Strictly Confidential: (For Internal and Restricted use only)
Senior School Certificate Examination
September 2020
Marking Scheme – Computer Science (NEW) (SUBJECT CODE: 083)
(SERIES: HMJ/C, PAPER CODE – 91/C, SET 4)

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 evaluation may lead to serious problems which may affect the future of the candidates, education system and the teaching profession. To avoid mistakes, it is requested that before starting evaluation, you must read and understand the spot evaluation guidelines carefully. **Evaluation is a 10 -12 days mission for all of us. Hence, it is necessary that you put in your best efforts in this process.**
2. 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 the latest information or knowledge and/or are innovative, they may be assessed for their correctness otherwise and marks be awarded to them.**
3. 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. 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.
4. 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.
5. If a question does not have any parts, marks must be awarded in the left hand margin and encircled.
6. If a student has attempted an extra question, answer of the question deserving more marks should be retained and the other answer scored out.
7. No marks to be deducted for the cumulative effect of an error. It should be penalized only once.
8. A full scale of marks 70 (example: 1-70) has to be used. Please do not hesitate to award full marks if the answer deserves it.
9. Every examiner has to necessarily do evaluation work for full working hours i.e. 8 hours every day and evaluate 25 answer books per day.
10. Ensure that you do not make the following common types of errors committed by the Examiner in the past:-
    a. Leaving the answer or part thereof unassessed in an answer book.
    b. Giving more marks for an answer than assigned to it.
    c. Wrong transfer of marks from the inside pages of the answer book to the title page.
    d. Wrong question wise totaling on the title page.
    e. Wrong totaling of marks of the two columns on the title page.
    f. Wrong grand total.
    g. Marks in words and figures not tallying.
    h. Wrong transfer of marks from the answer book to online award list.
    i. 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 answer.)
    j. Half or a part of answer marked correct and the rest as wrong, but no marks awarded.
11. While evaluating the answer books if the answer is found to be totally incorrect, it should be marked as (X) and awarded zero (0) Marks.
12. Any unassessed 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.
13. The Examiners should acquaint themselves with the guidelines given in the Guidelines for spot Evaluation before starting the actual evaluation.
14. 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.

15. The Board permits candidates to obtain a photocopy of the Answer Book on request in an RTI application and also separately as a part of the re-evaluation process on payment of the processing charges.

Specific Instructions:

- All programming questions have to be answered with respect to C++ Language / Python only
- In C++ / Python, ignore case sensitivity for identifiers (Variable / Functions / Structures / Class Names)
- In Python indentation is mandatory, however, the number of spaces used for indenting may vary
- In SQL related questions – both ways of text/character entries should be acceptable for Example: "AMAR" and 'amar' both are acceptable.
- In SQL related questions – all date entries should be acceptable for Example: 'YYYY-MM-DD', 'YY-MM-DD', 'DD-Mon-YY', "DD/MM/YY", 'DD/MM/YY', "MM/DD/YY", 'MM/DD/YY' and {MM/DD/YY} are correct.
- In SQL related questions – semicolon should be ignored for terminating the SQL statements
- In SQL related questions, ignore case sensitivity.

SECTION A			
Q 1	**(a)**	Which of the following is **not** a valid variable name in Python. Justify reason for it not being a valid name: **(i) 5Radius (ii)Radius_ (iii) _Radius (iv) Radius**	[1]
	Ans	**(i) 5Radius** **Reason:** variable name in Python cannot start with a digit	
		(½ Mark for writing correct option) ***(½ Mark for writing correct reason)***	
	(b)	Which of the following are keywords in Python: **(i) break (ii) check (iii) range (iv) while**	[1]
	Ans	**(i) break** **(iii) range** **(iv) while** **Any two options out of (i), (iii), (iv)**	
		(½ Mark for writing each correct option)	
	(c)	Name the Python Library modules which need to be imported to invoke the following functions:	[1]
		(i) cos() (ii) randint()	
	Ans	**(i) math (ii) random**	
		(½ Mark for writing each correct Python Library Module name)	
	(d)	Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.	[2]
		input('Enter a word',W) **if W = 'Hello'** **print('Ok')** **else:** **print('Not Ok')**	

	Ans	W=input('Enter a word') //Error 1
		if W == 'Hello' : //Error 2,Error 3
		  print('Ok')
		else : //Error 4
		  print('Not Ok')	

		(½ Marks for writing correction for Error 1) *(½ Marks for writing correction for Error 2* *(½ Marks for writing correction for Error 3)* *(½ Marks for writing correction for Error 4)* *NOTE:* *(1 mark for only identifying all the errors without writing corrections)*	
	(e)	Find and write the output of the following python code:	[2]

		def ChangeVal(M,N):
		  for i in range(N):
		  if M[i]%5 == 0 :
		  M[i] //= 5
		  if M[i]%3 == 0 :
		  M[i] //= 3
		
		L=[25,8,75,12]
		ChangeVal(L,4)
		for i in L :
		  print(i, end='#')	

	Ans	5#8#5#4#	
		(½ Mark for writing each correct value) *OR* *(Only ½ Mark for writing all '#' at proper places)* *Note:* • *Deduct only ½ Mark for not considering any or all correct placements of #*	
	(f)	Find and write the output of the following python code:	[3]

		def Call(P=40,Q=20):
		  P=P+Q
		  Q=P-Q
		  print(P,'@',Q)
		  return P
		
		R=200
		S=100
		R=Call(R,S)
		print (R,'@',S)
		S=Call(S)
		print(R,'@',S)	

	Ans	300 @ 200 300 @ 100 120 @ 100 300 @ 120	

		(1½ Mark for writing each correct 2 lines of output) *NOTE:* *Deduct only ½ Mark for not considering any or all line break*	
	(g)	What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the minimum and maximum values that can be assigned to the variable End .	[2]
		import random **Colours = ["VIOLET","INDIGO","BLUE","GREEN",** **"YELLOW","ORANGE","RED"]** **End = randrange(2)+3** **Begin = randrange(End)+1** **for i in range(Begin,End):** **print(Colours[i],end="&")** **(i) INDIGO&BLUE&GREEN&** **(ii) VIOLET&INDIGO&BLUE&** **(iii) BLUE&GREEN&YELLOW&** **(iv) GREEN&YELLOW&ORANGE&**	
	Ans	**(i) INDIGO&BLUE&GREEN&** ***Minimum Value of End = 3*** ***Maximum Value of End = 4***	
		(1 Mark for writing correct option) *(½ Mark for writing Minimum Value of Stop)* *(½ Mark for writing Maximum Value of Stop)*	
Q 2	**(a)**	Write the names of the immutable data objects from the following: **(i) List (ii) Tuple (iii) String (iv) Dictionary**	[1]
	Ans	**(ii) Tuple (iii) String**	
		(½ Mark for writing each correct option)	
	(b)	Write a Python statement to declare a Dictionary named **ClassRoll** with Keys as 1,2,3 and corresponding values as **'Reena', 'Rakesh', 'Zareen' respectively.**	[1]
	Ans	**ClassRoll = {1:"Reena", 2:"Rakesh", 3:"Zareen"}**	
		(1 Mark for writing correct declaration statement)	
	(c)	Which of the option out of (i) to (iv) is the correct data type for the variable **Vowels** as defined in the following Python statement: **Vowels = ('A', 'E', 'I', 'O', 'U')** **(i) List (ii) Dictionary (iii)Tuple (iv) Array**	[1]
	Ans	**(iii)Tuple**	
		(1 Mark for writing correct option)	
	(d)	Write the output of the following Python code:	[1]
		for i in range(2,7,2): **print(i * '$')**	
	Ans	**$$** **$$$$** **$$$$$$**	

		(1 Mark for writing correct output)	
	(e)	Write the output of the following Python code:	[1]

		`def Update(X=10):`
		`  X += 15`
		`  print( 'X = ', X)`
		`X=20`
		`Update()`
		`print( 'X = ', X)`	

	Ans	`X =  25` `X =  20`	
		(½ Mark for writing each correct line of output)	
	(f)	Differentiate between "w" and "r" file modes used in Python while opening a data file. Illustrate the difference using suitable examples.	[2]

	Ans	A file is opened using "w" mode to write content into the file.
		A file is opened using "r" mode to read content into the file.
		Example:
		`def  Create():`
		`  file=open('NOTES.TXT','w')`
		`  S="This is a sample"`
		`  file.write(S)`
		`  file.close()`
		
		`def  Read():`
		`  file=open('NOTES.TXT','r')`
		`  Lines=file.readline();`
		`  print(Lines)`
		`  file.close()`
		
		`Create();`
		`Read();`	

		(½ Mark for writing correct usage of 'w' mode) *(½ Mark for writing correct usage of 'r' mode)*	

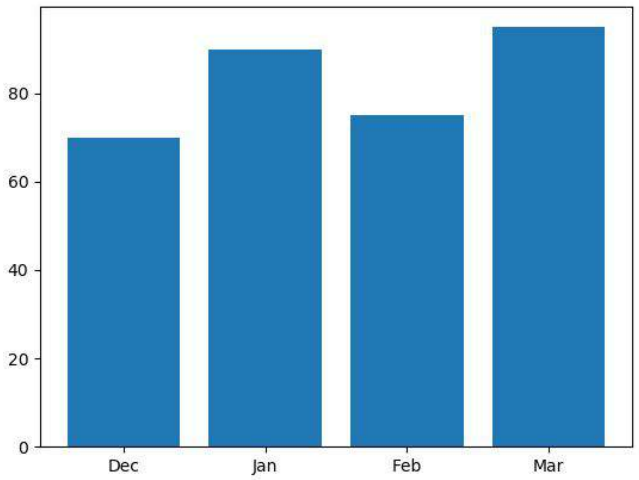
	(g)	A pie chart is to be drawn(using pyplot) to represent Pollution Level of Cities. Write appropriate statements in Python to provide labels for the pie slices as the names of the Cities and the size of each pie slice representing the corresponding Pollution of the Cities as per the following table:
		`Cities` | `Pollution`
		`Mumbai` | `350`
		`Delhi` | `475`
		`Chennai` | `315`
		`Bangalore` | `390`
			[2]

	Ans	`import matplotlib.pyplot as plt`
		`Cities = ['Mumbai','Delhi','Chennai','Bangalore']`
		`Pollution  = [350,475,315,390]`
		`plt.pie(Pollution, labels=Cities)`
		`plt.show()`	

		(1 Mark for writing correct import statement)	

		(1 Mark for writing plt.pie statement with correct parameters)	
		OR	

		Write the output from the given python code:
		`import matplotlib.pyplot as plt`
		`Months = ['Dec', 'Jan', 'Feb', 'Mar']`
		`Attendance = [70, 90, 75, 95]`
		`plt.bar(Months, Attendance)`
		`plt.show()`	

	Ans		
		(½ Mark for writing correct Labels of X axis) *(½ Mark for writing correct scaling of Y axis)* *(1 Mark for drawing all the 4 bars correctly)*	
	(h)	Write a function **`Show_words()`** in python to read the content of a text file **`'NOTES.TXT'`** and display the entire content in capital letters. Example, if the file contains: **`"This is a test file"`** Then the function should display the output as: **`THIS IS A TEST FILE`**	[2]

	Ans	`def Show_words():`
		`  file=open('NOTES.TXT','r')`
		`  Lines = file.readlines()`
		`  for L in Lines:`
		`  print(L.upper())`
		`  file.close()`	

		(½ Mark for correctly opening the file) *(½ Mark for reading all lines)* *(½ Mark for correct loop to iterate for each line)* *(½ Mark for displaying each line in uppercase)*	
		OR	
		Write a function **`Show_words()`** in python to read the content of a text file **`'NOTES.TXT'`** and display only such lines of the file which have exactly 5 words in them. Example, if the file contains: **`"This is a sample file.`** **`The file contains many sentences.`** **`But need only sentences which have only 5 words."`** Then the function should display the output as: **`This is a sample file.`**	

		The file contains many sentences.	
	Ans	**def Show_words():** **file=open('NOTES.TXT','r')** **Lines = file.readlines()** **for L in Lines:** **W=L.split()** **if (len(W)==5):** **print(L)** **file.close()**	
		(½ Mark for correctly opening the file) ***(½ Mark for reading all lines)*** ***(½ Mark for correct loop to iterate for each line)*** ***(½ Mark for displaying each line having 5 words in it)***	
	(i)	Write a Recursive function in Python **RecsumNat(N)**, to return the sum of the first N natural numbers. For example, if N is 10 then the function should return (1 + 2 + 3 + ... + 10 = 55).	[3]
	Ans	**def RecsumNat(N):** **if N==1:** **return N** **else:** **return N+RecsumNat(N-1)**	
		(1 Mark for checking the recursion termination condition) ***(1 Mark for returning correct value on recursion termination)*** ***(1 Mark for returning correct value on recursion)***	
		OR	
		Write a Recursive function in Python **Power(X,N)**, to return the result of X raised to the power N where X and N are non-negative integers. For example, if X is 5 and N is 3 then the function should return the result of$(5)^3$ i.e. **125**	
	Ans	**def Power(X,N):** **if N==1:** **return X** **else:** **return X*Power(X,N-1)**	
		(1 Mark for checking the recursion termination condition) ***(1 Mark for returning correct value on recursion termination)*** ***(1 Mark for returning correct value on recursion)***	
	(j)	Write functions in Python for PushS(List) and for PopS(List) for performing Push and Pop operations with a stack of List containing integers.	[4]
	Ans	**def PushS(List):** **N=int(input("Enter integer"))** **List.append(N)** **def PopS(List):** **if (List==[]):** **print("Stack empty")** **else:** **print ("Deleted integer :",List.pop())**	

		(½ Mark for writing correct PushS() header) *(½ Mark for writing correct input for integer)* *(½ Mark for adding the entered integer into the List)* *(½ Mark for writing correct PopS() header)* *(½ Mark for checking empty list condition)* *(½ Mark for displaying "Stack empty")* *(1 Mark for displaying and deleting value from the list)*	
		OR	
		Write functions in Python for InsertQ(Names) and for RemoveQ(Names) for performing insertion and removal operations with a queue of List which contains names of students.	

	Ans	`def InsertQ(Names):`
		`  Name=input("enter Name to be inserted: ")`
		`  List.append(Name)`
		
		`def DeleteQ(Names):`
		`  if (Names==[]):`
		`  print("Queue empty")`
		`  else:`
		`  print ("Deleted integer is: ",Names[0])`
		`  del(Names[0])`	

		(½ Mark for writing correct InsertQ header) *(½ Mark for accepting a name from user)* *(½ Mark for adding the entered name in the List)* *(½ Mark for writing correct DeleteQ header)* *(½ Mark for checking empty queue condition)* *(½ Mark for displaying "Queue empty")* *(½ Mark for displaying the name to be deleted)* *(½ Mark for deleting name from the List)*	
SECTION B			
Q 3		Questions 3 (a) to 3 (d): Fill in the blanks:	
	(a)	Computers connected by a network across different cities is an example of _____.	[1]
	Ans	MAN or Metropolitan Area Network	
		(1 mark for writing the correct missing word)	
	(b)	_____ is a network tool used to test the download and upload broadband speed.	[1]
	Ans	Speedtest	
		(1 mark for writing the correct missing word)	
	(c)	A _____ is networking device that connects computers in a network by using packet switching to receive, and forward data to the destination	[1]
	Ans	Switch	
		(1 mark for writing the correct missing word)	
	(d)	_____ is a network tool used to determine the path packets take	[1]

		from one IP address to another.	
	Ans	Traceroute	
		(1 mark for writing the correct missing word)	
	(e)	Write the full form of the following abbreviations: (i) POP (ii) VoIP (iii) NFC (iv) FTP	[2]
	Ans	(i) POP : Post Office Protocol (ii) VoIP : Voice Over Internet Protocol (iii) NFC : Near-field communication (iv) FTP : File Transfer Protocol	
		(½ Mark for writing each correct expansion)	
	(f)	Match the ServiceNames listed in the first column of the following table with their corresponding features listed in the second column of the table: Technology | Feature 1G | • IP based Protocols (LTE) • True Mobile Broadband 2G | • Improved Data Services with Multimedia • Mobile Broadband 3G | • Basic Voice Services • Analog-based protocol 4G | • Better Voice Services • Basic Data Services • First digital standards (GSM,CDMA)	[2]
	Ans	**ServiceName** | **Feature** 1G | • Basic Voice Services • Analog-based protocol 2G | • Better Voice Services • Basic Data Services • First digital standards (GSM,CDMA) 3G | • Improved Data Services with Multimedia • Mobile Broadband 4G | • IP based Protocols (LTE) • True Mobile Broadband	
		(½ Mark for writing each correct match)	
	(g)	What is a secure communication? Differentiate between HTTP and HTTPS.	[3]
	Ans	**Secure communication** is when two entities are **communicating** and do not want a third party to listen in. The primary difference between HTTP (Hypertext Transfer Protocol) and HTTPS (Hypertext Transfer Protocol Secure) is that HTTP is not secure whereas HTTPS is a secure protocol which uses TLS/SSL certificate to ensure the authentication.	
		(1 mark for writing correct explanation of Secure Communication) ***(1 mark for writing correct explanation HTTP)*** ***(1 mark for writing correct explanation HTTPS)***	

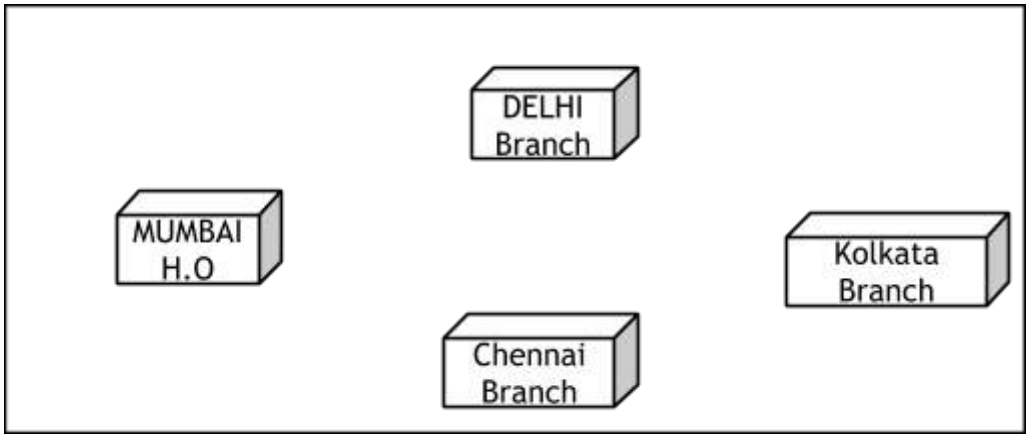
	(h)	Helping Hands is an NGO with its head office at Mumbai and branches located at Delhi, Kolkata and Chennai. Their Head Office located at Delhi needs a communication network to be established between the head office and all the branch offices. The NGO has received a grant from the national government for setting up the network. The physical distances between the branch offices and the head office and the number of computers to be installed in each of these branch offices and the head office are given below. You as a network expert have to suggest the best possible solutions for the queries as raised by the NGO. as given in (i) to (iv).	[4]

Distances between various locations in Kilometres:

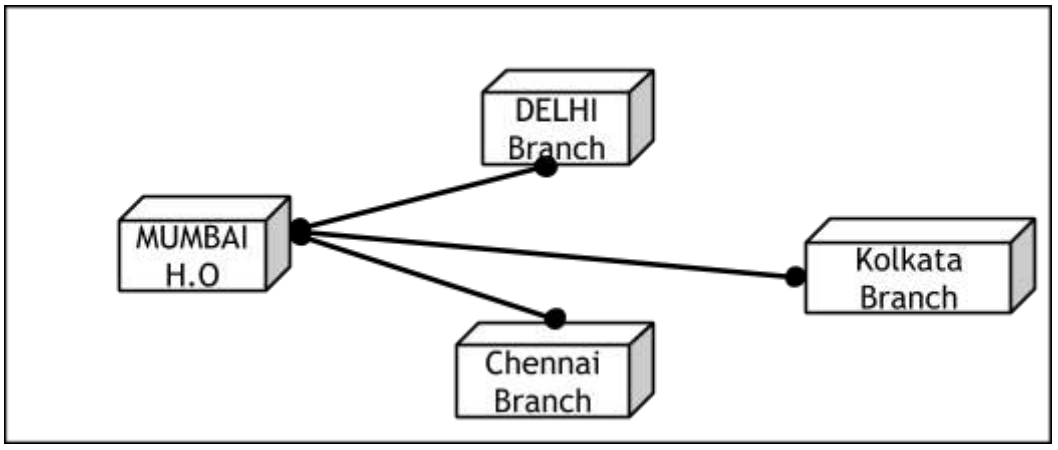
Mumbai H.O. to Delhi	1420
Mumbai H.O. to Kolkata	1640
Mumbai H.O. to Chennai	2710
Delhi to Kolkata	1430
Delhi to Chennai	1870
Chennai to Kolkata	1750

Number of Computers installed at various locations are as follows:

Mumbai H.O	2500
Delhi branch	1200
Kolkata branch	1300
Chennai branch	1100



(i) Suggest by drawing the best cable layout for effective network connectivity of all the Branches and the Head Office for communicating data.

	Ans		
		(1 Mark for drawing the correct layout)	
		(ii) Suggest the most suitable location to install the main server of this NGO to communicate data with all the offices.	
	Ans	MUMBAI H.O.	
		(1 Mark for writing the correct location)	
		(iii) Write the name of the type of network out of the following, which will be formed by connecting all the computer systems across the network: (A) WAN (B)MAN (C) LAN (D) PAN	
	Ans	(A) WAN	
		(1 Mark for writing the correct option)	
		(iv) Suggest the most suitable medium for connecting the computers installed across the network out of the following: (A) Optical Fibre (B) Telephone wires (C) Radio Waves (D) Ethernet cable	
	Ans	(A) Optical Fibre	
		(1 Mark for writing the correct option)	
		SECTION C	
Q 4	**(a)**	Which SQL command is used to add a new attribute in a table?	[1]
	Ans	**`ALTER TABLE`**	
		(1 Mark for writing the correct SQL command)	
	(b)	Which SQL aggregate function is used to count all records of a table ?	[1]
	Ans	**`COUNT(*)`**	
		(1 Mark for writing the correct aggregate function)	
	(c)	Which clause is used with a **`SELECT`** command in SQL to display the records in ascending order of an attribute?	[1]
	Ans	**`ORDER BY`**	
		(1 Mark for writing the correct clause)	

	(d)	Write the full form of the following abbreviations: **(i) DDL (ii) DML**	[1]
	Ans	(i) DDL : Data Definition Language (ii) DML : Data Manipulation Language	
		(½ Mark for writing correct full form of DDL) ***(½ Mark for writing correct full form of DML)***	
	(e)	Observe the following table EMPLOYEES and DEPARTMENT carefully and answer the questions that follow:	[2]

TABLE: EMPLOYEES

ENO	ENAME	DOJ	DNO
E1	NUSRAT	2001-11-21	D3
E2	KABIR	2005-10-25	D1

TABLE: DEPARTMENT

DNO	DNAME
D1	ACCOUNTS
D2	HR
D3	ADMIN

(i) What is the Degree of the table EMPLOYEES ? What is the cardinality of the table DEPARTMENT?

Ans Degree of the table EMPLOYEES = 4
Cardinality of the table DEPARTMENT = 3

(½ Mark for writing correct Degree of the table EMPLOYEES)
(½ Mark for writing correct Cardinality of the table DEPARTMENT)

(ii) What is a Primary Key ? Explain.

Ans A Primary Key is an attribute of a Table which has a unique value for each of the records and can be used to identify a record of the table.

OR

Any equivalent explanation conveying the correct explanation for a Primary Key

(1 Mark for writing the correct explanation for Primary Key)

OR

Differentiate between Selection and Projection operations in context of a Relational Database. Also, illustrate the difference with one supporting example of each.

Ans **Selection** : Operation upon a relation to select a horizontal subset of the relation.

Projection : Operation upon a relation to select a vertical subset of the relation.

Example:

TABLE: EMPLOYEES

ENO	ENAME	DOJ	DNO
E1	NUSRAT	2001-11-21	D3
E2	KABIR	2005-10-25	D1

A selection upon Employees for tuples whose DOJ is in the year 2005 will result into

TABLE: EMPLOYEES

ENO	ENAME	DOJ	DNO
E2	KABIR	2005-10-25	D1

A projection upon Employees for ENAME and DOJ of all Employees will result into

TABLE: EMPLOYEES

ENAME	DOJ
NUSRAT	2001-11-21
KABIR	2005-10-25

(½ mark for writing each correct explanation of Selection and Projection)
(½ mark for writing each correct example of Selection and Projection)

(f) Write whether the following statements are True or False for the GET and POST methods in Django [2]

(i) POST requests are never cached
(ii) GET requests do not remain in the browser history

Ans (i) True
(ii) False

(1 mark for writing True for statement (i))
(1 mark for writing False for statement (ii))

(g) Write outputs for SQL queries (i) to (iii), which are based on the following tables CUSTOMERS and PURCHASES [3]

Table: CUSTOMERS

CNO	CNAME	CITIES
C1	SANYAM	DELHI
C2	SHRUTI	DELHI
C3	MEHER	MUMBAI
C4	SAKSHI	CHENNAI
C5	RITESH	INDORE
C6	RAHUL	DELHI
C7	AMEER	CHENNAI
C8	MINAKSHI	BANGALORE
C9	ANSHUL	MUMBAI

Table: PURCHASES

SNO	QTY	PUR_DATE	CNO
S1	15	2018-12-25	C2
S2	10	2018-11-10	C1
S3	12	2018-11-10	C4
S4	7	2019-01-12	C7
S5	11	2019-02-12	C2
S6	10	2018-10-12	C6
S7	5	2019-05-09	C8
S8	20	2019-05-09	C3
S9	8	2018-05-09	C9
S10	15	2018-11-12	C5
S11	6	2018-08-04	C7

```
(i) SELECT COUNT(DISTINCT CITIES) FROM CUSTOMERS;
```

Ans

```
COUNT(DISTINCT CITIES)
5
```

(½ Mark for writing correct output with or without column headings)

```
(ii) SELECT MAX(PUR_DATE) FROM PURCHASES;
```

	Ans	**MAX(PUR_DATE)** **2019-05-09**	
		(½ Mark for writing correct output with or without column headings)	
		(iii) SELECT CNAME, QTY, PUR_DATE FROM CUSTOMERS, PURCHASES WHERE CUSTOMERS.CNO = PURCHASES.CNO AND QTY IN (10,20);	
	Ans	**CNAME QTY PUR_DATE** **SANYAM 10 2018-11-10** **RAHUL 10 2018-10-12** **MEHER 20 2019-05-09**	
		(½ Mark for writing correct output with or without column headings)	
	(h)	Write SQL queries for (i) to (iv), which are based on the tables: CUSTOMERS and PURCHASES given in the question 4(g):	[4]
		(i) To display details of all CUSTOMERS whose CITIES are neither Delhi nor Mumbai	
	Ans	**SELECT * FROM CUSTOMERS WHERE CITIES NOT IN('DELHI','MUMBAI');** **OR** **SELECT * FROM CUSTOMERS WHERE CITIES<>'DELHI' AND CITIES<>'MUMBAI';**	
		(½ Mark for correct SELECT statement) ***(½ Mark for correct WHERE clause)***	
		(ii) To display the CNAME and CITIES of all CUSTOMERS in ascending order of their CNAME.	
	Ans	**SELECT CNAME, CITIES FROM CUSTOMERS ORDER BY CNAME;**	
		(½ Mark for correct SELECT statement) ***(½ Mark for correct ORDER BY clause)***	
		(iii) To display the number of CUSTOMERS along with their respective CITIES in each of the CITIES.	
	Ans	**SELECT COUNT(*), CITIES FROM CUSTOMERS GROUP BY CITIES;**	
		(½ Mark for correct SELECT statement) ***(½ Mark for correct GROUP BY clause)***	
		(iv) To display details of all PURCHASES whose Quantity is more than 15.	
	Ans	**SELECT * FROM PURCHASES WHERE QTY>15;**	
		(½ Mark for correct SELECT statement) ***(½ Mark for correct WHERE clause)***	
SECTION D			
5	**(a)**	An organisation purchases new computers every year and dumps the old ones into the local dumping yard. Write the name of the most appropriate category of waste that the organisation is creating every year, out of the following options: (A) Solid Waste (B) Commercial Waste (C) E-Waste (D) Business Waste	[1]

	Ans	(C) E-Waste	
		(1 Mark for writing the correct option)	
	(b)	Data which has no restriction of usage and is freely available to everyone under Intellectual Property Rights is categorised as: (A) Open Source (B) Open Data (C) Open Content (D) Open Education	[1]
	Ans	(B) Open Data	
		(1 Mark for writing the correct option)	
	(c)	What is a Unique Id? Write the name of the Unique Identification provided by Government of India for Indian Citizens.	[2]
	Ans	Unique identifier (UID) is any identifier which is guaranteed to be unique among all objects and is used for identifying various objects. The Unique Identification provided by the Government of India for Indian Citizens is **Aadhaar.**	
		(1 Mark for writing the correct explanation for Unique Id) ***(1 Mark for writing the correct name of the Unique Id)***	
	(d)	Consider the following scenario and answer the questions which follow: "A student is expected to write a research paper on a topic. The student had a friend who took a similar class five years ago. The student asks his older friend for a copy of his paper and then takes the paper and then submits the entire paper as his own research work " (i) Which of the following activities appropriately categorises the act of the writer: (A) Plagiarism (B) Spamming (C) Virus (D) Phishing (ii) Which kind of offense out of the following is made by the student? (A) Cyber Crime (B) Civil Crime (C) Violation of Intellectual Property Rights	[2]
	Ans	(i) (A) Plagiarism (ii) (C) Violation of Intellectual Property Rights	
		(1 Mark for writing the correct option) ***(1 Mark for writing the correct option)***	
	(e)	What are Digital Rights? Write examples for two digital rights applicable to usage of digital technology.	[2]
	Ans	**Digital Rights:** The right and freedom to use all types of digital technology in an acceptable and appropriate manner as well as the right to privacy and the freedom of personal expression while using any digital media. **Examples: (Any two)** Right of privacy for personal data existing with private organisations. Right to access the Internet without tampering upon speed or bandwidth. Right to un-tweaked information on news channels and social media. Right to any kind of access to content on the web. Right to downloads or uploads. Right to unrestricted communication methods (email, chat, IM, etc.). **OR** Any other 2 correct examples of digital rights	
		(1 Mark for writing the correct explanation for Digital Rights) ***(½ Mark for writing each correct example of a digital right)***	
	(f)	Suggest techniques which can be adopted to impart Computer Education for:	[2]

		(i) Visually impaired students (someone who cannot write). (ii) Speech impaired students (someone who cannot speak).	
	Ans	(i) For visually impaired or blind users, programs like JAWS read any text out loud. Screen-magnification programs assist partially sighted computer users. Braille keyboards or pointers attached to the mouth, finger, head or knee can also be used. (ii) Software such as speech synthesizer enables non-verbal persons to convey virtually any thought in their minds by providing them an 'artificial voice'.	
		(1 mark for writing correct suggestion for visually impaired students) ***(1 mark for writing correct suggestion for speech impaired students)***	