** – Rajeev **Class** – 12 **Stream** – Science	COMPTT. EXAM	2024

Help her by writing SQL queries for both tasks.

SUGGESTIVE VALUE POINT:

(a
```
CREATE DATABASE Admin;

CREATE TABLE users (User_id
int,User_name varchar(20),
Password varchar(10));
```

OR

(b)
```
DELETE FROM Student
WHERE Name="Rahul" and Stud_id=100;
```
OR
```
DELETE FROM Student
WHERE Name="Rahul" and student_id=100;
```
OR

Any valid and equivalent SQL query.

```
INSERT INTO Student(Stud_id, Name,
Class, Stream) VALUES
(123,"Rajeev",12,"Science");
```
OR
```
INSERT INTO Student
VALUES (123,"Rajeev",12,"Science");
```
OR

Any valid and equivalent SQL query.

(1 Mark for each correct SQL query)

	3 MARK QUESTIONS		
22.	Consider the table ORDERS given below and write the output of the SQL queries that follow:	MAIN EXAM	2024

ORDNO	ITEM	QTY	RATE	ORDATE
1001	RICE	23	120	2023-09-10
1002	PULSES	13	120	2023-10-18
1003	RICE	25	110	2023-11-17
1004	WHEAT	28	65	2023-12-25
1005	PULSES	16	110	2024-01-15
1006	WHEAT	27	55	2024-04-15
1007	WHEAT	25	60	2024-04-30

(i) `SELECT ITEM, SUM(QTY) FROM ORDERS GROUP BY ITEM;`

(ii) `SELECT ITEM, QTY FROM ORDERS WHERE ORDATE BETWEEN '2023-11-01' AND '2023-12-31';`

(iii)
```
SELECT ORDNO, ORDATE FROM ORDERS
WHERE ITEM = 'WHEAT' AND
RATE>=60;.
```

SUGGESTIVE VALUE POINT:

(i)

ITEM	SUM(QTY)
RICE	48
PULSES	29
WHEAT	80

(ii)

ITEM	QTY
RICE	25
WHEAT	28

(iii)

ORDNO	ORDATE
1004	2023-12-25
1007	2024-04-30

(1 Mark for writing each correct output)

Note:

Ignore output heading

Ignore order of rows

23. Consider the table **Projects** given below :

Table: Projects

P id	Pname	Language	Startdate	Enddate
P001	School Management System	Python	2023-01-12	2023-04-03
P002	Hotel Management System	c++	2022-12-01	2023-02-02

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P003	Blood Bank	Python	2023-02-11	2023-03-02
P004	Payroll Management System	Python	2023-03-12	2023-06-02

Based on the given table, write SQL queries for the following :

(i) Add the constraint, `primary key` to column `P_id` in the existing table `Projects`.

(ii) To change the language to `Python` of the project whose id is `P002`.

(iii) To delete the table `Projects` from MySQL database along with its data.

SUGGESTIVE VALUE POINT:

(i)
```
ALTER TABLE Projects
ADD PRIMARY KEY (P_id);
```
(½ Mark for* ALTER TABLE *part)

(½ Mark for* ADD PRIMARY KEY *part)

(ii)
```
UPDATE Projects
 SET LANGUAGE= "Python"
 WHERE P_id = "P002";
```
(½ Mark for* UPDATE - SET *part)

(½ Mark for* WHERE *part)

(iii)
```
DROP TABLE Projects;
```

(1 Mark for* correct command*)
OR
(½ Mark for partial answer such as* DROP Projects *or* DROP TABLE*)

24. Consider the table `Rent_cab`, given below:

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Table: Rent_cab

Vcode	VName	Make	Color	Charges
101	Big car	Carus	White	15
102	Small car	Polestar	Silver	10
103	Family car	Windspeed	Black	20

104	Classic	Studio	White	30
105	Luxury	Trona	Red	9

Based on the given table, write SQL queries for the following:

(i) Add a primary key to a column name Vcode.

(ii) Increase the charges of all the cabs by 10%.

(iii) Delete all the cabs whose maker name is "Carus".

SUGGESTIVE VALUE POINT:

(i)
```
ALTER TABLE Rent_cab
   ADD PRIMARY KEY (Vcode);
OR
   ALTER TABLE Rent_cab
ADD CONSTRAINT PRIMARY KEY (Vcode);
```

(½ Mark for `ALTER TABLE` part)

(½ Mark for `ADD PRIMARY KEY` part)

(ii)
```
UPDATE Rent_cab
   SET Charges=Charges*1.1;
OR
   UPDATE Rent_cab
SET Charges=Charges+Charges*10/100
```

(½ Mark for `UPDATE` part)

(½ Mark for `SET` part)

(iii)
```
DELETE FROM Rent_cab WHERE Make="Carus";
```

(½ Mark for `DELETE command`)

(½ Mark for `WHERE clause`)

25. Consider the table Stationery given below and write the output of the SQL queries that follow.

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Table: Stationary

ITEM NO	ITEM	DISTRIBUTOR	QTY	PRICE
401	Ball Pen 0.5	Reliable Stationers	100	16
402	Gel Pen Premium	Classic Plastics	150	20
403	Eraser Big	Clear Deals	210	10
404	Eraser Small	Clear Deals	200	5
405	Sharpener Classic	Classic Plastics	150	8
406	Gel Pen Classic	Classic Plastics	100	15

(i) SELECT DISTRIBUTOR, SUM(QTY) FROM STATIONERY GROUP BY DISTRIBUTOR;

(ii) SELECT ITEMNO, ITEM FROM STATIONERY WHERE DISTRIBUTOR = "Classic Plastics" AND PRICE > 10;

(iii) SELECT ITEM, QTY * PRICE AS "AMOUNT" FROM STATIONERY WHERE ITEMNO = 402;

SUGGESTIVE VALUE POINT:

(i)

DISTRIBUTOR	SUM(QTY)
Reliable Stationers	100
Classic Plastics	400
Clear Deals	410

(ii)

ITEMNO	ITEM
402	Gel Pen Premium
406	Gel Pen Classic

(iii)

ITEM	AMOUNT
Gel Pen Premium	3000

(1 Mark for writing each correct output)

Note:

- ***Ignore output heading for part (i) and (ii), however, in part (iii), mentioning AMOUNT as heading of the second column is a must.***

Ignore order of rows

4 MARK QUESTIONS

26. Suman has created a table named **WORKER** with a set of records to maintain the data of the construction sites, which consists of **WID**, **WNAME**, **WAGE**, **HOURS**, **TYPE**, and **SITE ID**. After creating the table, she entered data in it, which is as follows:

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WID	WNAME	WAGE	HOURS	TYPE	SITEID
W01	Ahmed J	1500	200	Unskilled	103

W11	Naveen S	520	100	Skilled	101
W02	Jacob B	780	95	Unskilled	101
W15	Nihal K	560	110	Semiskilled	NULL
W10	Anju S	1200	130	Skilled	103

(a) Based on the data given above, answer the following questions:

(i) Write the SQL statement to display the names and wages of those workers whose wages are between **800** and **1500.**

(ii) Write the SQL statement to display the record of workers whose **SITEID** is not known.

(iii) Write the SQL statement to display **WNAME, WAGE** and **HOURS** of all those workers whose **TYPE is 'Skilled'.**

(iv) Write the SQL statement to change the **WAGE** to **1200** of the workers where the **TYPE is "Semiskilled".**

OR

(b) Considering the above given table **WORKER,** write the output on execution of the following SQL commands:

(i) **SELECT WN.AME, WAGE*HOURS FROM WORKER WHERE SITEID = 103;**

(ii) **SELECT COUNT (DISTINCT TYPE) FROM WORKER;**

iii) **SELECT MAX (WAGE) , MIN (WAGE) , TYPE FROM WORKER GROUP BY TYPE;**

(iv) **SELECT WN.AME, SITEID FROM WORKER WHERE TYPE="Unskilled" ORDER BY HOURS;**

SUGGESTIVE VALUE POINT:

(a)

(i)

```
SELECT WNAME, WAGE FROM WORKER
WHERE WAGE BETWEEN 800 AND 1500;
OR
SELECT WNAME, WAGE FROM WORKER
WHERE WAGE>=800 AND WAGE<=1500;
```

(½ Mark for correctly writing ***SELECT WNAME, WAGE FROM WORKER****)*

(½ Mark for correctly writing ***WHERE WAGE BETWEEN 800 AND 1500****)*

(ii)

```
SELECT * FROM WORKER
WHERE SITEID IS NULL;
```

(½ Mark for correctly writing **SELECT * FROM WORKER** *or Equivalent)*

(½ Mark for correctly writing **WHERE SITEID IS NULL***)*

(iii)

```
SELECT WNAME, WAGE, HOURS FROM WORKER
WHERE TYPE="Skilled";
```

(½ Mark for writing ***SELECT WNAME, WAGE, HOURS FROM WORKER****)*

(½ Mark for writing ***WHERE TYPE = "Skilled"****)*

(iv)

```
UPDATE WORKER SET WAGE=1200
WHERE TYPE="Semiskilled";
```

(½ Mark for writing ***UPDATE WORKER SET WAGE=1200****)*

(½ Mark for writing ***WHERE TYPE = "Semiskilled"****)*

(b)

(i)

WNAME	WAGE*HOURS
Ahmed J	300000
Anju S	156000

(1 Mark for writing correct output)

(ii)

COUNT (DISTINCT TYPE)
3

(1 Mark for writing correct output)

(iii)

MAX(WAGE)	MIN(WAGE)	TYPE
1500	780	Unskilled
1200	520	Skilled
560	560	Semiskilled

(1 Mark for writing correct output)

27. Assume that you are working in the IT Department of a Creative Art Gallery (CAG), which sells different forms of art creations like Paintings, Sculptures etc. The data of Art Creations and Artists are kept in tables Articles and Artists respectively. Following are few records from these two tables:

MAIN EXAM 2025

Table: Articles

Code	A_Code	Article	DOC	PRICE
PL001	A0001	Painting	2018-10-19	20000
SC028	A0004	Sculpture	2021-01-15	16000
QL005	A0003	Quilling	2024-04-24	3000

Table: Artists

A_Code	Name	Phone	Email	DOB
A0001	Roy	595923	r@CrAG.com	1986-10-12
A0002	Ghosh	1122334	ghosh@CrAG.com	1972-02-05
A0003	Gargi	121212	Gargi@CrAG.com	1996-03-22
A0004	Mustafa	33333333	Mf@CrAg.com	2000-01-01

Note: • The tables contain many more records than shown here.
• DOC is Date of Creation of an Article.
As an employee of CAG, you are required to write the SQL queries for the following:
(i) To display all the records from the **Articles** table in descending order of price.

(ii) To display the details of Articles which were created in the

year **2020.**

(iii) To display the structure of **`Artists`** table.

(iv) (a) To display the name of all artists whose Article is **`Painting`** through Equi Join.

OR

(b) To display the name of all Artists whose Article is **`'Painting'`** through Natural Join.

SUGGESTIVE VALUE POINT:

(i)

```
SELECT * FROM Articles
ORDER BY PRICE DESC;
```

(½ Mark for `SELECT * FROM Articles` or similar)
(½ Mark for `ORDER BY PRICE DESC`*)*

(ii)

```
SELECT * FROM Articles
WHERE DOC LIKE '2020%';
OR
SELECT * FROM Articles
WHERE DOC>='2020-01-01' AND DOC<='2020-12-31';
OR
SELECT * FROM Articles
WHERE DOC BETWEEN '2020-01-01' AND '2020-12-
31';
```

(½ Mark for `SELECT * FROM Articles` *or similar)*
(½ Mark for `WHERE DOC LIKE '2020%'` *OR any other correct equivalent)*

(iii)

```
DESC Artists;
```

(½ Mark for `DESC`*)*
(½ Mark for mentioning Artists after `DESC`*)*

(iv)

(a)

```
SELECT Name FROM Articles A1, Artists A2
WHERE A1.A_code = A2.A_code AND
Article='Painting';
```

OR

Any other equivalent SQL statement

	(½ Mark for **SELECT Name FROM Articles A1, Artists A2** *or similar)* *(½ Mark for* **WHERE A1.A_code = A2.A_code AND Article='Painting';***)* ***OR*** **(b) SELECT Name FROM Articles NATURAL JOIN Artists WHERE Article = 'Painting';** **OR** **Any other equivalent SQL statement** ***(½ Mark for selecting from both the tables)*** ***(½ Mark for correctly using condition/correctly using join option)***		
28.	A table, named **THEATRE,** in **CINEMA** database, hast the following structure: **Field** / **Type** **Th_ID** / **char(5)** **Name** / **varchar(15)** **City** / **varchar(15)** **Location** / **varchar(15)** **Seats** / **int** Write a function **Delete_Theatre(),** to input the value of **Th_ID** from the user and permanently delete the corresponding record from the table. Assume the following for Python-Database connectivity: Host: **localhost**, User: **root**, Password: **Ex2025** **SUGGESTIVE VALUE POINT:** **import pymysql as pm** **# OR import mysql.connector as pm** **def Delete_Theatre():** **Mydb=pm.connect(host = 'localhost',** **user = 'root', password = 'Ex2025', ** **database = 'CINEMA')** **MyCursor = Mydb.cursor()** **TID = input("Theatre ID:")** **Query = "DELETE FROM Theatre WHERE**	MAIN EXAM	2025

```
    Th_ID='{}'".format(TID)
    # Query = f"DELETE FROM Theatre WHERE
    Th_ID='{TID}'"
    # Query = "DELETE FROM Theatre WHERE
    Th_ID='%s'"%(TID,)
    # Query = "DELETE FROM Theatre WHERE
    Th_ID='"+TID+"'"
    MyCursor.execute(Query)
    Mydb.commit()
    Mydb.close()
```

OR

```
import pymysql as pm
# OR import mysql.connector as pm
def Delete_Theatre():
    Mydb=pm.connect(host = 'localhost',\
    user = 'root', password = 'Ex2025', \
    database = 'CINEMA')
    MyCursor = Mydb.cursor()
    TID = input("Theatre ID:")
    Query = "DELETE FROM Theatre WHERE
    Th_ID=%s"
    Data=(TID,)
    MyCursor.execute(Query, Data)
    Mydb.commit()
    Mydb.close()
```

OR

Any equivalent valid code

(1 Mark for creating correct connectivity)
(1 Mark for creating the cursor)
(1 Mark for correct formation of Query)
(½ Mark for correct execution of the query)
(½ Mark for correctly using commit())
Note:
(½ Mark for importing correct module, if the marks allocated are less than 4)

29.	Consider the table **STAFF** given below: Table: **STAFF**	COMPTT. EXAM	2025

STAFF_ID	STAFF_NAME	SALARY	DEPARTMENT	DESIGNATION
S101	SUNITA	26000	MATHS	TGT
S201	SUNIL	80000	COMMERCE	PGT
S301	NEHA	35000	SCIENCE	TGT
S102	MANJEET	25000	MATHS	TGT
S202	MANNAN	45000	COMPUTER	TGT

a. Write the suitable SQL queries to perform the following tasks :

I. To display the average salary of each department.

II. To insert the following record in the table, STAFF

STAFF_ID	S333
STAFF_NAME	GURMEET
SALARY	15000
DEPARTMENT	ADMIN
DESIGNATION	CLEARK

III. To display the unique designations from the table.

IV. To display all the details of the staff whose name is of four letters.

OR

(b) Write the output of the queries given below:

```
(I) SELECT STAFF_NAME FROM STAFF WHERE SALARY
    BETWEEN 25000 AND 30000;
(II) SELECT * FROM STAFF WHERE DEPARTMENT =
    "MATHS" ABD SALARY > 25000;
(III) SELECT STAFF_NAME, STAFF_ID FROM STAFF
      WHERE DEPARTMENT LIKE "%s";
(IV) SELECT MAX(SALARY) FROM STAFF;
```

SUGGESTIVE VALUE POINT:

(a)

(i)

```
SELECT DEPARTMENT, AVG(SALARY) FROM STAFF
GROUP BY DEPARTMENT;
```

(½ Mark for correctly writing `SELECT DEPARTMENT, AVG(SALARY) FROM STAFF`*)*

(½ Mark for correctly writing `GROUP BY DEPARTMENT`*)*

(ii)

```
INSERT INTO STAFF VALUES ('S333', 'GURMEET',
15000, 'ADMIN', 'CLERK');
```

(½ Mark for correctly writing `INSERT INTO STAFF` *or Equivalent)*

(½ Mark for correctly writing `VALUES ('S333', 'GURMEET', 15000, 'ADMIN', 'CLERK');`

(iii)

```
SELECT DISTINCT DESIGNATION FROM STAFF;
```

(½ Mark for writing ***SELECT …… DESIGNATION FROM STAFF part****)*

(½ Mark for writing ***DISTINCT clause****)*

(iv)

```
SELECT * FROM STAFF WHERE STAFF_NAME LIKE '_
_ _ _';
```

(½ Mark for writing `SELECT * FROM STAFF`*)*

(½ Mark for writing `WHERE STAFF_NAME LIKE '_ _ _ _'` *OR Any other equivalent option)*

OR

(b)

(i)

STAFF_NAME
SUNITA
MANJEET

(1 Mark for writing correct output)

(ii)

STAFF_ID	STAFF_NAME	SALARY	DEPARTMENT	DESIGNATION
S101	SUNITA	26000	MATHS	TGT

(1 Mark for writing correct output)

(iii)

STAFF_NAME	STAFF_ID
SUNITA	S101

	MANJEET | S102 ***(1 Mark for writing correct output)*** (iv) **MAX(SALARY)** | 80000 ***(1 Mark for writing correct output)***		
30.	Assume that you are working for ABC Corporation (ABCC). ABCC allots contracts to different contractors for some of its works. The data of Contracts and Contractors are kept in the tables Work and Contractor respectively. Following are a few records from these two tables of ABCC's database. **Table: Work** **W_ID | C_ID | W_Name | W_Amt** P0001 | C_01 | Painting | 20000 E0001 | C_01 | Electrical | 50000 D0001 | C_02 | Dumping | 10000 **Table: Contractor** **C_ID | C_NAME | Phone | Email** C_01 | M.Khan & Sons | 1232311 | MK@xyz.com C_02 | Acharya Pvt. Ltd. | 2323311 | APL@xyz.com C_03 | Charu Corp. | NULL | CCP@pqr.xyz Note : The tables contain many more records than shown here. As an employee of ABCC, you are required to write the SQL queries for the following : (I) To display all the records from the Work table in alphabetical order of W_Name. **(II)** To display the names of contractors where W_Amt is more than 15000. **(III)** To display the structure of Work table. IV) (a) To count total number of records present in Work table. **OR**	COMPTT. EXAM	2025

(b) To delete the records of contractors whose phone number is not known.

SUGGESTIVE VALUE POINT:

(I)

```
SELECT * FROM Work ORDER BY W_Name;
```

(½ Mark for `SELECT * FROM Work`)

(½ Mark for `ORDER BY W_Name`)

(II)

```
SELECT C_Name FROM Work, Contractor WHERE Work.C_ID = Contractor.C_ID AND W_Amt > 15000;
```

OR

```
SELECT C_Name FROM Work W, Contractor C WHERE W.C_ID = C.C_ID AND W_Amt > 15000;
```

(½ Mark for `SELECT C_Name FROM Work, Contractor` or equivalent)

(½ Mark for `WHERE Work.C_ID = Contractor.C_ID AND W_Amt > 15000` or equivalent)

(III)

```
DESC Work;
OR
DESCRIBE Work;
```

(½ Mark for `DESC` or `DESCRIBE`)

(½ Mark for writing table name Work after `DESC/DESCRIBE`)

(IV)

(a) `SELECT COUNT(*) FROM Work;`

(½ Mark for `SELECT COUNT(*)`)

(½ Mark for `FROM Work`)

OR

(b) `DELETE FROM Contractor WHERE Phone IS NULL;`

(½ Mark for `DELETE FROM Contractor`)

(½ Mark for `WHERE Phone IS NULL`)

31.	Nutan Kumar is using Python connectivity with MySQL for maintaining data for a table named MEDICINES in a database PHARMACY. The table has the following attributes: • **Mid** (Medicine number) - string • **Mname** (Medicine Name) - string • **Expiry** (Expiry Date) - Date • **Status** (Active/Discard) - string Consider the following to establish connectivity between Python and MySQL: • **Username** - root • **Password** - tiger • **Host** - localhost Help Nutan to write the definition of a user-defined function named **ChangeStatus()** in Python to change the Status of the Medicines whose **Expiry** is before **'2022-12-31'** as **'DISCARD'.** **SUGGESTIVE VALUE POINT:** **import mysql.connector** **def ChangeStatus():** **conn = mysql.connector.connect(** **host="localhost",** **user="root",** **password="tiger",** **database="PHARMACY")** **CUR = conn.cursor()** **SQL = "UPDATE MEDICINES SET Status = 'DISCARD'** **WHERE Expiry < '2022-12-31'";** **CUR.execute(SQL)** **conn.commit()** **conn.close()** **OR** **Any equivalent valid code** ***(1 Mark for creating correct connectivity)*** ***(1 Mark for creating the cursor)***	COMPTT. EXAM	2025

	(1 Mark for correct formation of Query) ***(½ Mark for correct execution of the query)*** ***(½ Mark for correctly using commit())*** ***Note:*** ***(½ Mark for importing any valid module, if marks allocated are less than 4)***		
32.	Consider the tables **Admin** and **Transport** given below: **Table: Admin** **Sid** | **s name** | **Address** | **s_type** **S001** | **Sandhya** | **Rohini** | **Day Boarder** **S002** | **Vedanshi** | **Rohtak** | **Day Scholar** **S003** | **Vibhu** | **Raj Nagar** | **NULL** **S004** | **Atharva** | **Rampur** | **Day Boarder** **Table : Transport** **Sid** | **Bus no** | **Stop_name** **SOO2** | **TSSlO** | **Sarai Kale Khan** **SOO4** | **TSS12** | **Sainik Vihar** **SOOS** | **TSSlO** | **Kamla Nagar** Write SQL queries for the following: (i) Display the student name and their stop name from the tables **Admin** and **Transport.** (ii) Display the number of students whose **S_type** is not known. (iii) Display all details of the students whose name starts with 'V' . (iv) Display student id and address in alphabetical order of student name, from the table **Admin.** **SUGGESTIVE VALUE POINT:** **(i)SELECT S_name, Stop_name FROM Admin, Transport WHERE Admin.S_id = Transport.S_id;** **(ii)SELECT COUNT(*) FROM Admin WHERE S_type IS NULL;**	MAIN EXAM	2024

	(½ Mark for* SELECT - FROM *part) ***(½ Mark for* WHERE *part)*** **(iii) SELECT * FROM Admin WHERE S_name LIKE 'V%';** OR Any other correct query using/without using join *(½ Mark for* SELECT - FROM *part)* *(½ Mark for* WHERE *part)* **(iv) SELECT S_id, Address FROM Admin ORDER BY S_name;** ***(½ Mark for* SELECT - FROM *part)*** ***(½ Mark for* ORDER BY *part)***		
33.	Consider the tables GAMES and PLAYERS given below: **Table: GAMES** **GCode | GameName | Type | Number | PrizeMoney** 101 | Carrom Board | Indoor | 2 | 5000 102 | Badminton | Outdoor | 2 | 12000 103 | Table Tennis | Indoor | 4 | NULL 104 | Chess | Indoor | 2 | 9000 105 | Lawn Tennis | Outdoor | 4 | 25000 **Table: PLAYERS** **PCode | Name | GCode** 1 | Nabi Ahmad | 101 2 | Ravi Sahai | 108 3 | Jatin | 101 4 | Nazneen | 103 Write SQL queries for the following : (i) Display the game type and average number of games played in each type. (ii) Display prize money, name of the game, and name of the players from the tables Games and Players. (iii) Display the types of games without repetition.	COMPTT. EXAM	2024

(iv) Display the name of the game and prize money of those games whose prize money is known.

SUGGESTIVE VALUE POINT:

i) `SELECT Type, AVG(Number) FROM GAMES GROUP BY Type;`

OR

Any other correct equivalent query using/without using join

(½ Mark for `SELECT - FROM` ***part)***

(½ Mark for `GROUP BY` ***part)***

ii) `SELECT PrizeMoney, GameName, Name FROM GAMES, PLAYERS WHERE GAMES.GCode = PLAYERS.GCode;`

(½ Mark for `SELECT - FROM` ***part)***

(½ Mark for `WHERE` ***part)***

iii) `SELECT DISTINCT TYPE FROM GAMES;`

OR

Any other correct equivalent query with/without using join

(1 Mark for correct command)

iv) `SELECT GameName, PrizeMoney FROM GAMES WHERE PrizeMoney IS NOT NULL;`

(½ Mark for `SELECT - FROM` ***part)***

(½ Mark for `WHERE` ***part)***

5 MARK QUESTIONS

34. A file, PASSENGERS. DAT, stores the records of passengers using the following structure : MAIN EXAM 2025

[PNR, PName, BRDSTN, DESTN, FARE]

where:

`PNR`	`Passanger Number (string type)`
`PName`	`Passenger name (string type)`
`BRDSTN`	`Boarding Station Name (string type)`
`DESTN`	`Destination Station Name (string type)`
`FARE`	`Fare amount for the journey (float type)`

Write user defined functions in Python for the following tasks:

(i) `Create()` - to input data for passengers and write it in the binary file `PASSENGERS .DAT.`

(ii) **SearchDestn (D) -** to read contents from the file **PASSENGERS .DAT** and display the details of those Passengers whose **DESTN** matches with the value of D.

(iii) **UpdateFare()** – to increase the fare of all passengers by **5%** and rewrite the updated records into the file **PASSENGERS.DAT.**

SUGGESTIVE VALUE POINT:

(i)

```
import pickle
def Create():
    F=open("PASSENGERS.DAT", "wb")
    PNR=input("PNR No:")
    PName=input("Name: ")
    BRDSTN=input("Boarding at: ")
    DESTN=input("Destination: ")
    FARE=float(input("Fare: "))
    Rec=[PNR,PName,BRDSTN,DESTN,FARE]
    pickle.dump(Rec,F)
    F.close()

OR
def Create():
    F=open("PASSENGERS.DAT", "wb")
    REC=[]
    while True:
        PNR=input("PNR No:")
        PName=input("Name: ")
        BRDSTN=input("Boarding at: ")
        DESTN=input("Destination: ")
        FARE=float(input("Fare: "))
        Rec.append([PNR,PName,BRDSTN,DESTN,FARE])
        C=input("More(Y/N)?")
        if C =='N':
            break
    pickle.dump(Rec,F)
```

```
    F.close()
```

OR

Any other equivalent code

(½ Mark for opening the file in correct mode)
(½ Mark for accepting from user/writing on file)

(ii)

```
def SearchDestn(D):
    try: # To be ignored
        F=open("PASSENGERS.DAT", "rb")
        Rec=pickle.load(F)
        for R in Rec:
            if R[3]==D;
                print(R)
        F.close()
    except: # To be ignored
        print("File not found!")
         # To be ignored
```

OR

Any other equivalent code

(½ Mark for opening the file in correct mode)
(½ Mark for reading each record)
(½ Mark for correctly checking the condition)
(½ Mark for correctly printing the details of passengers)

(iii)

```
def UpdateFare():
    try:
        FR=open("PASSENGERS.DAT", "rb+")
        Rec=pickle.load(FR)
        for I in range(len(Rec)):
            Rec[I][4]+=(Rec[I][4] * 0.05)
            # Rec[I][4]=Rec[I][4] * 1.05)
        print("Updation Done!")
        F.seek(0)
        pickle.dump(Rec, FR)
        FR.Close()
```

	except: **print("File not found!")** **OR** **Any other equivalent code** ***(½ Mark for opening the file in correct mode)*** ***(½ Mark for reading data)*** ***(½ Mark for correctly modifying the Fare)*** ***(½ Mark for writing the modified Fare in the Binary File)***		
35.	Keshav is the IT Head in a hospital. He needs to manage the records of all the doctors in the hospital. For this, he wants to store the following information of each doctor in a file : **D_ID** - An integer to store Doctor ID. **D_Name** - A string to store doctor's name. **D_Dept** - A string to store the Department of the doctor. **(Surgery, Radiology, etc.)** - An integer to store doctor's experience (in years) For example, a doctor's information may be : **[1256, 'R. Gupta', 'Cardiology', 15]** As an applicant for the post of a Programmer, you have to answer the following questions in this context: (II) Write one difference of storing this data in a binary file over a CSV file. (II) Assume that the data is stored in a binary file, named **DOCTORS.DAT**, and each record is stored as a list. Write a function, in Python, to read and display all the records from the file **DOCTORS.DAT**. (III) Write a function **addDoctor()**, in Python, which accepts a doctor's data from the user and writes it in the file **DOCTORS.DAT**. **SUGGESTIVE VALUE POINT:** **(I)** **Binary File (Any one)** **● Stores data in a non-human-readable format i.e. it can not be read from notepad/text editor.**	COMPTT. EXAM	2025

	● Requires to import `pickle` module to create binary file in Python
	
	CSV File (Any one)
	● Comma Separated Values stores data in a human-readable text i.e. it can be read from notepad/text editor or any spreadsheet software.
	● Requires to import csv module to create csv file in Python
	● It is strongly recomended to save this file with an extension `csv`.
	
	(1 mark for any one valid difference)
	
	(II)
	`import pickle`
	`def displayDoctors():`
	`F = open("DOCTORS.DAT", "rb")`
	`try:`
	`while True:`
	`Data = pickle.load(F)`
	`for D in Data:`
	`print(D)`
	`except:`
	`F.close()`
	
	OR
	`import pickle`
	`def displayDoctors():`
	`F = open("DOCTORS.DAT", "rb")`
	`Data = pickle.load(F)`
	`for D in Data:`
	`print(D)`
	`F.close()`
	
	(½ Mark for opening the file in correct mode)
	(1 Mark for reading each record)
	(½ Mark for correctly displaying records)
	
	(III)
	`import pickle`
	`def AddDoctor():`
	`with open("DOCTORS.DAT", "ab") as F:`		

	# File mode "wb" also acceptable **D_ID = int(input("Doctor ID: "))** **D_Name = input("Doctor's Name: ")** **D_Dept = input("Department: ")** **Experience = int(input("Experience: "))** **Doctor = [D_ID, D_Name, D_Dept, Experience]** **pickle.dump(Doctor, F)** **print("Doctor added!")** **OR** **Any other equivalent code** ***(½ Mark for opening the file in correct mode)*** ***(½ Mark for accepting data)*** ***(1 Mark for writing the data in the Binary File)*** ***Note:*** ***• No mark should be deducted for absence of a try - except block.*** ***• No mark should be deducted for the absence of the import pickle,*** ***• However, ½ mark should be awarded if only*** **`import pickle`** ***is mentioned as the answer***		
36.	(A) (i) Define cartesian product with respect to RDBMS. (ii) Sunil wants to write a program in Python to update the quantity to **20** of the records whose item code is **111** in the table named **`shop`** in MySQL database named **`Keeper`**. The table **shop** in MySQL contains the following attributes : • **`Item_code`**: Item code (Integer) • **`Item_name`**: Name of item (String) • **`Qty`**: Quantity of item (Integer) • **`Price`**: Price of item (Integer) Consider the following to establish connectivity between Python and MySQL: • Username: **admin** • Password : **Shopping** • Host: **localhost**	MAIN EXAM	2024

OR

(B) (i) Give any two features of SQL.

(ii) Sumit wants to write a code in Python to display all the details of the passengers from the table **flight** in MySQL database, **Travel.** The table contains the following attributes :

F_code: Flight code (String)

F_name: Name of flight (String)

Source: Departure city of flight (String)

Destination: Destination city of flight (String)

Consider the following to establish connectivity between Python andMySQL:

- Username : **root**
- Password : **airplane**
- Host : **localhost**

SUGGESTIVE VALUE POINT:

(A)

(i) Cartesian Product operation combines rows/tuples from two tables/relations. It results in all the pairs of rows from both the tables. It is denoted by 'X'.

(1 Mark each for the correct definition)

(ii)

```
import pymysql as pm
DB=pm.connect(host="localhost",\
   user="admin",passwd="Shopping",\
   database="Keeper")
MyCursor=DB.cursor( )
SQL=f"UPDATE SHOP SET QTY=%S WHERE
   ITEM_CODE=%S"%(20,111)
#OR
SQL="UPDATE SHOP SET QTY=2- WHERE
   ITEM_CODE=111"
MyCursor.execute(SQL)
   DB.commit( )
```

(½ mark for importing with any correct module/method)

(1 mark for correct connect())

(½ mark for creating the cursor)

(1 mark for the correct SQL command - ½ Mark for UPDATE SET and ½ Mark for WHERE)

(1 mark for correctly executing SQL)

(B)

(i)

Any two of the following

- Full form is Structured Query Language.
- Is used to retrieve and view specific data from a table in a database.
- Is case insensitive
- Each query in SQL ends with a semicolon (;)
- It contains DDL and DML

½ Mark each for the any two correct feature as mentioned above or any other correct feature)

(ii)

```
import pymysql as pm
DB=pm.connect(host="localhost",user="root",
\
password="airplane",database="Travel")
MyCursor=DB.cursor()
MyCursor.execute("SELECT * FROM Flight ")
Rec=MyCursor.fetchall()
for R in Rec:
    print (R)
```

OR

Any other correct variation of the code

(½ mark for importing any correct module/method pymysql or any other)

(1 mark for correct connect())

(1 mark for correctly executing the query)

(½ mark for correctly fetching the data)

	(1 mark for correctly displaying data) ***Note:*** ***Full 4 mark should be awarded if the examinee has mentioned that there is no mention of the task in the question***		
37.	(a) (i) Define the term foreign key with respect to RDBMS. (ii) Sangeeta wants to write a program in Python to delete the record of a candidate "Raman" from the table named **Placement in MySQL** database **Agency:** The table Placement in MySQL contains the following attributes : • **CName – String** • **Dept – String** • **Place – String** • **Salary – integer** Note the following to establish connectivity between Python and MySQL : • Username – **root** • Password – **job** • Host – **localhost** Help Sangeeta to write the program in Python for the above-mentioned task. **OR** (b) (i) Give one difference between CHAR and VARCHAR datatype in MySQL. (ii) Rahim wants to write a program in Python to insert the following record in the table named **Bank_Account** in **MySQL** database, **Bank** : • **Accno** – integer • **Cname** – string • **Atype** – string • **Amount** – float Note the following to establish connectivity between Python and MySQL : • Username – **admin** • Password – **root** • Host – **localhost**	COMPTT. EXAM	2024

The values of fields **Accno, Cname, Atype** and **Amount** have to be accepted from the user. Help Rahim to write the program in Python.

SUGGESTIVE VALUE POINT:

(a)

(i) Foreign Key - A column/attribute in a table/relation, which acts as a Primary Key in another table/relation is known as a Foreign Key. It acts as a cross-reference between two tables as it references the primary key of another table, thereby establishing a link between them to help in producing relevant results.

(ii)

```
import pymysql as pm
# OR Option 2
Import mysql.connector as pm
DB=pm.connect (host='localhost', user='root',\
Password='job', database='Agency')
MyCursor=DB.cursor()
QRY= "DELETE FROM PLACEMENT WHERE CNAME= 'Raman' "
MyCursor.execute(QRY)
DB.commit()
```

(½ mark for importing with any correct module/method)

(1 mark for connect() method with correct parameters)

(½ mark for creating the cursor)
(1 mark for the correct SQL command - ½ Mark for DELETE and ½ Mark for WHERE)

(½ mark for correctly executing the query QRY)

(½ mark for correct use of commit)

OR

(b)

(i) **CHAR has a fixed size, but VARCHAR has a variable size.**

OR

CHAR data type stores data of fixed length, whereas the VARCHAR data type stores variable format data.

OR

VARCHAR is more memory efficient than CHAR.

(1 Mark for the any one correct difference with or without example)

(ii)

```
import pymysql as pm
 #OR Option 2
 Import mysql.connector as pm
DB=pm.connect(host="localhost",user="admin",\
              password="root",database="Bank")
```

```
MyCursor=DB.cursor()
Accno=int(input("Accno:"))
Cname=input("Cname:")
Atype=input("Atype:")
Amount=float(input("Amount:"))
QRY="INSERT INTO BANK_ACCOUNT VALUES
(%s,'%s','%s',%s)"%(Accno,Cname,Atype,Amount)
MyCursor.execute(QRY)
DB.commit()
```

OR

Any other correct variation of the code

(½ mark for importing any correct module/method pymysql or any other)

(½ mark for correct connect())
(½ mark for correctly creating cursor())
(½ mark for correctly taking input from the user)
(1 mark for the correct SQL command - ½ Mark for INSERT and ½ Mark for VALUES)

(½ mark for correctly executing the query QRY)

(½ mark for commit())