Series ΣHEFG/C

Set-4

Q.P. Code **91**

Roll No.

Candidates must write the Q.P. Code on the title page of the answer-book.

COMPUTER SCIENCE (NEW)

*Time allowed : **3** hours* *Maximum Marks : **70***

- Please check that this question paper contains **19** printed pages.
- Q.P. Code given on the right hand side of the question paper should be written on the title page of the answer-book by the candidate.
- Please check that this question paper contains **35** questions.
- **Please write down the serial number of the question in the answer-book before attempting it.**
- 15 minute time has been allotted to read this question paper. The question paper will be distributed at 10.15 a.m. From 10.15 a.m. to 10.30 a.m., the students will read the question paper only and will not write any answer on the answer-book during this period.

General Instructions :

- *This question paper contains five sections, **Section A** to **E**.*
- ***All** questions are compulsory.*
- ***Section A** has **18** questions carrying **1** mark each.*
- ***Section B** has **7** Very Short Answer (VSA) type questions carrying **2** marks each.*
- ***Section C** has **5** Short Answer (SA) type questions carrying **3** marks each.*
- ***Section D** has **3** Long Answer (LA) type question carrying **5** marks each.*
- ***Section E** has **2** questions carrying **4** marks each. **One** internal choice is given in **Q 35** against part **C** only.*
- *All programming questions are to be answered using Python Language only.*

SECTION A

*All questions carrying **1** mark each.* *18×1=18*

1. State True or False.

"Comments are not executed by interpreter."

2. Which of the following is ***not*** a sequential datatype in Python ?

(a) Dictionary

(b) String

(c) List

(d) Tuple

3. Given the following dictionary

```
Day={1:"Monday", 2: "Tuesday", 3: "Wednesday"}
```

Which statement will return `"Tuesday"`.

(a) `Day.pop()`

(b) `Day.pop(2)`

(c) `Day.pop(1)`

(d) `Day.pop("Tuesday")`

4. Consider the given expression :

```
7<4 or 6>3 and not 10==10 or 17>4
```

Which of the following will be the correct output if the given expression is evaluated ?

(a) `True`

(b) `False`

(c) `NONE`

(d) `NULL`

5. Select the correct output of the code :

```
S="Amrit Mahotsav @ 75"
A=S.split(" ",2)
print(A)
```

(a) `('Amrit', 'Mahotsav', '@', '75')`

(b) `['Amrit', 'Mahotsav', '@ 75']`

(c) `('Amrit', 'Mahotsav', '@ 75')`

(d) `['Amrit', 'Mahotsav', '@', '75']`

6. Which of the following modes in Python creates a new file, if file does not exist and overwrites the content, if the file exists ?

(a) `r+` (b) `r`

(c) `w` (d) `a`

7. Fill in the blank :

_____ is not a valid built-in function for list manipulations.

(a) `count()`

(b) `length()`

(c) `append()`

(d) `extend()`

8. Which of the following is an example of identity operators of Python ?

(a) `is` (b) `on`

(c) `in` (d) `not in`

9. Which of the following statement(s) would give an error after executing the following code ?

```
S="Happy"                  # Statement 1
print(S*2)                 # Statement 2
S+="Independence"          # Statement 3
S.append("Day")            # Statement 4
print(S)                   # Statement 5
```

(a) `Statement 2` (b) `Statement 3`

(c) `Statement 4` (d) `Statement 3 and 4`

10. Fill in the blank :

In a relational model, tables are called _____, that store data for different columns.

(a) Attributes

(b) Degrees

(c) Relations

(d) Tuples

11. The correct syntax of `tell()` is :

(a) **`tell.file_object()`**

(b) **`file_object.tell()`**

(c) **`tell.file_object(1)`**

(d) **`file_object.tell(1)`**

12. Fill in the blank :

_____ statement of SQL is used to insert new records in a table.

(a) ALTER

(b) UPDATE

(c) INSERT

(d) CREATE

13. Fill in the blank :

In _____ switching, before a communication starts, a dedicated path is identified between the sender and the receiver.

(a) Packet

(b) Graph

(c) Circuit

(d) Plot

14. What will the following expression be evaluated to in Python ?

```
print(6/3 + 4**3//8-4)
```

(a) `6.5`

(b) `4.0`

(c) `6.0`

(d) `4`

15. Which of the following functions is a valid built-in function for both list and dictionary datatype ?

(a) `items()`

(b) `len()`

(c) `update()`

(d) `values()`

16. `fetchone()` method fetches only one row in a ResultSet and returns a _____.

(a) Tuple

(b) List

(c) Dictionary

(d) String

Q. **17** and **18** are Assertion (A) and Reasoning (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.

17. *Assertion (A) :* In Python, a stack can be implemented using a list.

Reasoning (R) : A stack is an ordered linear list of elements that works on the principle of First In First Out (FIFO).

18. *Assertion (A) :* `readlines()` reads all the lines from a text file and returns the lines along with newline as a list of strings.

Reasoning (R) : `readline()` can read the entire text file line by line without using any looping statements.

SECTION B

19. Ravi, a Python programmer, is working on a project in which he wants to write a function to count the number of even and odd values in the list. He has written the following code but his code is having errors. Rewrite the correct code and underline the corrections made. *2*

```
define EOCOUNT(L):
    even_no=odd_no=0
    for i in range(0,len(L))
        if L[i]%2=0:
            even_no+=1
        Else:
            odd_no+=1
    print(even_no, odd_no)
```

20. (a) Write any two differences between Fiber-optic cable and Coaxial cable. *2*

OR

(b) Write one advantage and one disadvantage of wired over wireless communication. *2*

21. (a) Given is a Python string declaration : *1*

```
NAME = "Learning Python is Fun"
```

Write the output of : `print(NAME[-5:-10:-1])`

(b) Write the output of the code given below : *1*

```
dict1={1:["Rohit",20], 2:["Siya",90]}
dict2={1:["Rahul",95], 5:["Rajan",80]}
dict1.update(dict2)
print(dict1.values())
```

22. Explain the usage of **HAVING** clause in **GROUP BY** command in RDBMS with the help of an example. *2*

23. (a) Write the full forms of the following : *1*

(i) XML

(ii) HTTPS

(b) What is the use of FTP ? *1*

24. (a) Write the output of the Python code given below : *2*

```
g=0
def fun1(x,y):
    global g
    g=x+y
    return g
def fun2(m,n):
    global g
    g=m-n
    return g
k=fun1(2,3)
fun2(k,7)
print(g)
```

OR

(b) Write the output of the Python code given below : *2*

```
a=15
def update(x):
    global a
    a+=2
    if x%2==0:
        a*=x
    else:
        a//=x
a=a+5
print(a,end="$")
update(5)
print(a)
```

25. (a) Differentiate between **IN** and **BETWEEN** operators in SQL with appropriate examples. *2*

OR

(b) Which of the following is ***NOT*** a DML command. *2*

DELETE, DROP, INSERT, UPDATE

SECTION C

26. (a) Consider the following tables – Student and Sport :

Table : Student

ADMNO	NAME	CLASS
1100	MEENA	X
1101	VANI	XI

Table : Sport

ADMNO	GAME
1100	CRICKET
1103	FOOTBALL

What will be the output of the following statement ? *1*

```
SELECT * FROM Student, Sport;
```

(b) Write the output of the queries (i) to (iv) based on the table, GARMENT given below : *2*

TABLE : GARMENT

GCODE	TYPE	PRICE	FCODE	ODR_DATE
G101	EVENING GOWN	850	F03	2008-12-19
G102	SLACKS	750	F02	2020-10-20
G103	FROCK	1000	F01	2021-09-09
G104	TULIP SKIRT	1550	F01	2021-08-10
G105	BABY TOP	1500	F02	2020-03-31
G106	FORMAL PANT	1250	F01	2019-01-06

(i) `SELECT DISTINCT(COUNT(FCODE))FROM GARMENT;`

(ii) `SELECT FCODE, COUNT(*), MIN(PRICE) FROM GARMENT GROUP BY FCODE HAVING COUNT(*)>1;`

(iii) `SELECT TYPE FROM GARMENT WHERE ODR_DATE >'2021-02-01' AND PRICE <1500;`

(iv) `SELECT * FROM GARMENT WHERE TYPE LIKE 'F%';`

27. (a) Write a function in Python that displays the book names having 'Y' or 'y' in their name from a text file "Bookname.txt". *3*

Example :

If the file 'Bookname.txt' contains the names of following books :

One Hundred Years of Solitude
The Diary of a Young Girl
On the Road

After execution, the output will be :

One Hundred Years of Solitude
The Diary of a Young Girl

OR

(b) Write a function **`RevString()`** to read a textfile "Input.txt" and prints the words starting with 'O' in reverse order. The rest of the content is displayed normally. *3*

Example :

If content in the text file is :

UBUNTU IS AN OPEN SOURCE OPERATING SYSTEM

Output will be :

UBUNTU IS AN NEPO SOURCE GNITAREPO SYSTEM

(words 'OPEN' and 'OPERATING' are displayed in reverse order)

28. Write the output of any three SQL queries (i) to (iv) based on the tables COMPANY and CUSTOMER given below : *3*

Table : COMPANY

CID	C_NAME	CITY	PRODUCTNAME
111	SONY	DELHI	TV
222	NOKIA	MUMBAI	MOBILE
333	ONIDA	DELHI	TV
444	SONY	MUMBAI	MOBILE
555	BLACKBERRY	CHENNAI	MOBILE
666	DELL	DELHI	LAPTOP

Table : CUSTOMER

CUSTID	CID	NAME	PRICE	QTY
C01	222	ROHIT SHARMA	70000	20
C02	666	DEEPIKA KUMARI	50000	10
C03	111	MOHAN KUMAR	30000	5
C04	555	RADHA MOHAN	30000	11

(i) `SELECT PRODUCTNAME, COUNT(*)FROM COMPANY GROUP BY PRODUCTNAME HAVING COUNT(*)> 2;`

(ii) `SELECT NAME, PRICE, PRODUCTNAME FROM COMPANY C, CUSTOMER CT WHERE C.CID = CU.CID AND C_NAME = 'SONY';`

(iii) `SELECT DISTINCT CITY FROM COMPANY;`

(iv) `SELECT * FROM COMPANY WHERE C_NAME LIKE '%ON%';`

29. Write a function `search_replace()` in Python which accepts a list L of numbers and a number to be searched. If the number exists, it is replaced by 0 and if the number does not exist, an appropriate message is displayed. *3*

Example :

L = [10,20,30,10,40]

Number to be searched = 10

List after replacement :

L = [0,20,30,0,40]

30. A list contains following record of course details for a University :

`[Course_name, Fees, Duration]`

Write the following user defined functions to perform given operations on the stack named `'Univ'` : *3*

(i) `Push_element()` – To push an object containing the Course_name, Fees and Duration of a course, which has fees greater than 100000 to the stack.

(ii) `Pop_element()` – To pop the object from the stack and display it. Also, display "Underflow" when there is no element in the stack.

For example :

If the lists of courses details are :

["MCA",200000,3]

["MBA",500000,2]

["BA",100000,3]

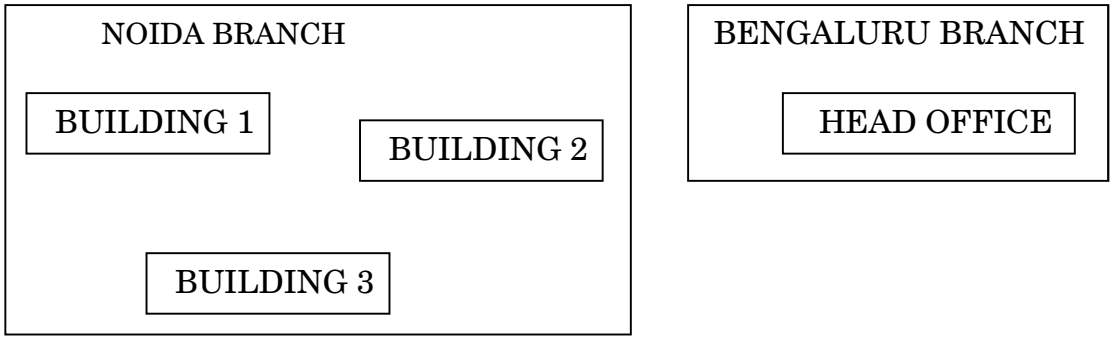
The stack should contain :

["MBA",500000,2]

["MCA",200000,3]

SECTION D

31. ABC Consultants are setting up a secure network for their office campus at Noida for their day-to-day office and web-based activities. They are planning to have connectivity between three buildings and the head office situated in Bengaluru. As a network consultant, give solutions to the questions (i) to (v), after going through the building locations and other details which are given below :



Distance between various blocks/locations :

Building	**Distance**
Building 1 to Building 3	120 m
Building 1 to Building 2	50 m
Building 2 to Building 3	65 m
Noida Branch to Head Office	1500 km

Number of computers

Building	**Number of Computers**
Building 1	25
Building 2	51
Building 3	150
Head Office	10

(i) Suggest the most suitable place to install the server for this organization. Also, give reason to justify your suggested location. *1*

(ii) Suggest the cable layout of connections between the buildings inside the campus. *1*

(iii) Suggest the placement of the following devices with justification : *1*

- Switch
- Repeater

(iv) The organization is planning to provide a high-speed link with the head office situated in Bengaluru, using a wired connection. Suggest a suitable wired medium for the same. *1*

(v) The System Administrator does remote login to any PC, if any requirement arises. Name the protocol, which is used for the same. *1*

32. (a) (i) What possible output(s) are expected to be displayed on screen at the time of execution of the following code ? *2*

```
import random
S=["Pen","Pencil","Eraser","Bag","Book"]
for i in range (1,2):
    f=random.randint(i,3)
    s=random.randint(i+1,4)
    print(S[f],S[s],sep=":")
```

Options :

(I) `Pencil:Book`

(II) `Pencil:Book`
`Eraser:Bag`

(III) `Pen:Book`
`Bag:Book`

(IV) `Bag:Eraser`

(ii) The table **Bookshop** in MySQL contains the following attributes :

B_code – Integer

B_name – String

Qty – Integer

Price – Integer

Note the following to establish connectivity between Python and MySQL on a 'localhost' :

- Username is 'shop'
- Password is 'Book'
- The table exists in a MySQL database named **Bstore**.

The code given below updates the records from the table **Bookshop** in MySQL. *3*

Statement 1 – to form the cursor object.

Statement 2 – to execute the query that updates the Qty to 20 of the records whose B_code is 105 in the table.

Statement 3 – to make the changes permanent in the database.

```
import mysql.connector as mysql
def update_book():

    mydb=mysql.connect(host="localhost",
    user="shop",passwd="Book",database="Bstore")
    mycursor=_____                    # Statement 1
    qry= "update Bookshop set Qty=20 where
    B_code=105"
    _____                             # Statement 2
    _____                             # Statement 3
```

OR

(b) (i) Predict the output of the code given below : *2*

```
text="LearningCS"
L=len(text)
ntext=""
for i in range (0,L):
    if text[i].islower():
        ntext=ntext+text[i].upper()
    elif text [i].isalnum():
            ntext=ntext+text[i-1]
    else:
            ntext=ntext+'&&'
print(ntext)
```

(ii) The table **Bookshop** in MySQL contains the following attributes :

B_code – Integer

B_name – String

Qty – Integer

Price – Integer

Note the following to establish connectivity between Python and MySQL on a 'localhost' :

- Username is 'shop'
- Password is 'Book'
- The table exists in a MySQL database named **Bstore**.

The code given below reads the records from the table **Bookshop** and displays all the records : *3*

Statement 1 – to form the cursor object.

Statement 2 – to write the query to display all the records from the table.

Statement 3 – to read the complete result of the query into the object named **B_Details**, from the table **Bookshop** in the database.

```
import mysql.connector as mysql
def Display_book():
   mydb=mysql.connect(host="localhost",
   user="shop",passwd="Book",database="Bstore")
   mycursor=_____________          # Statement 1
   mycursor.execute("_________") # Statement 2
   B_Details=____________          # Statement 3
for i in B_Details:
   print(i)
```

33. (a) Write a point of difference between append **(a)** and write **(w)** modes in a text file. *5*

Write a program in Python that defines and calls the following user defined functions :

(i) Add_Teacher() : It accepts the values from the user and inserts record of a teacher to a csv file 'Teacher.csv'. Each record consists of a list with field elements as **T_id**, **Tname** and **desig** to store teacher ID, teacher name and designation respectively.

(ii) Search_Teacher() : To display the records of all the PGT (designation) teachers.

OR

(b) Write one point of difference between **seek()** and **tell()** functions in file handling. Write a program in Python that defines and calls the following user defined functions : *5*

(i) Add_Device() : The function accepts and adds records of the peripheral devices to a csv file 'peripheral.csv'. Each record consists of a list with field elements as **P_id**, **P_name** and **Price** to store peripheral device ID, device name, and price respectively.

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

SECTION E

34. The ABC Company is considering to maintain their salespersons records using SQL to store data. As a database administrator, Alia created the table Salesperson and also entered the data of 5 Salespersons.

Table : Salesperson

S_ID	S_NAME	AGE	S_AMOUNT	REGION
S001	SHYAM	35	20000	NORTH
S002	RISHABH	30	25000	EAST
S003	SUNIL	29	21000	NORTH
S004	RAHIL	39	22000	WEST
S005	AMIT	40	23000	EAST

Based on the data given above, answer the following questions :

(i) Identify the attribute that is best suited to be the Primary Key and why ? *1*

(ii) The Company has asked Alia to add another attribute in the table. What will be the new degree and cardinality of the above table ? *1*

(iii) Write the statements to : *2*

(a) Insert details of one salesman with appropriate data.

(b) Change the Region of salesman 'SHYAM' to 'SOUTH' in the table Salesperson.

OR (Option for part iii only)

(iii) Write the statement to : *2*

(a) Delete the record of salesman RISHABH, as he has left the company.

(b) Remove an attribute REGION from the table.

35. Atharva is a programmer, who has recently been given a task to write a Python code to perform the following binary file operation with the help of a user defined function/module :

- Copy_new() : to create a binary file **new_items.dat** and write all the item details stored in the binary file, **items.dat,** except for the item whose item_id is 101. The data is stored in the following format :
  {item_id:[item_name,amount]}

```
import _____                              # Statement 1
def Copy_new():
    f1=_____                              # Statement 2
    f2=_____                              # Statement 3
    item_id=int(input("Enter the item id"))
    item_detail=_____                     # Statement 4
    for key in item_detail:
        if _____:                         # Statement 5
            pickle._____                  # Statement 6
    f1.close()
    f2.close()
```

He has succeeded in writing partial code and has missed out certain statements. Therefore, as a Python expert, help him to complete the code based on the given requirements :

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

(ii) Write the correct statement required to open the binary file `"items.dat"`. (Statement 2) *1*

(iii) Which statement should Atharva fill in Statement 3 to open the binary file `"new_items.dat"` and in Statement 4 to read all the details from the binary file `"items.dat"`. *2*

OR (Option for part iii only)

(iii) What should Atharva write in Statement 5 to apply the given condition and in Statement 6 to write data in the binary file `"new_items.dat"`. *2*

CBSE AISSCE 2023 Marking Scheme for Computer Science (NEW)

(Sub Code: 083 Series ∑HEFG/C Paper Code 91 Set-4)

Marking Scheme
Strictly Confidential
(For Internal and Restricted use only)
Senior School Certificate Examination, 2023 (Supplimentary)
SUBJECT NAME Computer Science (NEW) (PAPER CODE 91)

General Instructions: -

1	You are aware that evaluation is the most important process in the actual and correct assessment of the candidates. A small mistake in ev aluation may lead to serious problems which may affect the future of the candidates, education system and teaching profession. To avoid mistakes, it is requested that before starting evaluation, you must read and understand the spot evaluation guidelines carefully.
2	**"Evaluation policy is a confidential policy as it is related to the confidentiality of the examinations conducted, Evaluation done and several other aspects. Its' leakage to the public in any manner could lead to derailment of the examination system and affect the life and future of millions of candidates. Sharing this policy/document to anyone, publishing in any magazine and printing in News Paper/Website etc may invite action under various rules of the Board and IPC."**
3	Evaluation is to be done as per instructions provided in the Marking Scheme. It should not be done according to one's own interpretation or any other consideration. Marking Scheme should be strictly adhered to and religiously followed. **However, while evaluating answers which are based on latest information or knowledge and/or are innovative, they may be assessed for their correctness otherwise and due marks be awarded to them. In class-XII, while evaluating two competency-based questions, please try to understand the given answer and even if the reply is not from the marking scheme but correct competency is enumerated by the candidate, due marks should be awarded.**
4	The Marking scheme carries only suggested value points for the answers These are in the nature of Guidelines only and do not constitute the complete answer. The students can have their own expression and if the expression is correct, the due marks should be awarded accordingly.
5	The Head-Examiner must go through the first five answer books evaluated by each evaluator on the first day, to ensure that evaluation has been carried out as per the instructions given in the Marking Scheme. If there is any variation, the same should be zero after deliberation and discussion. The remaining answer books meant for evaluation shall be given only after ensuring that there is no significant variation in the marking of individual evaluators.
6	Evaluators will mark(√) wherever the answer is correct. For wrong answer CROSS 'X" be marked. Evaluators will not put right (✓)while evaluating which gives an impression that the answer is correct and no marks are awarded. **This is the most common mistake which evaluators are committing.**
7	If a question has parts, please award marks on the right-hand side for each part. Marks awarded for different parts of the question should then be totaled up and written in the left-hand margin and encircled. This may be followed strictly.
8	If a question does not have any parts, marks must be awarded in the left-hand margin and encircled. This may also be followed strictly.
9	If a student has attempted an extra question, the answer of the question deserving more marks should be retained and the other answer scored out with a note **"Extra Question"**.
10	No marks to be deducted for the cumulative effect of an error. It should be penalized only once.
11	A full scale of marks 0 to 70 has to be used. Please do not hesitate to award full marks if the answer deserves it.

12	Every examiner has to necessarily do evaluation work for full working hours i.e., 8 hours every day and evaluate 20 answer books per day in main subjects and 25 answer books per day in other subjects (Details are given in Spot Guidelines).This is in view of the reduced syllabus and number of questions in question paper.
13	Ensure that you do not make the following common types of errors committed by the Examiner in the past:- ● Leaving the answer or part thereof unassessed in an answer book. ● Giving more marks for an answer than assigned to it. ● Wrong totaling of marks awarded on an answer. ● Wrong transfer of marks from the inside pages of the answer book to the title page. ● Wrong question wise totaling on the title page. ● Wrong totaling of marks of the two columns on the title page. ● Wrong grand total. ● Marks in words and figures not tallying/not same. ● Wrong transfer of marks from the answer book to online award list. ● Answers marked as correct, but marks not awarded. (Ensure that the right tick mark is correctly and clearly indicated. It should merely be a line. Same is with the X for incorrect answers.) ● Half or a part of the answer marked correct and the rest is wrong, but no marks awarded.
14	While evaluating the answer books, if the answer is found to be totally incorrect, it should be marked as cross (X) and awarded zero (0)Marks.
15	Any un-assessed portion, non-carrying over of marks to the title page, or totaling error detected by the candidate shall damage the prestige of all the personnel engaged in the evaluation work as also of the Board. Hence, in order to uphold the prestige of all concerned, it is again reiterated that the instructions be followed meticulously and judiciously.
16	The Examiners should acquaint themselves with the guidelines given in the **"Guidelines for spot Evaluation"** before starting the actual evaluation.
17	Every Examiner shall also ensure that all the answers are evaluated, marks carried over to the title page, correctly totaled and written in figures and words.
18	The candidates are entitled to obtain a photocopy of the Answer Book on request on payment of the prescribed processing fee. All Examiners/Additional Head Examiners/Head Examiners are once again reminded that they must ensure that evaluation is carried out strictly as per value points for each answer as given in the Marking Scheme.

SPECIFIC INSTRUCTIONS FOR COMPUTER SCIENCE ONLY

1	**In Python, string content is accepted within a pair of single quotes ' ' or within a pair of double quotes " ".**
2	**In MySQL, CHAR/VARCHAR/DATE type content is accepted within a pair of single quotes ' ' or within a pair of double quotes " ".**
3	**In MySQL commands, lowercase/UPPERCASE both are correct.**
4	**In MySQL output questions, column headings to be ignored.**
5	**In MySQL output questions, alignment (left/right) of content to be ignored.**
6	**All answers/codes are suggestive, any other alternative correct answers to be accepted.**

CBSE AISSCE 2023 Marking Scheme for Computer Science (NEW)

(Sub Code: 083 Series ∑HEFG/C Paper Code 91 Set-4)

General Instructions:

(i) This question paper contains five sections, Section A to E.
(ii) All questions are compulsory.
(iii) Section A has 18 questions carrying 1 mark each.
(iv) Section B has 7 Very Short Answer (VSA) type questions carrying 2 marks each.
(v) Section C has 5 Short Answer (SA) type questions carrying 3 marks each.
(vi) Section D has 3 Long Answer (LA) type questions carrying 5 marks each.
(vii) Section E has 2 questions carrying 4 marks each. One internal choice is given in Q.34 and Q. 35, against Part (iii) only.
(viii) All programming questions are to be answered using python language only.

SECTION - A

1		State True or False. "Comments are not executed by interpreter."	1
	Ans	**`True`**	
		(1 Mark for writing the correct answer)	
2		Which of the following is ***not*** a sequential datatype in Python ? (a) Dictionary (b) String (c) List (d) Tuple	1
	Ans	**(a) `Dictionary`**	
		(1 Mark for writing the correct option)	
3		Given the following dictionary `Day={1:"Monday", 2: "Tuesday", 3: "Wednesday"}` Which statement will return `"Tuesday"`. (a) `Day.pop()` (b) `Day.pop(2)` (c) `Day.pop(1)` (d) `Day.pop("Tuesday")`	1
	Ans	**(b) `Day.pop(2)`**	
		(1 Mark for writing the correct option)	
4		Consider the given expression : `7<4 or 6>3 and not 10==10 or 17>4` Which of the following will be the correct output if the given expression is evaluated ? (a) `True` (b) `False` (c) `NONE` (d) `NULL`	1
	Ans	**(a) `True`**	
		(1 Mark for writing the correct option)	

5		Select the correct output of the code :
		`S="Amrit Mahotsav @ 75"`
		`A=S.split(" ",2)`
		`print(A)`
		(a) `('Amrit', 'Mahotsav','@','75')` (b) `['Amrit','Mahotsav','@ 75']`
		(c) `('Amrit', 'Mahotsav','@75')` (d) `['Amrit','Mahotsav','@','75']`
			1

	Ans	**(b) `['Amrit', 'Mahotsav','@ 75']`**	
		(1 Mark for writing the correct option)	

6		Which of the following modes in Python creates a new file, if file does not exist and overwrites the content, if the file exists ? (a) `r+` (b) `r` (c) `w` (d) `a`	1
	Ans	(c) `w`	
		(1 Mark for writing the correct option)	
7.		Fill in the blank : _____ is not a valid built-in function for list manipulations. (a) `count()` (b) `length()` (c) `append()` (d) `extend()`	1
	Ans	(b) `length()`	
		(1 Mark for writing the correct option)	
8		Which of the following is an example of identity operators of Python ? (a) `is` (b) `on` (c) `in` (d) `not in`	1
	Ans	(a) `is`	
		(1 Mark for writing the correct option)	

9		Which of the following statement(s) would give an error after executing the following code?
		`S="Happy" # Statement 1`
		`print(S*2) # Statement 2`
		`S+="Independence" # Statement 3`
		`S.append("Day") # Statement 4`
		`print(S) # Statement 5`
		(a) `Statement 2` (b) `Statement 3`
		(c) `Statement 4` (d) `Statement 3 and 4`
			1

	Ans	(c) `Statement 4`	
		(1 Mark for writing the correct options)	
10		Fill in the blank : In a relational model, tables are called _____, that store data for different columns. (a) `Attributes` (b) `Degrees` (c) `Relations` (d) `Tuples`	1
	Ans	(c) `Relations`	
		(1 Mark for writing the correct option)	
11		The correct syntax of `tell()` is : **(a)** `tell.file_object()` **(b)** `file_object.tell()` **(c)** `tell.file_object(1)` **(d)** `file_object.tell(1)`	1
	Ans	(b) `file_object.tell()`	
		(1 Mark for writing the correct option)	

12		Fill in the blank : _____ statement of SQL is used to insert new records in a table. **(a)** ALTER **(b)** UPDATE **(c)** INSERT **(d)** CREATE	1
	Ans	(c) INSERT	
		(1 Mark for writing the correct option)	
13		Fill in the blank : In _____ switching, before a communication starts, a dedicated path is identified between the sender and the receiver. **(a)** Packet **(b)** Graph **(c)** Circuit **(d)** Plot	1
	Ans	(c) Circuit	
		(1 Mark for writing the correct option)	
14		What will the following expression be evaluated to in Python ? `print(6/3 + 4**3//8-4)` **(a)** `6.5` **(b)** `4.0` **(c)** `6.0` **(d)** `4`	1
	Ans	(c) `6.0`	
		(1 Mark for writing the correct option)	
15		Which of the following functions is a valid built-in function for both list and dictionary datatype ? **(a)** `items()` **(b)** `len()` **(c)** `update()` **(d)** `values()`	1
	Ans	(b) `len()`	
		(1 Mark for writing the correct option)	
16		`fetchone()` method fetches only one row in a ResultSet and returns a _____. **(a)** Tuple **(b)** List **(c)** Dictionary **(d)** String	1
	Ans	(a) Tuple	
		(1 Mark for writing the correct option)	

		Q. **17** and **18** are Assertion (A) and Reasoning (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.	
17		*Assertion (A)* : In **Python**, a stack can be implemented using a list. *Reasoning (R)* : A stack is an ordered linear list of elements that works on the principle of First In First Out (FIFO).	1
	Ans	(c) (A) is true but (R) is false. .	
		(1 Mark for writing the correct option)	
18		*Assertion (A)* : `readlines()` reads all the lines from a text file and returns the lines along with newline as a list of strings. *Reasoning (R)* : `readline()` can read the entire text file line by line without using any looping statements.	1
	Ans	(c) (A) is true but (R) is false.	
		(1 Mark for writing the correct option)	
		SECTION - B	

19		Ravi, a Python programmer, is working on a project in which he wants to write a function to count the number of even and odd values in the list. He has written the following code but his code is having errors. Rewrite the correct code and underline the corrections made.
		`define EOCOUNT(L):`
		`  even_no=odd_no=0`
		`  for i in range(0,len(L))`
		`  if L[i]%2=0:`
		`  even_no+=1`
		`  Else:`
		`  odd_no+=1`
		`  print(even_no, odd_no)`
			2

	Ans	`def EOCOUNT(L):` `# Error 1`
		`  even_no=odd_no=0`
		`  for i in range(0,len(L)):` `# Error 2`
		`  if L[i]%2==0:` `# Error 3`
		`  even_no+=1`
		`  else:` `# Error 4`
		`  odd_no+=1`
		`  print(even_no, odd_no)`	

		(½ Mark for correctly identifying and correcting each of the four errors) ***Note: 1 Mark for identifying all 4 errors without any correction***	
20	(a)	Write any two differences between Fiber-optic cable and Coaxial cable.	2
	Ans	**Fiber-Optic cable** Very fast, expensive, very reliable, minimum interference	

		Coaxial cable Slow, Economic, Convenient to lay down using the bus topology of networks	
		(2 Marks for writing the correct difference between Fiber-optic cable and coaxial cable) ***OR*** ***(1 Mark for correctly defining Fiber-optic cable)*** ***(1 Mark for correctly defining coaxial cable)***	
		OR	
	(b)	Write one advantage and one disadvantage of wired over wireless communication.	2
	Ans	Wired technologies: Advantage: • point to point connectivity between nodes and are not affected by the variation in weather conditions. • Speed is higher in wired connectivity. Disadvantage: • Cut in cable (Wired Technology) will result in network failure Examples • Optical Fiber, Ethernet Cable, Co-axial Cable are used in Wired Technologies Wireless technologies: Disadvantage: • are not necessarily point to point connectivity between nodes and can be affected by the variation in weather conditions. • Speed is lesser as compared to wired connectivity. Advantage: • There is no issue of physical cut Examples • Bluetooth, Microwave, Radiowave, Satellite Links are examples of Wireless Technologies	
		(1 Mark for writing any one correct advantage of wired over wireless communication) ***(1 Mark for writing any one correct disadvantage of wired over wireless communication)*** ***Note:*** ***1 Mark for only specifying the names of Wired and Wireless Technologies***	
21	(a)	Given is a Python string declaration : `NAME = "Learning Python is Fun"` Write the output of : `print(NAME[-5:-10:-1])`	1
	Ans	`si no`	
		(1 Mark for writing the correct output)	

	(b)	Write the output of the code given below :
		`dict1={1:["Rohit",20], 2:["Siya",90]}`
		`dict2={1:["Rahul",95], 5:["Rajan",80]}`
		`dict1.update(dict2)`
		`print(dict1.values())`
			1

	Ans	`dict_values([['Rahul', 95], ['Siya', 90], ['Rajan', 80]])`	
		(1 Mark for writing the correct output) ***Note: ignore if `dict_values()` is not written with the output***	

22		Explain the usage of **HAVING** clause in **GROUP BY** command in RDBMS with the help of an example.	2

	Ans	**HAVING** is used for including conditions based on aggregate functions on groups.
		
		`SELECT DEPT, COUNT(*) FROM EMPLOYEE`
		`GROUP BY DEPT HAVING COUNT(*)>1;`
		Above command will return the number of employees in each department for the departments having more than 1 employee.	

		(1 Mark for writing any correct example of HAVING) ***(1 Mark for writing the correct explanation of the query or the output)*** ***OR*** ***(1 Mark for explaining use of HAVING correctly without example)***	
23	(a)	Write the full forms of the following : (i) XML (ii) HTTPS	1
	Ans	(i) Extensible Markup Language (ii) Hyper-Text Transfer Protocol Secure	
		(½ Mark for writing each correct Full Form)	
	(b)	What is the use of FTP ?	1
	Ans	Protocol is needed to download, upload and transfer files. **OR** FIle Transfer Protocol	
		(1 Mark for correctly defining OR full form of FTP)	

24	(a)	Write the output of the Python code given below :
		`g=0`
		`def fun1(x,y):`
		`  global g`
		`  g=x+y`
		`  return g`
		`def fun2(m,n):`
		`  global g`
		`  g=m-n`
		`  return g`
		`k=fun1(2,3)`
		`fun2(k,7)`
		`print(g)`
			2

	Ans	`-2`	
		(2 Mark for writing the correct output) ***Note:*** ***Give only 1 mark if 2 written without minus sign***	
		OR	

	(b)	Write the output of the Python code given below :
		`a=15`
		`def update(x):`
		`  global a`
		`  a+=2`
		`  if x%2==0:`
		`  a*=x`
		`  else:`
		`  a//=x`
		`a=a+5`
		`print(a,end="$")`
		`update(5)`
		`print(a)`
			2

	Ans	`20$4`	
		(2 Mark for writing the correct output) ***Note:*** ***Deduct ½ Mark for not writing $ at correct place*** ***Deduct ½ Mark for writing the output in two lines***	
25	(a)	Differentiate between **`IN`** and **`BETWEEN`** operators in SQL with appropriate examples.	2

	Ans	**IN() function in MySQL finds a match in the given arguments.**
		`Exprs IN (value1, value2, ...)`
		The function returns 1 if Exprs is equal to any of the values in the IN list, otherwise, returns 0.
		Example:
		`SELECT NAME, SECTION`
		`FROM STUDENTS`
		`WHERE SECTION IN ('C' , 'D');`
		Whereas `BETWEEN` operator in MySQL selects values within a given range.
		The values can be numbers, text, or dates.
		Range values are inclusive, both begin and end values are included.
		Example:
		`SELECT ROLL, MARKS`
		`FROM RESULT`
		`WHERE MARKS BETWEEN 75 AND 100;`	

		(2 Marks for explaining the difference with appropriate example(s)) ***OR*** ***(1 Mark for correct use of IN in SQL with appropriate example)*** ***(1 Mark for correct use of BETWEEN in SQL with appropriate example)***	
		OR	
	(b)	Which of the following is ***NOT*** a DML command. DELETE, DROP, INSERT, UPDATE	2
	Ans	`DROP`	
		(2 Marks for mentioning the correct answer) ***(Deduct ½ mark for writing each wrong answer, if <u>written along with</u> DROP)***	

SECTION-C

26 (a) Consider the following tables - Student and Sport : 1

Table : Student

ADMNO	NAME	CLASS
1100	MEENA	X
1101	VANI	XI

Table: Sport

ADMNO	GAME
1100	CRICKET
1103	FOOTBALL

What will be the output of the following statement ?

```
SELECT * FROM Student, Sport;
```

Ans

ADMNO	NAME	CLASS	ADMNO	GAME
1100	MEENA	X	1100	CRICKET
1101	VANI	XI	1100	CRICKET
1100	MEENA	X	1103	FOOTBALL
1101	VANI	XI	1103	FOOTBALL

(1 Mark for writing the correct output)

Note:
(Ignore the order of rows and columns of the output)

(b) Write the output of the queries (i) to (iv) based on the table, GARMENT given below : 2

TABLE : GARMENT

GCODE	TYPE	PRICE	FCODE	ODR_DATE
G101	EVENING GOWN	850	F03	2008-12-19
G102	SLACKS	750	F02	2020-10-20
G103	FROCK	1000	F01	2021-09-09
G104	TULIP SKIRT	1550	F01	2021-08-10
G105	BABY TOP	1500	F02	2020-03-31
G106	FORMAL PANT	1250	F01	2019-01-06

(i) `SELECT DISTINCT(COUNT(FCODE))FROM GARMENT;`

Ans

DISTINCT(COUNT(FCODE))
3

(½ Mark for writing correct output)

(ii)
```
SELECT FCODE, COUNT(*), MIN(PRICE) FROM GARMENT GROUP BY FCODE
   HAVING COUNT(*)>1;
```

Ans

FCODE	COUNT(*)	MIN(PRICE)
F02	2	750
F01	3	1000

(½ Mark for writing correct output)

(iii) `SELECT TYPE FROM GARMENT WHERE ODR_DATE >'2021-02-01' AND PRICE <1500;`

Ans

TYPE
FROCK

(½ Mark for writing correct output)

(iv) `SELECT * FROM GARMENT WHERE TYPE LIKE 'F%';`

Ans

GCODE	TYPE	PRICE	FCODE	ODR_DATE
G103	FROCK	1000	F01	2021-09-09
G106	FORMAL PANT	1250	F01	2019-01-06

(½ Mark for writing correct output)

27 (a) Write a function in Python that displays the book names having 'Y' or 'y' in their name from a text file "Bookname.txt". 3

Example :

If the file "Bookname.txt" contains the names of following books :

```
One Hundred Years of Solitude
The Diary of a Young Girl
On the Road
```

After execution, the output will be :

```
One Hundred Years of Solitude
The Diary of a Young Girl
```

Ans

```
def Book_Name():
    fin=open('Bookname.txt')
    lines=fin.readlines()
    for line in lines:
        if 'y' in line or 'Y' in line: # or if 'Y' in line.upper():
            print(line,end="")         # ignore end=""
    fin.close()
```

OR

```
def Book_Name():
    fin=open('Bookname.txt')
    for line in fin:
        if 'y' in line or 'Y' in line: # or if 'Y' in line.upper():
            print(line,end="")         # ignore end=""
    fin.close()
```

OR

```
Any other correct equivalent code
```

(½ Mark for writing the function header correctly with any function identifier and/or argument)
(½ Mark for opening the file correctly)
(½ Mark for reading/extracting the lines from the file)
(½ Mark for processing the lines one by one using a loop)
(½ Mark for checking condition for presence of 'y' or 'Y')
(½ Mark for printing the matching lines)

OR

(b) Write a function **RevString()** to read a textfile "Input.txt" and prints the words starting with 'O' in reverse order. The rest of the content is displayed normally. 3

Example :

If content in the text file is :

```
UBUNTU IS AN OPEN SOURCE OPERATING SYSTEM
```

Output will be :

```
UBUNTU IS AN NEPO SOURCE GNITAREPO SYSTEM
```

(words 'OPEN' and 'OPERATING' are displayed in reverse order)

Ans

```
def RevString():
    fin=open('Input.txt')
    S=fin.read()
    for w in S.split():
        if w[0]=='O':
            print(w[::-1],end=' ')          #ignore end
        else:
            print(w,end=' ')                #ignore end
    fin.close()
```

OR

```
Any other correct equivalent code
```

(½ Mark for writing the function header correctly)
(½ Mark for opening the file correctly)
(½ Mark for reading/separating all words from the file)
(½ Mark for checking the first alphabet of each word)
(½ Mark for displaying the matched word in reverse order)
(½ Mark for displaying all unmatched words)

28 (a) Write the output of any three SQL queries (i) to (iv) based on the tables COMPANY and CUSTOMER given below : 3

Table : COMPANY

CID	C_NAME	CITY	PRODUCTNAME
111	SONY	DELHI	TV
222	NOKIA	MUMBAI	MOBILE
333	ONIDA	DELHI	TV
444	SONY	MUMBAI	MOBILE
555	BLACKBERRY	CHENNAI	MOBILE
666	DELL	DELHI	LAPTOP

Table: CUSTOMER

CUSTID	CID	NAME	PRICE	QTY
C01	222	ROHIT SHARMA	70000	20
C02	666	DEEPIKA KUMARI	50000	10
C03	111	MOHAN KUMAR	30000	5
C04	555	RADHA MOHAN	30000	11

(i)

```
SELECT PRODUCTNAME, COUNT(*)FROM COMPANY GROUP BY
PRODUCTNAME HAVING COUNT(*)> 2;
```

Ans

PRODUCTNAME	COUNT(*)
MOBILE	3

(1 Mark for writing correct output)

(ii)

```
SELECT NAME, PRICE, PRODUCTNAME FROM COMPANY C,
CUSTOMER CT WHERE C.CID = CU.CID AND C_NAME = 'SONY';
```

Ans

NAME	PRICE	PRODUCTNAME
MOHAN KUMAR	30000	TV

(1 Mark for writing correct output)
OR
(1 Mark for mentioning ERROR)

(iii)

```
SELECT DISTINCT CITY FROM COMPANY;
```

Ans

DISTINCT(CITY)
DELHI
MUMBAI
CHENNAI

(1 Mark for writing correct output)

(iv)

```
SELECT * FROM COMPANY WHERE C_NAME LIKE '%ON%';
```

Ans

CID	C_NAME	CITY	PRODUCTNAME
111	SONY	DELHI	TV
333	ONIDA	DELHI	TV
444	SONY	MUMBAI	MOBILE

(1 Mark for writing correct output)

NOTE: Only three options would be awarded marks

29		Write a function **search_replace()** in Python which accepts a list L of numbers and a number to be searched. If the number exists, it is replaced by 0 and if the number does not exist, an appropriate message is displayed. Example : **L = [10,20,30,10,40]** **Number to be searched = 10** List after replacement : **L = [0,20,30,0,40]**	3
	Ans	**def search_replace(L,SN):** **Found=False # or Found=0** **for i in range(len(L)):** **if L[i]==SN:** **L[i]=0** **Found=True # or Found=1** **if Found==False: # if Found==0:** **print('Number not found')** **OR** **def search_replace(L,SN):** **Found=False # or Found=0** **for i in range(len(L)):** **if L[i]==SN:** **L[i]=0** **Found=True # or Found=1** **else:** **print('Number not found')** **OR** **Any other correct equivalent code**	
		(½ Mark for writing the function header correctly) ***(½ Mark for passing the correct parameters)*** ***(½ Mark for writing the correct loop)*** ***(½ Mark for comparing the number from elements of L)*** ***(½ Mark for assigning the compared element as 0)*** ***(½ Mark for displaying appropriate message when no matching element found)***	
30		A list contains following record of course details for a University : **[Course_name, Fees, Duration]** Write the following user defined functions to perform given operations on the stack named **'Univ'** : (i) **Push_element()** - To push an object containing the Course_name, Fees and Duration of a course, which has fees greater than 100000 to the stack. (ii) **Pop_element()** - To pop the object from the stack and display it. Also, display "Underflow" when there is no element in the stack.	3

For example :
If the lists of courses details are :

```
["MCA", 200000, 3]
["MBA", 500000, 2]
["BA", 100000, 3]
```

The stack should contain

```
["MBA", 500000, 2]
["MCA", 200000, 3]
```

Ans

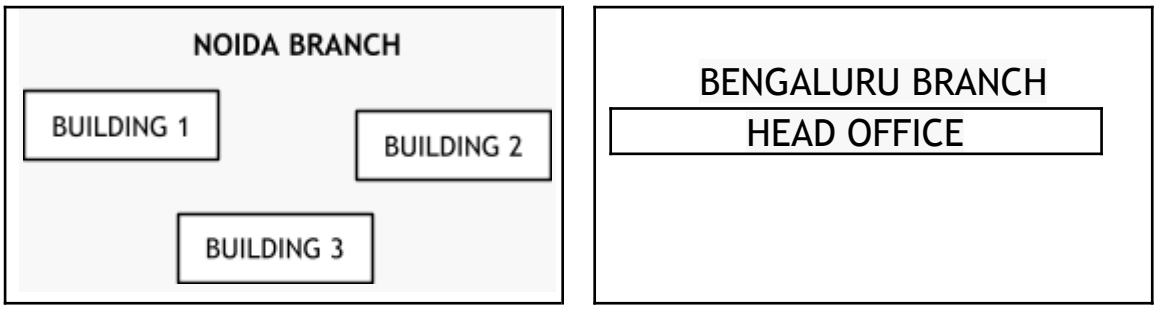
```
Univ=[]
def Push_element(Course):
    for Rec in Course:
        if Rec[1]>100000:
            Univ.append(Rec)

def Pop_element():
    while len(Univ)>0:
        print(Univ.pop())
    else:
        print("Underflow")

OR
Course=[["MCA",200000,3],["MBA",500000,2],["BA",100000,3]]
Univ=[]
def Push_element():
    for Rec in Course:
        if Rec[1]>100000:
            Univ.append(Rec)

def Pop_element():
    while len(Univ)>0:
        print(Univ.pop())
    else:
        print("Underflow")

OR
Any other correct equivalent code
```

(½ Mark for writing function header Push_element correctly with or without argument)
(½ Mark for processing and checking each element of the courses list)
(½ Mark for appending the matched data into the stack Univ)

(½ Mark for writing function header Pop_element correctly with or without argument)
(½ Mark for popping and displaying the objects from Univ)
(½ Mark for checking Underflow condition and displaying appropriate message)

SECTION - D

31		ABC Consultants are setting up a secure network for their office campus at Noida for their day-to-day office and web-based activities. They are planning to have connectivity between three buildings and the head office situated in Bengaluru. As a network consultant, give solutions to the questions (i) to (v), after going through the building locations and other details which are given below :	



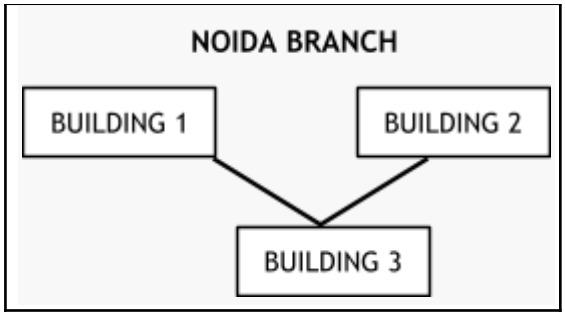
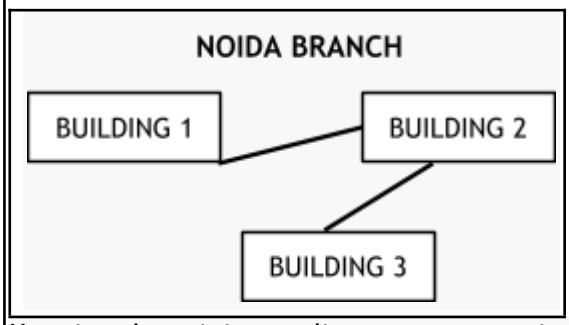
Distance between various blocks/locations:

Building	Distance
Building 1 to Building 3	120 m
Building 1 to Building 2	50 m
Building 2 to Building 3	65 m
Noida Branch to Head Office	1500 km

Number of computers

Building	Number of Computers
Building 1	25
Building 2	51
Building 3	150
Head Office	10

	(i)	Suggest the most suitable place to install the server for this organization. Also, give reason to justify your suggested location.	1
	Ans	Building 3 It has maximum number of computers **OR** Building 2 Considering closest to both the other buildings	
		(½ Mark for writing correct Building to install server) ***(½ Mark for writing any one valid reason)***	
	(ii)	Suggest the cable layout of connections between the buildings inside the campus.	1
	Ans		

		 OR  Keeping the minimum distance concept in mind	
		(1 Mark for suggesting the correct layout) ***Note: Any other valid layout should also be awarded***	
	(iii)	Suggest the placement of the following devices with justification: • Switch • Repeater	1
	Ans	Switch to be placed in each building for establishing connection Repeater to be placed between Building 1 and Building 3 because distance is more than 100 meters between these two buildings. However, if the second layout given in this marking scheme is considered, repeater will not be required at all.	
		(½ Mark for correctly suggesting placement of Switch) ***(½ Mark for correctly suggesting placement of Repeater)***	
	(iv)	The organization is planning to provide a high-speed link with the head office situated in Bengaluru, using a wired connection. Suggest a suitable wired medium for the same.	1
	Ans	Optical Fibre	
		(1 Mark for suggesting correct answer)	
	(v)	The System Administrator does remote login to any PC, if any requirement arises. Name the protocol, which is used for the same.	1
	Ans	Telnet	
		(1 Mark for suggesting the correct protocol)	

32	(a)	(i) What possible output(s) are expected to be displayed on screen at the time of execution of the following code ?
		
		`import random`
		`S=["Pen","Pencil","Eraser","Bag","Book"]`
			2

```
for i in range (1,2):
  f=random.randint(i,3)
  s=random.randint(i+1,4)
  print(S[f],S[s],sep=":")
```

Options:

(I) `Pencil:Book`

(II) `Pencil:Book`
`Eraser:Bag`

(III) `Pen:Book`
`Bag:Book`

(IV) `Bag:Eraser`

Ans `(I) and (IV)`

(1 Mark for writing each of the correct option)

(ii) The table **Bookshop** in MySQL contains the following attributes : 3

```
B_code - Integer
B_name - String
Qty - Integer
Price - Integer
```

Note the following to establish connectivity between Python and MySQL on a 'localhost' :

- Username is 'shop'
- Password is 'Book'
- The table exists in a MySQL database named **Bstore**.

The code given below updates the records from the table **Bookshop** in MySQL.
Statement 1 - to form the cursor object.
Statement 2 - to execute the query that updates the Qty to 20 of the records whose B_code is 105 in the table.
Statement 3 - to make the changes permanent in the database.

```
import mysql.connector as mysql
def update_book():
  mydb=mysql.connect(host="localhost",
  user="shop",passwd="Book",database="Bstore")
  mycursor=__________ # Statement 1
  qry= "update Bookshop set Qty=20 where B_code=105"
  _____________________ # Statement 2
  _____________________ # Statement 3
```

```
Statement 1: mydb.cursor()
Statement 2: mycursor.execute(qry)
Statement 3: mydb.commit()
```
OR
```
Statement 3: mycursor.execute("COMMIT")
```

(1 Mark for writing each correct statement)

		OR	

	(b)	(i) Predict the output of the code given below :
		`text="LearningCS"`
		`L=len(text)`
		`ntext=""`
		`for i in range (0,L):`
		`  if text[i].islower():`
		`  ntext=ntext+text[i].upper()`
		`  elif text [i].isalnum():`
		`  ntext=ntext+text[i-1]`
		`  else:`
		`  ntext=ntext+'&&'`
		`print(ntext)`
			2

	Ans	`SEARNINGgC`	
		(1 Mark for the output resulting from condition given if i.e. `_EARNING__`*)* *(1 Mark for the output resulting from condition given elif i.e.* `S_____gC`*)* **OR** *(½ Mark for correctly writing part of the output as* `S_____`*)* *(½ Mark for correctly writing part of the output as* `_EAR_____`*)* *(½ Mark for correctly writing part of the output as* `____NING__`*)* *(½ Mark for correctly writing part of the output as* `_____gC`*)*	

		(ii) The table Bookshop in MySQL contains the following attributes :
		`B_code - Integer`
		`B_name - String`
		`Qty - Integer`
		`Price - Integer`
		Note the following to establish connectivity between Python and MySQL on a 'localhost' :
		• Username is 'shop'
		• Password is 'Book'
		• The table exists in a MySQL database named Bstore.
		The code given below reads the records from the table Bookshop and displays all the records :
		Statement 1 - to form the cursor object.
		Statement 2 - to write the query to display all the records from the table.
		Statement 3 - to read the complete result of the query into the object named B_Details, from the table Bookshop in the database.
		`import mysql.connector as mysql`
		`def Display_book():`
		`  mydb=mysql.connect(host="localhost",`
		`  user="shop",passwd="Book",database="Bstore")`
		`  mycursor=_____ # Statement 1`
		`  mycursor.execute("_____") # Statement 2`
		`  B_Details=_____ # Statement 3`
		`  for i in B_Details:`
		`  print(i)`
			3

	Ans	`Statement 1: mydb.cursor()`
		`Statement 2: mycursor.execute("SELECT * FROM BOOKSHOP;")`
		`Statement 3: mycursor.fetchall()`	

		(1 Mark for writing each correct statement)	
33	(a)	Write a point of difference between **`append (a)`** and **`write (w)`** modes in a text file. Write a program in Python that defines and calls the following user defined functions : (i) Add_Teacher() : It accepts the values from the user and inserts record of a teacher to a csv file 'Teacher.csv'. Each record consists of a list with field elements as **`T_id,Tname`** and **`desig`** to store teacher ID, teacher name and designation respectively. (ii) Search_Teacher() : To display the records of all the PGT (designation) teachers.	5

	Ans	a (append) mode - To open the file to write the content at the bottom(or end) of existing content. It also creates the file, if it does not exist.
		whereas
		w (write) mode - To create a new file to write the content in it. It overwrites the file, if it already exists.
		
		`import csv`
		`def Add_Teacher():`
		`  fout=open("Teacher.csv","a",newline="\n")`
		`  T_id=int(input("Enter Teacher id: "))`
		`  Tname=input("Enter Teacher name: ")`
		`  desig=input("Enter Designation: ")`
		`  rec=[T_id,Tname,desig]`
		`  csvw=csv.writer(fout)`
		`  csvw.writerow(rec)`
		`  fout.close()`
		
		`def Search_Teacher():`
		`  fin=open("Teacher.csv")`
		`  csvr=csv.reader(fin)`
		`  for record in csvr:`
		`  if record[2]=="PGT":`
		`  print(record)`
		`  fin.close()`
		
		`Add_Teacher()`
		`Search_Teacher()`	

		(2 Mark for writing 1 point of difference between append(a) and write (w) modes) *OR* *(2 Mark for illustrating the difference using only example)* *OR* *(1 Marks for correct explanation of append (a) mode)* *(1 Mark for correct explanation of write (w) mode)* *—————————————————————————* *(1 Mark for writing correct function definition of `Add_Teacher()`, ½ Mark for partially correct code)*	

		(1 Mark for writing correct function definition of `Search_Teacher()`, ½ Mark for partially correct code) *(½ Mark for writing correct function call of `Add_Teacher()`)* *(½ Mark for writing correct function call of `Search_Teacher()`)*	
		OR	
	(b)	Write one point of difference between **`seek()`** and **tell()** functions in file handling. Write a program in Python that defines and calls the following user defined functions : (i) Add_Device() : The function accepts and adds records of the peripheral devices to a csv file 'peripheral.csv'. Each record consists of a list with field elements as **`P_id`**, **`P_name`** and **`Price`** to store peripheral device ID, device name, and price respectively. (ii) Count_Device() : To count and display number of peripheral devices, whose price is less than ₹ 1000.	5

	Ans	seek() method is used to move the file pointer to a specified location in the file object.
		tell() method is used to return the current location of the file pointer in the file object.
		
		`import csv`
		`def Add_Device():`
		`  fout=open("perpheral.csv","a",newline="\n")`
		`  P_id=int(input("Enter Device Id: "))`
		`  P_name=input("Enter Device name: ")`
		`  Price=int(input("Enter Price: ")`
		`  rec=[P_id,P_name,Price]`
		`  csvw=csv.writer(fout)`
		`  csvw.writerow(rec)`
		`  fout.close()`
		
		`def Count_Device():`
		`  fin=open("peripheral.csv")`
		`  csvr=csv.reader(fin)`
		`  ctr=0`
		`  for record in csvr:`
		`  if int(record[2])<1000:`
		`  ctr=ctr+1`
		`  print("Count of Price<1000 is",ctr)`
		`  fin.close()`
		`Add_Device()`
		`Count_Device()`	

		(2 Mark for writing 1 point of difference between seek() and tell() functions with/without example) *OR* *(2 Mark for illustrating the difference using only example)* *OR* *(1 Marks for correct explanation of seek() function)* *(1 Mark for correct explanation of tell() function)* ----------	

(1 Mark for writing correct function definition of `Add_Device()`, ½ Mark for partially correct code)
(1 Mark for writing correct function definition of `Count_Device()`, ½ Mark for partially correct code)
(½ Mark for writing correct function call of `Add_Device()`)
(½ Mark for writing correct function call of `Count_Device()`)

SECTION - E

34 The ABC Company is considering to maintain their salespersons records using SQL to store data. As a database administrator, Alia created the table Salesperson and also entered the data of 5 Salespersons.

Table : Salesperson

S_ID	S_NAME	AGE	S_AMOUNT	REGION
S001	SHYAM	35	20000	NORTH
S002	RISHABH	30	25000	EAST
S003	SUNIL	29	21000	NORTH
S004	RAHIL	39	22000	WEST
S005	AMIT	40	23000	EAST

Based on the data given above, answer the following questions :

(i) Identify the attribute that is best suited to be the Primary Key and why ? 1

Ans **Primary key: `S_ID`**
As it is non-repeating value and not expected to repeat for new rows too.

(½ Mark for identifying the correct attribute for Primary Key)
(½ Mark for appropriate explanation)

Note:
S_NAME should also be considered as a Primary Key

(ii) The Company has asked Alia to add another attribute in the table. What will be the new degree and cardinality of the above table ? 1

Ans `Degree = 6 and Cardinality = 5`

(½ Mark for writing value of Degree correctly)
(½ Mark for writing value of Cardinality correctly)

(iii) Write the statements to : 2

(a) Insert details of one salesman with appropriate data.
(b) Change the Region of salesman 'SHYAM' to 'SOUTH' in the table Salesperson.

Ans

```
(a) INSERT INTO SALESPERSON
    VALUES ("S006","JAYA",23,34000,'SOUTH');
(b) UPDATE SALESPERSON
    SET REGION='SOUTH' WHERE S_NAME="SHYAM";
```

(½ Mark for writing the INSERT INTO SALESPERSON correctly)
(½ Mark for writing the any valid data using `VALUES` correctly)
(½ Mark for writing the UPDATE SALESPERSON correctly)
(½ Mark for writing the assignment operation with appropriate condition correctly)

		OR **(Option for part iii only)**	
	(iii)	Write the statement to :	2
		(a) Delete the record of salesman RISHABH, as he has left the company. (b) Remove an attribute REGION from the table.	

	Ans	**(a)** `DELETE FROM SALESPERSON`
		`WHERE S_NAME="RISHABH";`
		(b) `ALTER TABLE SALESPERSON`
		`DROP COLUMN REGION;`	

		(½ Mark for writing `DELETE FROM` *correctly)* *(½ Mark for writing* `WHERE condition` *correctly)* *(½ Mark for writing* `ALTER TABLE` *correctly)* *(½ Mark for writing* `DROP COLUMN` *correctly)*	

35		Atharva is a programmer, who has recently been given a task to write a Python code to perform the following binary file operation with the help of a user defined function/module :
		
		• Copy_new() : to create a binary file new_items.dat and write all the item details stored in the binary file, items.dat, except for the item whose item_id is 101. The data is stored in the following format : {item_id:[item_name,amount]}
		
		`import _____ # Statement 1`
		`def Copy_new():`
		`f1=_____ # Statement 2`
		`f2=_____ # Statement 3`
		`item_id=int(input("Enter the item id"))`
		`item_detail=_____ # Statement 4`
		`for key in item_detail:`
		`if _____: # Statement 5`
		`pickle._____ # Statement 6`
		`f1.close()`
		`f2.close()`
		He has succeeded in writing partial code and has missed out certain statements. Therefore, as a Python expert, help him to complete the code based on the given requirements :	

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

	Ans	`pickle`
		`OR`
		`import pickle`	

		(1 Mark for correctly writing missing module in Statement 1)	
	(ii)	Write the correct statement required to open the binary file `"items.dat"`. (Statement 2)	1

	Ans	`open("items.dat","rb")`
		`OR`
		`f1=open("items.dat","rb")`	

		(1 Mark for correctly writing missing function in Statement 2)	

	(iii)	Which statement should Atharva fill in Statement 3 to open the binary file `"new_items.dat"` and in Statement 4 to read all the details from the binary file `"items.dat"`.	2

	Ans	`open("new_items.dat","wb")`
		`pickle.load(f1)`
		OR
		`f2=open("new_items.dat","wb")`
		`item_detail = pickle.load(f1)`	

		(1 Mark for correctly writing missing function/method in Statement 3) ***(1 Mark for correctly writing missing function/method in Statement 4)***	
		OR (Option for Part (iii) only)	
	(iii)	What should Atharva write in Statement 5 to apply the given condition and in Statement 6 to write data in the binary file `"new_items.dat"`.	2

	Ans	`if key != 101:`
		`  pickle.dump(item_detail[key],f2) #OR any alternative valid code`
		OR
		`if key != item_id:`
		`  pickle.dump(item_detail[key],f2) #OR any alternative valid code`	

		(1 Mark for correctly writing missing condition in Statement 5) ***(1 Mark for correctly writing missing function/method in Statement 6)***	