

**SET-4****Series %BAB%/C****Q.P. Code 91**

Roll No.

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

- Please check that this question paper contains **9** 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 **13** 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.



COMPUTER SCIENCE

*Time allowed : 2 hours**Maximum Marks : 35***General Instructions :**

- This question paper is divided into **3** sections – **A**, **B** and **C**.*
- Section A**, consists **7** questions (1 – 7). Each question carries **2** marks.*
- Section B**, consists **3** questions (8 – 10). Each question carries **3** marks.*
- Section C**, consists **3** questions (11 – 13). Each question carries **4** marks.*
- Internal choices have been given for questions number **7**, **8** and **12**.*





SECTION A
(Each question carries 2 marks)

1.

Differentiate between Push and Pop operations in the context of stacks.

2
2.

(a) Expand **FTP**.

(b) Out of the following, which has the **largest** network coverage area ?

1

1

LAN, MAN, PAN, WAN

3.

Differentiate between Degree and Cardinality in the context of Relational Data Model.

2
4.

Consider the following table EMPLOYEE in a Database COMPANY :

Table : EMPLOYEE

E_ID	NAME	DEPT
H1001	Avneet	AC
A1002	Rakesh	HR
A1003	Amina	AC
H1002	Simon	HR
A1004	Pratik	AC

Assume that the required library for establishing the connection between Python and MySQL is already imported in the given Python code.

Also assume that DB is the name of the database connection for the given table EMPLOYEE stored in the database COMPANY.

Predict the output of the following Python code :

2

```
CUR=DB.cursor()  
CUR.execute("USE COMPANY")  
CUR.execute("SELECT * FROM EMPLOYEE WHERE DEPT = 'AC' ")  
for i in range(2) :  
    R=CUR.fetchone()  
    print(R[0], R[1], sep="#")
```



5. Write the output of the SQL queries (a) to (d) based on the table TRAVEL given below : 2

Table : TRAVEL

T_ID	START	END	T_DATE	FARE
101	DELHI	CHENNAI	2021-12-25	4500
102	DELHI	BENGALURU	2021-11-20	4000
103	MUMBAI	CHENNAI	2020-12-10	5500
104	DELHI	MUMBAI	2019-12-20	4500
105	MUMBAI	BENGALURU	2022-01-15	5000

- (a) SELECT START, END FROM TRAVEL
WHERE FARE <= 4000 ;
- (b) SELECT T_ID, FARE FROM TRAVEL
WHERE T_DATE LIKE '2021-12-%' ;
- (c) SELECT T_ID, T_DATE FROM TRAVEL WHERE END = 'CHENNAI'
ORDER BY FARE ;
- (d) SELECT START, MIN(FARE)
FROM TRAVEL GROUP BY START ;

6. Write the output of the SQL queries (a) and (b) based on the following two tables FLIGHT and PASSENGER belonging to the same database : 2

Table : FLIGHT

FNO	DEPART	ARRIVE	FARE
F101	DELHI	CHENNAI	4500
F102	DELHI	BENGALURU	4000
F103	MUMBAI	CHENNAI	5500
F104	DELHI	MUMBAI	4500
F105	MUMBAI	BENGALURU	5000



Table : PASSENGER

PNO	NAME	FLIGHTDATE	FNO
P1	PRAKASH	2021-12-25	F101
P2	NOOR	2021-11-20	F103
P3	HARMEET	2020-12-10	NULL
P4	ANNIE	2019-12-20	F105

- (a)

SELECT NAME, DEPART FROM FLIGHT

NATURAL JOIN PASSENGER ;
- (b)

SELECT NAME, FARE

FROM PASSENGER P, FLIGHT F

WHERE F.FNO = P.FNO AND F.DEPART = 'MUMBAI' ;
7.

(a)

Explain Primary Key in the context of Relational Database Model. Support your answer with suitable example.
- 2

OR

- (b)

Consider the following table BATSMEN :

Table : BATSMEN

PNO	NAME	SCORE
P1	RISHABH	52
P2	HUSSAIN	45
P3	ARNOLD	23
P4	ARNAV	18
P5	GURSHARAN	52

- (i)

Identify and write the name of the Candidate Keys in the given table BATSMEN.
- (ii)

How many tuples are there in the given table BATSMEN ?
- 2



SECTION B

(Each question carries 3 marks)

8. (a) Write separate user defined functions for the following : 3

- (i) **PUSH(N)** – This function accepts a list of names, **N** as parameter. It then pushes only those names in the stack named **OnlyA** which contain the letter '**A**'.
- (ii) **POPA(OnlyA)** – This function pops each name from the stack **OnlyA** and displays it. When the stack is empty, the message "**EMPTY**" is displayed.

For example :

If the names in the list **N** are

['ANKITA', 'NITISH', 'ANWAR', 'DIMPLE', 'HARKIRAT']

Then the stack **OnlyA** should store

['ANKITA', 'ANWAR', 'HARKIRAT']

And the output should be displayed as

HARKIRAT ANWAR ANKITA EMPTY

OR

(b) Write the following user defined functions : 3

- (i) **pushEven(N)** – This function accepts a list of integers named **N** as parameter. It then pushes only even numbers into the stack named **EVEN**.
- (ii) **popEven(EVEN)** – This function pops each integer from the stack **EVEN** and displays the popped value. When the stack is empty, the message "**Stack Empty**" is displayed.

For example :

If the list **N** contains

[10, 5, 3, 8, 15, 4]

Then the stack, **EVEN** should store

[10, 8, 4]

And the output should be

4 8 10 Stack Empty





9.

(a)

A SQL table **BOOKS** contains the following column names :
BOOKNO, BOOKNAME, QUANTITY, PRICE, AUTHOR
Write the SQL statement to add a new column **REVIEW** to store the reviews of the book.

1

(b)

Write the names of any two commands of **DDL** and any two commands of **DML** in SQL.

2
10.

Rashmi has forgotten the names of the databases, tables and the structure of the tables that she had created in Relational Database Management System (RDBMS) on her computer.

(a)

Write the SQL statement to display the names of all the databases present in RDBMS application on her computer.

(b)

Write the statement which she should execute to open the database named "**STOCK**".

(c)

Write the statement which she should execute to display the structure of the table "**ITEMS**" existing in the above opened database "**STOCK**".

3

SECTION C

(Each question carries 4 marks)

11.

Write SQL queries for (a) to (d) based on the tables CUSTOMER and TRANSACT given below :

4

Table : CUSTOMER

CNO	NAME	GENDER	ADDRESS	PHONE
1001	Suresh	MALE	A-123, West Street	9310010010
1002	Anita	FEMALE	C-24, Court Lane	9121211212
1003	Harjas	MALE	T-1, Woods Avenue	9820021001

Table : TRANSACT

TNO	CNO	AMOUNT	TTYPE	TDATE
T1	1002	2000	DEBIT	2021-09-25
T2	1003	1500	CREDIT	2022-01-28
T3	1002	3500	CREDIT	2021-12-31
T4	1001	1000	DEBIT	2022-01-10



- (a) Write the SQL statements to delete the records from table **TRANSACT** whose amount is less than 1000.
- (b) Write a query to display the total **AMOUNT** of all **DEBITS** and all **CREDITS**.
- (c) Write a query to display the **NAME** and corresponding **AMOUNT** of all **CUSTOMERS** who made a transaction type (**TTYPE**) of **CREDIT**.
- (d) Write the SQL statement to change the Phone number of customer whose CNO is 1002 to 9988117700 in the table **CUSTOMER**.

12. (a) (i) Mention any two characteristics of BUS Topology. 2

OR

(ii) Differentiate between the terms Domain Name and URL in the context of World Wide Web. 2

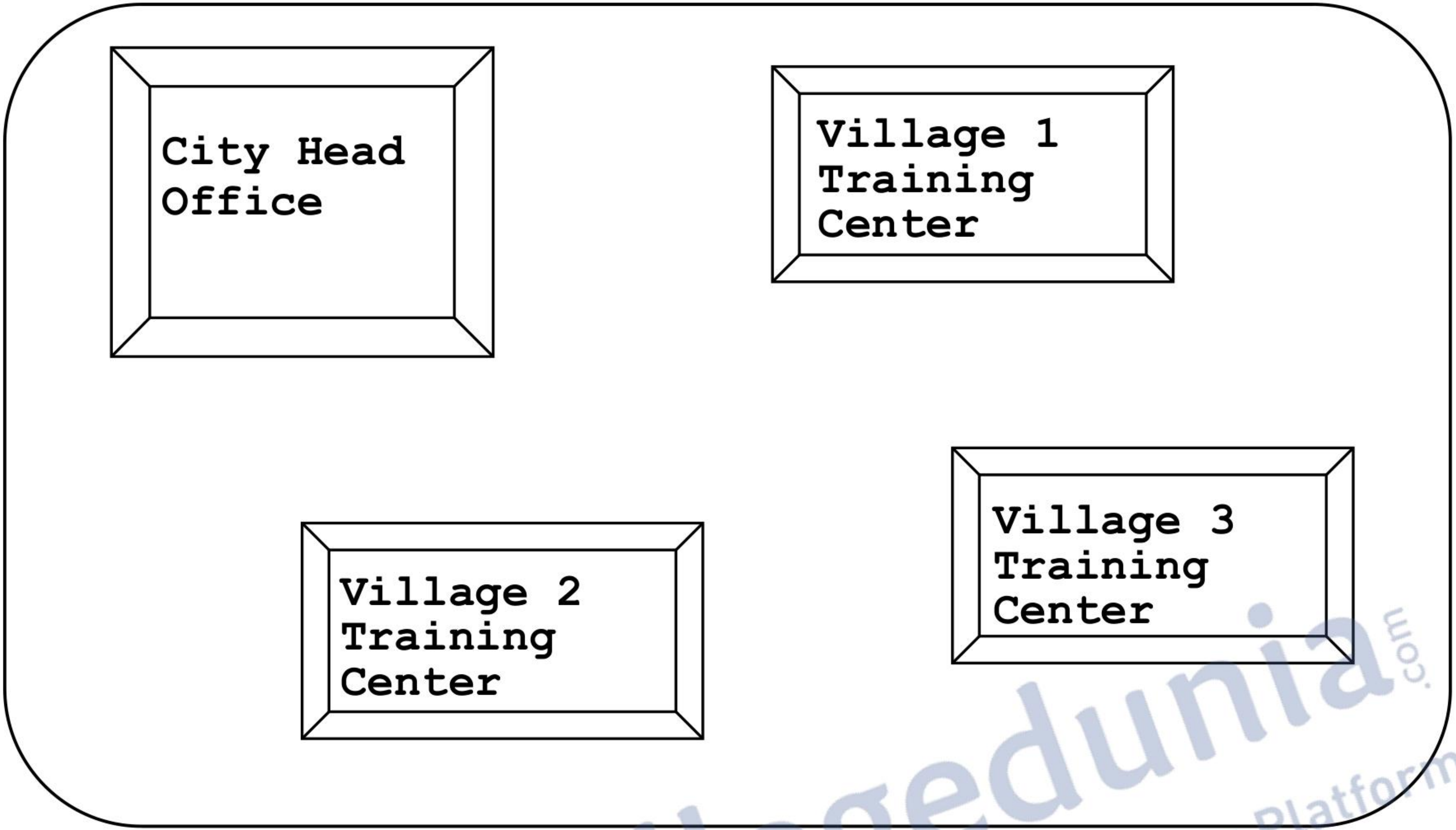
(b) Write the names of two wired and two wireless data transmission mediums. 2

13. The government has planned to develop digital awareness in the rural areas of the nation. According to the plan, an initiative is taken to set up Digital Training Centers in villages across the country with its Head Office in the nearest cities. The committee has hired a networking consultancy to create a model of the network in which each City Head Office is connected to the Training Centers situated in 3 nearby villages.

As a network expert in the consultancy, you have to suggest the best network-related solutions for the issues/problems raised in (a) to (d), keeping in mind the distance between various locations and other given parameters. 4



Layout of the City Head Office and Village Training Centers :



Shortest distances between various Centers :

Village 1 Training Center to City Head Office	2 KM
Village 2 Training Center to City Head Office	1.5 KM
Village 3 Training Center to City Head Office	3 KM
Village 1 Training Center to Village 2 Training Center	3.5 KM
Village 1 Training Center to Village 3 Training Center	4.5 KM
Village 2 Training Center to Village 3 Training Center	3.5 KM

Number of Computers installed at various centers are as follows :

Village 1 Training Center	10
Village 2 Training Center	15
Village 3 Training Center	15
City Head Office	100



- (a) It is observed that there is a huge data loss during the process of data transfer from one village to another. Suggest the most appropriate networking device out of the following, which needs to be placed along the path of the wire connecting one village with another to refresh the signal and forward it ahead.
- (i) MODEM
 - (ii) ETHERNET CARD
 - (iii) REPEATER
 - (iv) HUB
- (b) Draw the cable layout (location-to-location) to efficiently connect various Village Training Centers and the City Head Office for the above shown layout.
- (c) Which hardware networking device, out of the following, will you suggest to connect all the computers within the premises of every Village Training Center ?
- (i) SWITCH
 - (ii) MODEM
 - (iii) REPEATER
 - (iv) ROUTER
- (d) Which protocol, out of the following, will be most helpful to conduct online interactions of Experts from the City Head Office and people at the three Village Training Centers ?
- (i) FTP
 - (ii) PPP
 - (iii) SMTP
 - (iv) VoIP

Strictly Confidential: (For Internal and Restricted use only)
Senior Secondary School Term II Compartment Examination, 2022
Marking Scheme - COMPUTER SCIENCE (SUBJECT CODE - 083)
(Series: %BAB%/C, SET - 4, 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 evaluation 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 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 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, marks should be awarded.**
4. 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.
5. Evaluators will mark(✓) wherever the answer is correct. For wrong answer ‘X’ be marked. Evaluators will not put the right kind of mark 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.**
6. 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.
7. 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.
8. 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.
9. No marks to be deducted for the cumulative effect of an error. It should be penalized only once.
10. A full scale of marks **35** (example **0-35** marks as given in Question Paper) has to be used. Please do not hesitate to award full marks if the answer deserves it.
11. Every examiner has to necessarily do evaluation work for full working hours i.e. 8 hours every day and evaluate 30 answer books per day in main subjects and 35 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 the question paper.

12. 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 a reply.
 - 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.
 - 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 was marked correct and the rest as wrong, but no marks awarded.
13. 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.
14. 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.
15. The Examiners should acquaint themselves with the guidelines given in the Guidelines for spot Evaluation before starting the actual evaluation.
16. 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.
17. 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:

- The answers given in the marking scheme are **SUGGESTIVE**. Examiners are requested to award marks for all alternative correct Solutions/Answers conveying a similar meaning.
- All programming questions have to be answered with respect to Python only.
- In Python, ignore case sensitivity for identifiers/ Variables / Functions.
- 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.



General Instructions :

- (i) This question paper is divided into 3 Sections - A, B and C.
- (ii) Section A, consists 7 questions (1-7). Each question carries 2 marks.
- (iii) Section B, consists 3 questions (8-10). Each question carries 3 marks.
- (iv) Section C, consists 3 questions (11-13). Each question carries 4 marks.
- (v) Internal choices have been given for question numbers 7, 8 and 12.

		SECTION A (Each question carries 2 marks)	
1.		Differentiate between Push and Pop operations in the context of stacks.	2
	Ans	PUSH is the operation of insertion of an element in a stack at its topmost location. POP is the operation of deletion of the topmost element of the stack.	
		(1 mark each for writing correct definition/example/explanation of Push and Pop operations)	
2.	(a)	Expand FTP.	1
	Ans	FTP: File Transfer Protocol	
		(1 mark for writing correct expansion)	
	(b)	Out of the following, which has the largest network coverage area ? LAN, MAN, PAN, WAN	1
	Ans	Largest cover: WAN	
		(1 mark for writing correct type of network)	
3.		Differentiate between Degree and Cardinality in the context of Relational Data Model.	2
	Ans	Degree : Number of columns in a table is called its Degree. Cardinality : Number of rows in a table is called its Cardinality. OR Any valid example to differentiate between Degree & cardinality.	
		(2 marks for writing any valid difference) OR (1 mark each for writing correct definition/example/explanation of Degree and Cardinality)	

4.	Consider the following table EMPLOYEE in a Database COMPANY : Table: EMPLOYEE <table><tr><th>E_ID</th><th>NAME</th><th>DEPT</th></tr><tr><td>H1001</td><td>Avneet</td><td>AC</td></tr><tr><td>A1002</td><td>Rakesh</td><td>HR</td></tr><tr><td>A1003</td><td>Amina</td><td>AC</td></tr><tr><td>H1002</td><td>Simon</td><td>HR</td></tr><tr><td>A1004</td><td>Pratik</td><td>AC</td></tr></table> Assume that the required library for establishing the connection between Python and MySQL is already imported in the given Python code. Also assume that DB is the name of the database connection for the given table EMPLOYEE stored in the database COMPANY. Predict the output of the following Python code : <pre>CUR = DB.cursor() CUR.execute("USE COMPANY") CUR.execute("SELECT * FROM EMPLOYEE WHERE DEPT = 'AC' ") for i in range(2) : R=CUR.fetchone() print(R[0], R[1], sep ="#")</pre>	E_ID	NAME	DEPT	H1001	Avneet	AC	A1002	Rakesh	HR	A1003	Amina	AC	H1002	Simon	HR	A1004	Pratik	AC	2
E_ID	NAME	DEPT																		
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H1002	Simon	HR																		
A1004	Pratik	AC																		
	Ans H1001#Avneet A1003#Amina																			
	(1 mark for writing each correct line of output) (Note: Deduct ½ mark, if line break or / and # sign is not correctly written)																			

5.	Write the output of the SQL queries (a) to (d) based on the table TRAVEL given below : Table: TRAVEL <table><tr><th>T_ID</th><th>START</th><th>END</th><th>T_DATE</th><th>FARE</th></tr><tr><td>101</td><td>DELHI</td><td>CHENNAI</td><td>2021-12-25</td><td>4500</td></tr><tr><td>102</td><td>DELHI</td><td>BENGALURU</td><td>2021-11-20</td><td>4000</td></tr><tr><td>103</td><td>MUMBAI</td><td>CHENNAI</td><td>2020-12-10</td><td>5500</td></tr><tr><td>104</td><td>DELHI</td><td>MUMBAI</td><td>2019-12-20</td><td>4500</td></tr><tr><td>105</td><td>MUMBAI</td><td>BENGALURU</td><td>2022-01-15</td><td>5000</td></tr></table>	T_ID	START	END	T_DATE	FARE	101	DELHI	CHENNAI	2021-12-25	4500	102	DELHI	BENGALURU	2021-11-20	4000	103	MUMBAI	CHENNAI	2020-12-10	5500	104	DELHI	MUMBAI	2019-12-20	4500	105	MUMBAI	BENGALURU	2022-01-15	5000	2
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	(a)	SELECT START, END FROM TRAVEL WHERE FARE <=4000;																														
	Ans	<table><tr><th>START</th><th>END</th></tr><tr><td>DELHI</td><td>BENGALURU</td></tr></table>	START	END	DELHI	BENGALURU																										
START	END																															
DELHI	BENGALURU																															
		(½ mark for writing correct output - with or without column headings)																														
	(b)	SELECT T_ID, FARE FROM TRAVEL WHERE T_DATE LIKE '2021-12-%' ;																														
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	(a)	SELECT NAME ,DEPART FROM FLIGHT NATURAL JOIN PASSENGER ;																
	Ans	<table><tr><td>NAME</td><td>DEPART</td></tr><tr><td>PRAKASH</td><td>DELHI</td></tr><tr><td>NOOR</td><td>MUMBAI</td></tr><tr><td>ANNIE</td><td>MUMBAI</td></tr></table>	NAME	DEPART	PRAKASH	DELHI	NOOR	MUMBAI	ANNIE	MUMBAI								
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		(1 mark for writing correct output - with or without column headings)																
	(b)	SELECT NAME , FARE FROM PASSENGER P, FLIGHT F WHERE F.FNO = P.FNO AND F.DEPART = 'MUMBAI' ;																
	Ans	<table><tr><td>NAME</td><td>FARE</td></tr><tr><td>NOOR</td><td>5500</td></tr><tr><td>ANNIE</td><td>5000</td></tr></table>	NAME	FARE	NOOR	5500	ANNIE	5000										
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		(1 mark for writing correct output - with or without column headings)																
7.		Explain Primary Key in the context of Relational Database Model. Support your answer with suitable example.	2															
	Ans	An attribute or a group of attributes that identifies a tuple uniquely is known as a Primary Key of the table. Example: Table: BANK <table><tr><th>ACNO</th><th>NAME</th><th>PHONE</th></tr><tr><td>10001</td><td>RISHABH</td><td>9810876677</td></tr><tr><td>10031</td><td>ARNAV</td><td>9810876123</td></tr><tr><td>10064</td><td>ARNAV</td><td>9810875577</td></tr><tr><td>10076</td><td>GURSHARAN</td><td>9810871144</td></tr></table> Primary Key: ACNO	ACNO	NAME	PHONE	10001	RISHABH	9810876677	10031	ARNAV	9810876123	10064	ARNAV	9810875577	10076	GURSHARAN	9810871144	
ACNO	NAME	PHONE																
10001	RISHABH	9810876677																
10031	ARNAV	9810876123																
10064	ARNAV	9810875577																
10076	GURSHARAN	9810871144																
		(1 mark for writing only the correct explanation/example of primary key) (1 mark for writing appropriate example)																
		OR																

		Consider the following table BATSMEN : Table: BATSMEN <table><tr><th>PNO</th><th>NAME</th><th>SCORE</th></tr><tr><td>P1</td><td>RISHABH</td><td>52</td></tr><tr><td>P2</td><td>HUSSAIN</td><td>45</td></tr><tr><td>P3</td><td>ARNOLD</td><td>23</td></tr><tr><td>P4</td><td>ARNAV</td><td>18</td></tr><tr><td>P5</td><td>GURSHARAN</td><td>52</td></tr></table>	PNO	NAME	SCORE	P1	RISHABH	52	P2	HUSSAIN	45	P3	ARNOLD	23	P4	ARNAV	18	P5	GURSHARAN	52	2
PNO	NAME	SCORE																			
P1	RISHABH	52																			
P2	HUSSAIN	45																			
P3	ARNOLD	23																			
P4	ARNAV	18																			
P5	GURSHARAN	52																			
	(a)	Identify and write the name of the Candidate Keys in the given table BATSMEN.																			
	Ans	PNO, NAME																			
		(½ mark each for writing correct candidate keys)																			
	(b)	How many tuples are there in the given table BATSMEN ?																			
	Ans	5																			
		(1 mark for writing correct answer)																			
		SECTION B (Each question carries 3 marks)																			
8.	(a)	Write separate user defined functions for the following : (i) PUSH (N) - This function accepts a list of names, N as parameter. It then pushes only those names in the stack named OnlyA which contain the letter 'A'. (ii) POPA (OnlyA) - This function pops each name from the stack OnlyA and displays it. When the stack is empty, the message "EMPTY" is displayed. For example : If the names in the list N are ['ANKITA' , 'NITISH' , 'ANWAR' , 'DIMPLE' , 'HARKIRAT'] Then the stack OnlyA should store ['ANKITA' , 'ANWAR' , 'HARKIRAT'] And the output should be displayed as HARKIRAT ANWAR ANKITA EMPTY	3																		

	Ans	<pre>def PUSH(N) : OnlyA=[] for aName in N : if 'A' in aName : OnlyA.append(aName) def POPA(OnlyA) : while OnlyA : print(OnlyA.pop() , end=' ') else : print('EMPTY')</pre> OR Any other valid and equivalent definitions	
		<i>(½ mark for accessing all names from the list N)</i> <i>(½ mark for checking whether the name from N contains the alphabet 'A' or not)</i> <i>(½ mark for pushing/ appending the desired names into the Stack OnlyA)</i> <i>(½ Mark for popping names from the Stack OnlyA)</i> <i>(½ mark for displaying popped names on the screen)</i> <i>(½ Mark for displaying the message 'EMPTY' when the Stack OnlyA is empty)</i>	
		OR	
	(b)	Write the following user defined functions : (i) pushEven(N) - This function accepts a list of integers named N as parameter. It then pushes only even numbers into the stack named EVEN. (ii) popEven(EVEN) - This function pops each integer from the stack EVEN and displays the popped value. When the stack is empty, the message "Stack Empty" is displayed. For example: If the list N contains : [10,5,3,8,15,4] Then the stack, EVEN should store [10,8,4] And the output should be 4 8 10 Stack Empty	

	Ans	<pre>def pushEven(N) : EVEN=[] for z in N : if z%2==0 : EVEN.append(z) def popEven(EVEN) : while EVEN : print(EVEN.pop() , end=' ') else : print('Stack Empty')</pre> OR Any other valid and equivalent definitions	
		(½ mark for accessing all integers from the list N) (½ mark for checking whether the integer from N is even or not) (½ mark for pushing/appending the desired integers into the Stack EVEN) (½ mark for popping integers from the Stack EVEN) (½ mark for displaying popped integers on the screen) (½ mark for displaying the message 'Stack Empty' when Stack EVEN is empty)	
9.	(a)	A SQL table BOOKS contains the following column names: BOOKNO,BOOKNAME, QUANTITY, PRICE, AUTHOR Write the SQL statement to add a new column REVIEW to store the reviews of the book.	1
	Ans	ALTER TABLE BOOKS ADD REVIEW VARCHAR(20) ;	
		(½ mark for writing ALTER TABLE BOOKS) (½ mark for writing ADD REVIEW VARCHAR(any size); OR ADD REVIEW CHAR(any size);)	
	(b)	Write the names of any two commands of DDL and any two commands of DML in SQL.	2
	Ans	DDL Commands : CREATE, DROP, ALTER (any two) DML Commands : INSERT, DELETE, UPDATE etc. (any two)	

		(½ mark each for correctly writing any two DDL and any two DML commands)																																														
10.		Rashmi has forgotten the names of the databases, tables and the structure of the tables that she had created in Relational Database Management System (RDBMS) on her computer.	3																																													
	(a)	Write the SQL statement to display the names of all the databases present in RDBMS application on her computer.																																														
	Ans	SHOW DATABASES ;																																														
		(1 Mark for writing correct SQL command)																																														
	(b)	Write the statement which she should execute to open the database named "STOCK".																																														
	Ans	USE STOCK;																																														
		(1 Mark for writing correct SQL command)																																														
	(c)	Write the statement which she should execute to display the structure of the table "ITEMS" existing in the above opened database "STOCK".																																														
	Ans	DESCRIBE ITEMS ; OR DESC ITEMS ;																																														
		(1 Mark for writing correct SQL command)																																														
		SECTION C (Each question carries 4 marks)																																														
11.		Write SQL queries for (a) to (d) based on the tables CUSTOMER and TRANSACT given below: Table : CUSTOMER <table><tr><th>CNO</th><th>NAME</th><th>GENDER</th><th>ADDRESS</th><th>PHONE</th></tr><tr><td>1001</td><td>Suresh</td><td>MALE</td><td>A-123, West Street</td><td>9310010010</td></tr><tr><td>1002</td><td>Anita</td><td>FEMALE</td><td>C-24, Court Lane</td><td>9121211212</td></tr><tr><td>1003</td><td>Harjas</td><td>MALE</td><td>T-1, Woods Avenue</td><td>9820021001</td></tr></table> Table : TRANSACT <table><tr><th>TNO</th><th>CNO</th><th>AMOUNT</th><th>TTYPE</th><th>TDATE</th></tr><tr><td>T1</td><td>1002</td><td>2000</td><td>DEBIT</td><td>2021-09-25</td></tr><tr><td>T2</td><td>1003</td><td>1500</td><td>CREDIT</td><td>2022-01-28</td></tr><tr><td>T3</td><td>1002</td><td>3500</td><td>CREDIT</td><td>2021-12-31</td></tr><tr><td>T4</td><td>1001</td><td>1000</td><td>DEBIT</td><td>2022-01-10</td></tr></table>	CNO	NAME	GENDER	ADDRESS	PHONE	1001	Suresh	MALE	A-123, West Street	9310010010	1002	Anita	FEMALE	C-24, Court Lane	9121211212	1003	Harjas	MALE	T-1, Woods Avenue	9820021001	TNO	CNO	AMOUNT	TTYPE	TDATE	T1	1002	2000	DEBIT	2021-09-25	T2	1003	1500	CREDIT	2022-01-28	T3	1002	3500	CREDIT	2021-12-31	T4	1001	1000	DEBIT	2022-01-10	4
CNO	NAME	GENDER	ADDRESS	PHONE																																												
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	(a)	Write the SQL statements to delete the records from table TRANSACT whose amount is less than 1000.	
	Ans	DELETE FROM TRANSACT WHERE AMOUNT<1000 ;	
		<i>(½ Mark for writing DELETE FROM TRANSACT) (½ Mark for writing WHERE AMOUNT<1000)</i>	
	(b)	Write a query to display the total AMOUNT of all DEBITs and all CREDITs.	
	Ans	SELECT TTYPE, SUM(AMOUNT) FROM TRANSACT GROUP BY TTYPE ;	
		<i>(½ Mark for writing SELECT TTYPE, SUM(AMOUNT) FROM TRANSACT) (½ Mark for writing GROUP BY TTYPE) (Note: No marks should be deducted, if TTYPE is not mentioned with SELECT)</i>	
	(c)	Write a query to display the NAME and corresponding AMOUNT of all CUSTOMERs who made a transaction type (TTYPE) of CREDIT.	
	Ans	SELECT NAME, AMOUNT FROM CUSTOMER NATURAL JOIN TRANSACT WHERE TTYPE='CREDIT' ; OR SELECT NAME, AMOUNT FROM CUSTOMER C, TRANSACT T WHERE C.CNO=T.CNO AND TTYPE='CREDIT' ; OR SELECT NAME, AMOUNT FROM CUSTOMER, TRANSACT WHERE CUSTOMER.CNO=TRANSACT.CNO AND TTYPE='CREDIT' ;	
		<i>(½ mark for writing SELECT - FROM part correctly) (½ mark for writing WHERE part correctly)</i>	
	(d)	Write the SQL statement to change the Phone number of customer whose CNO is 1002 to 9988117700 in the table CUSTOMER.	
	Ans	UPDATE CUSTOMER SET PHONE=9988117700 WHERE CNO=1002 ;	
		<i>(½ mark for writing UPDATE - SET part correctly) (½ mark for writing WHERE part correctly)</i>	

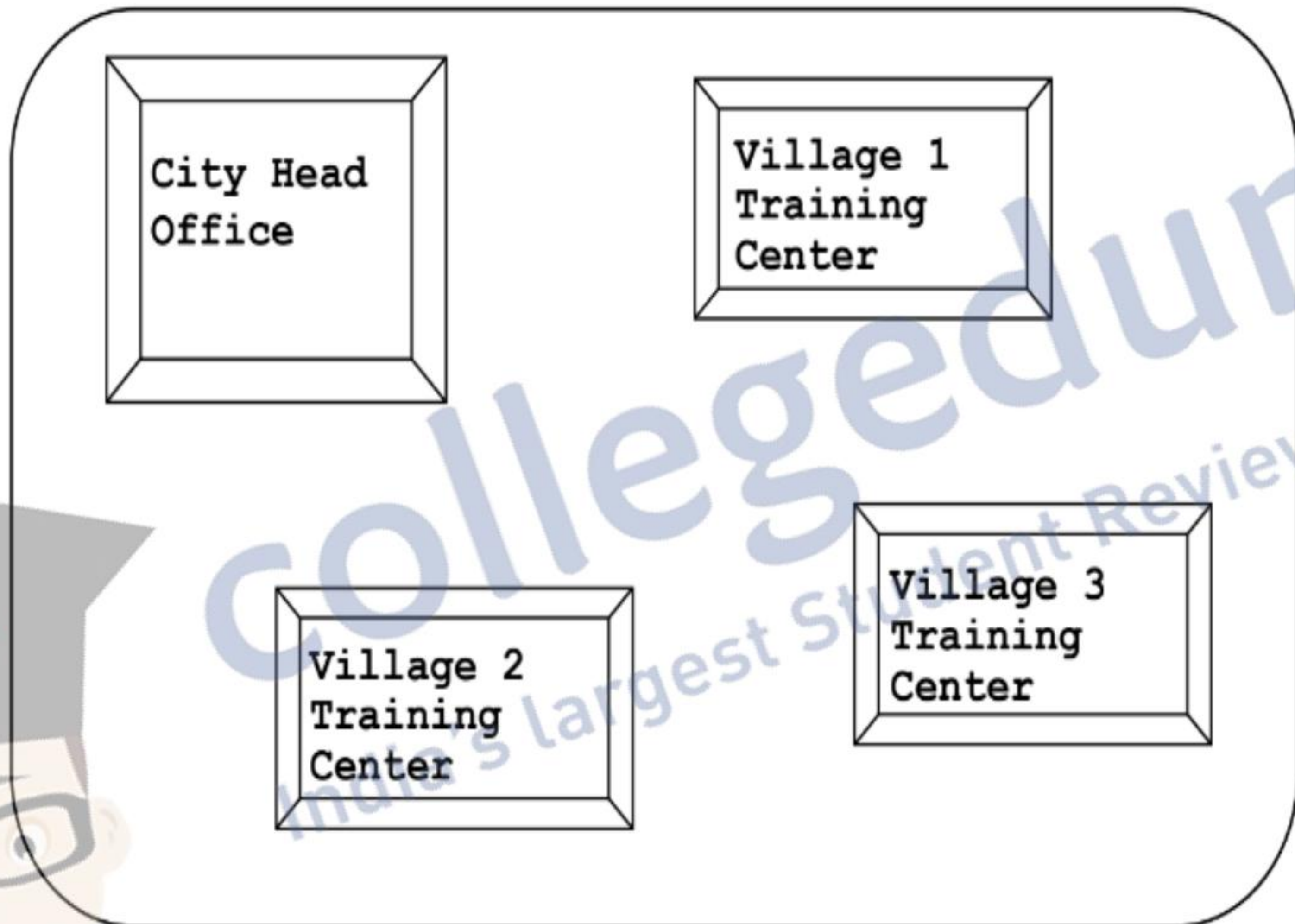
12.	(a)	(i) Mention any two characteristics of BUS Topology.	2
	Ans	Bus Topology: 1. Each communicating device connects to a single transmission medium, known as BUS. 2. Economic option of networking 3. It offers simultaneous flow of data and control. 4. Fault detection and isolation is difficult 5.  (any two)	
		<i>(1 mark each for writing any two characteristics of BUS topologies)</i>	
		OR	
		(ii) Differentiate between the terms Domain Name and URL in the context of World Wide Web.	2
	Ans	Domain Name: It is the unique name that identifies an Internet site or machine. Example: cbseacademic.nic.in URL (Uniform Resource Locator): It is the global address of documents and other resources on the World Wide Web. Example: https://cbseacademic.nic.in/Term-wise-curriculum.html	
		<i>(1 marks each for correct explanation/meaning/example of the terms Domain Name and URL)</i>	
	(b)	Write the names of two wired and two wireless data transmission mediums.	2
	Ans	Wired Mediums: Twisted Pair, Fibre-Optic cable, Coaxial cable (Any two) Wireless Mediums: Radio Waves, Microwaves, Infra-red waves (Any two)	
		<i>(½ Mark for writing each correct name of wired medium)</i> <i>(½ Mark for writing each correct name of wireless medium)</i>	

13.

The government has planned to develop digital awareness in the rural areas of the nation. According to the plan, an initiative is taken to set up Digital Training Centers in villages across the country with its Head Office in the nearest cities. The committee has hired a networking consultancy to create a model of the network in which each City Head Office is connected to the Training Centers situated in 3 nearby villages.

As a network expert in the consultancy, you have to suggest the best network-related solutions for the issues/problems raised in (a) to (d), keeping in mind the distance between various locations and other given parameters.

Layout of the City Head Office and Village Training Centers :



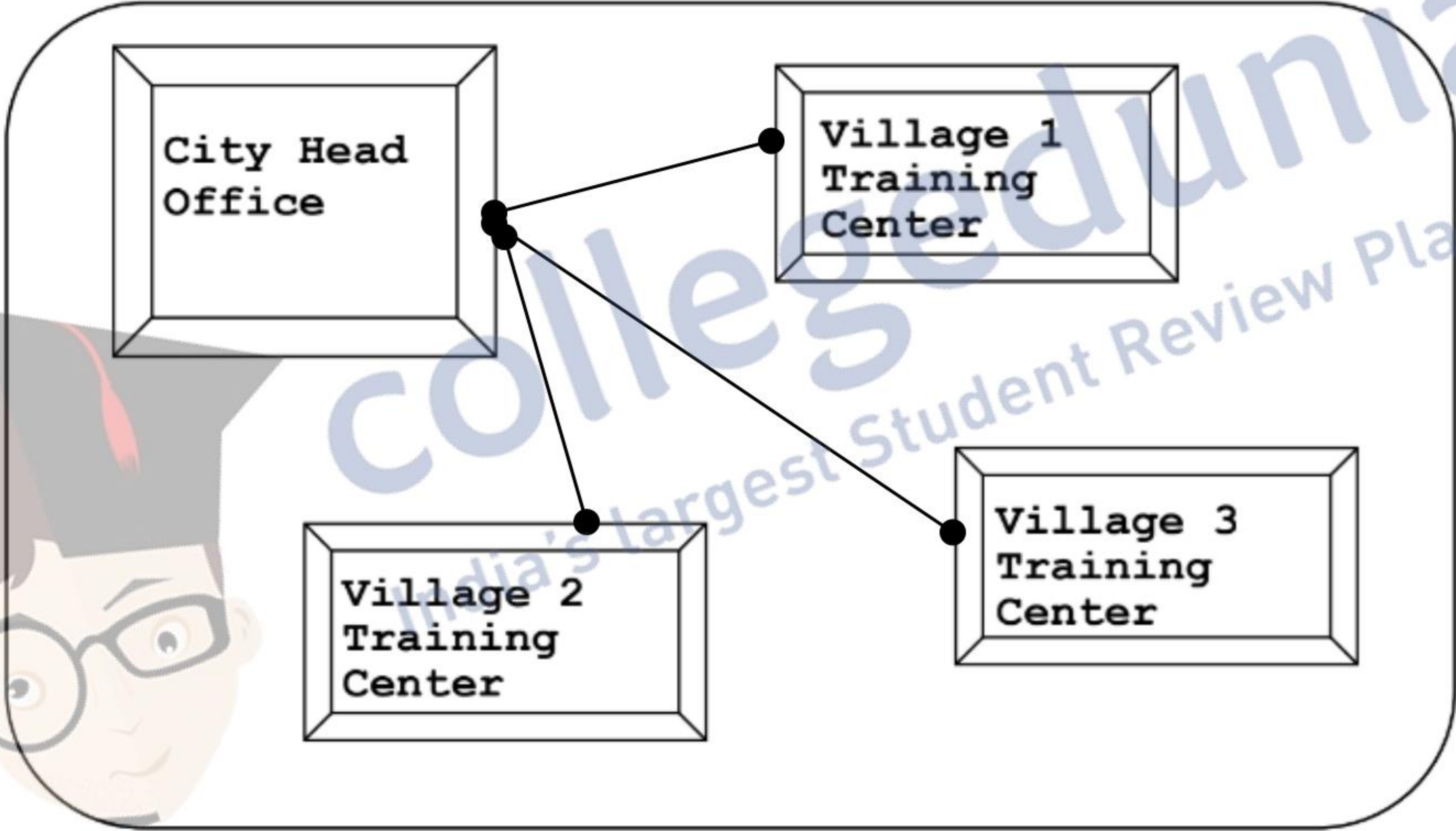
Shortest distances between various Centers:

Village 1 Training Center to City Head Office	2 KM
Village 2 Training Center to City Head Office	1.5 KM
Village 3 Training Center to City Head Office	3 KM
Village 1 Training Center to Village 2 Training Center	3.5 KM
Village 1 Training Center to Village 3 Training Center	4.5 KM
Village 2 Training Center to Village 3 Training Center	3.5 KM

Number of Computers installed at various centers are as follows:

Village 1 Training Center	10
Village 2 Training Center	15
Village 3 Training Center	15
City Head Office	100

4

	(a)	It is observed that there is a huge data loss during the process of data transfer from one village to another. Suggest the most appropriate networking device out of the following, which needs to be placed along the path of the wire connecting one village with another to refresh the signal and forward it ahead. (i) MODEM (ii) ETHERNET CARD (iii) REPEATER (iv) HUB	
	Ans	(iii) REPEATER	
		<i>(1 Mark for correct identification of the Networking Device)</i>	
	(b)	Draw the cable layout (location-to-location) to efficiently connect various Village Training Centers and the City Head Office for the above shown layout.	
	Ans		
		<i>(1 Mark for drawing correct cable layout)</i>	
	(c)	Which hardware networking device, out of the following, will you suggest to connect all the computers within the premises of every Village Training Center ? (i) SWITCH (ii) MODEM (iii) REPEATER (iv) ROUTER	
	Ans	(i) SWITCH	
		<i>(1 Mark for correct identification of the service/protocol)</i>	

	(d)	Which protocol, out of the following, will be most helpful to conduct online interactions of Experts from the City Head Office and people at the three Village Training Centers ? (i) FTP (ii) PPP (iii) SMTP (iv) VoIP	
	Ans	(iv) VoIP	
		(1 Mark for drawing correct cable layout)	



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