Strictly Confidential: (For Internal and Restricted use only)
Senior School Certificate Examination - September 2022
Marking Scheme – Informatics Practices (NEW) (SUBJECT CODE: 065)
(SET-4 | SERIES: %BAB%/C PAPER CODE – 90)

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 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-X, while evaluating two competency based questions, please try to understand given answer and even if reply is not from 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 answer is correct. For wrong answer 'X" be marked. Evaluators will not put right kind of mark while evaluating which gives an impression that answer is correct and no marks are awarded. This is 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, 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 _____(example 0-40 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 question paper.
12. Ensure that you do not make the following common types of errors committed by the Examiner in the past:-
    a. Leaving answer or part thereof unassessed in an answer book.
    b. Giving more marks for an answer than assigned to it.
    c. Wrong totaling of marks awarded on a reply.
    d. Wrong transfer of marks from the inside pages of the answer book to the title page.
    e. Wrong question wise totaling on the title page.
    f. Wrong totaling of marks of the two columns on the title page.
    g. Wrong grand total.
    h. Marks in words and figures not tallying.
    i. Wrong transfer of marks from the answer book to online award list.

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j. 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.)
k. Half or a part of answer 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 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 Python only
- In 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.
- This question paper is divided into 3 sections A, B and C.
- Section A, consists of 7 questions (1 - 7). Each question carries 2 marks.
- Section B, consists of 3 questions (8 - 10). Each question carries 3 marks.
- Section C, consists of 3 questions (11 - 13). Each question carries 4 marks.
- Internal choices have been given for questions number 1, 3, 7, 8 and 12.

SECTION A (Each question carries 2 marks)			
1	(a)	Arshiya is a web developer and one of her clients wants her to design a web page to accept donations for an NGO. Which type of web page (static/dynamic) will she create ?	2
	Ans	**Dynamic Webpage.**	
		(2 Marks for writing correct type of webpage)	
		OR	
	(b)	Danny has created a website on Python resources on his laptop. Now, he wants that others should be able to access his website and use the resources. What should he do to achieve his objective ?	2
	Ans	**Web Hosting / Publishing the website / Uploading the Website on Webserver**	
		(2 Marks for writing correct answer)	

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2	(a)	Define a web browser.	1
	Ans	**It is a software/tool, which allows us to view/access the content of WebPages.**	
		(2 Marks for writing correct definition)	
	(b)	Give examples of any two network devices.	1
	Ans	Modem, Repeater, Router, NIC Card, Hub, Switch **(Any Two)**	
		(½ mark each for any two correct network devices)	
3	(a)	Find the output of the following SQL queries : (i) `SELECT ROUND(21.341, 2);` (ii) `SELECT MOD(10, 3);`	2
	Ans	**(i)** `21.34` **(ii)** `1`	
		(1 mark for writing each correct output)	
		OR	
	(b)	Give any two differences between MOD() and AVG() functions in SQL.	2
	Ans	**MOD() :** **i. It is a math/numeric single row function.** **ii. `MOD(A,B)` returns the remainder after dividing number A by number B.** **iii. For Example: `SELECT MOD(5,3);` will give 2 as output** **AVG() :** **i. It is an aggregate function** **ii. `AVG(column)` returns the average of the values for the specified column.** **iii. For Example : `SELECT AVG(QTY) FROM PRODUCT;` will give the output 6.0000 if the `QTY` column has the values 6,8 and 4** **(Any two differences between the two functions)**	
		(1 mark each for writing any two correct difference)	
4		Define the following terms :	2
	(a)	**Plug-ins**	
	Ans	**Plug-ins are complete software/third party software** **Plug-ins are software components that add a specific feature to an existing computer program.** **Plug-ins enable customization in a supported program**	
		(1 mark for writing correct definition)	
	(b)	**Add-ons**	2
	Ans	**Add-ons are not complete software/third party software** **Add-ons are software that can be added to a computer program to increase its capabilities or a program utility.**	
		(1 mark for writing correct definition)	
5		Find the output of the following SQL queries :	2
	(i)	`SELECT MID("YOUNG INDIA",5);`	

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	Ans	`G INDIA`	
		(1 mark for writing the correct output)	
	(ii)	`SELECT INSTR("MACHINE INTELLIGENCE","IN");`	
	Ans	`5`	
		(1 mark for writing the correct output)	

6		Harjat has created the table EMP in his database.
		Table : EMP
		E_Id | Name | Dept | Comm
		E001 | Ditya | Admin | 35000
		E002 | Uzair | Production | 42500
		E003 | Rajnikant | Admin | 21000
		E004 | Moushami | Sales | 23575
		E005 | Samantha | Sales | 37000
		E006 | Sunder | Admin | 43000
		Now he wants to find the sum of commission earned by each department. He has executed the following query :
		`SELECT dept,sum(comm)`
		`GROUP BY dept`
		`FROM EMP;`
		But, he got an error. Rewrite the correct query after identifying the error(s).
			2

	Ans	`SELECT dept,sum(comm)`
		`FROM EMP`
		`GROUP BY dept ;`	

		(1 mark for writing `SELECT dept,sum(comm)FROM EMP` ***)*** ***(1 mark for writing*** `GROUP BY dept` ***)***	
7	(a)	Ms. Anubha is working in a school and stores the details of all students in a Table: SCHOOL Table : SCHOOL **Admid | Sname | Grade | House | Per | Gender | Dob** **20150001 | Aditya Das | 10 | Green | 86 | Male | 2006-02-20** **20140212 | Harsh Sharma | 11 | Red | 50 | Male | 2004-10-05** **20090234 | Swapnil Pant | 10 | Yellow | 84 | Female | 2005-11-21** **20130216 | Soumen Rao | 9 | Red | 90 | Male | 2006-04-10** **20190227 | Rahil Arora | 10 | Blue | 70 | Male | 2005-05-14** **20120200 | Akasha Singh | 11 | Red | 70 | Female | 2004-12-16** Write the SQL statements from the given table to :	2
	(i)	Remove TRAILING SPACES from column Sname.	
	Ans	`SELECT RTRIM(Sname) FROM SCHOOL;`	
		(½ mark for writing `SELECT RTRIM(Sname)` ***)*** ***(½ mark for writing*** `FROM SCHOOL` ***)***	
	(ii)	Display the names of students who were born on Tuesday.	

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	Ans	`SELECT Sname FROM SCHOOL WHERE DAYOFWEEK(Dob) = 3;`	
		(½ mark for writing `SELECT Sname FROM SCHOOL`*)* *(½ mark for writing* `WHERE DAYOFWEEK(Dob) = 3` *)*	
		OR	
	(b)	Predict the output of the following SQL queries from the above Table: SCHOOL :	2
		(i) `SELECT AVG(Per) FROM SCHOOL WHERE House="Red";`	
	Ans	`70.0000`	
		(1 mark for writing the correct output)	
		(ii) `SELECT Sname, Per FROM SCHOOL WHERE MONTH(Dob)=11;`	
	Ans	`Swapnil Pant 84`	
		(1 mark for writing the correct output)	
		SECTION B **(Each question carries 3 marks)**	
8	(a)	Predict the output of the following SQL queries :	3
		(i) `SELECT LENGTH("GOOD LUCK");`	
	Ans	9	
		(1 mark for writing the correct output)	
		(ii) `SELECT POWER(3, 3);`	
	Ans	27	
		(1 mark for writing the correct output)	
		(iii) `SELECT UPPER("examination");`	
	Ans	`EXAMINATION`	
		(1 mark for writing the correct output)	
		OR	
	(b)	Consider a Table "PETDATA" with the following data : Table : **PETDATA**	3

Id	Pname	Breed	LifeSpan	Price	Discount
101	Adi	Golden Retriever	15	16000	5
202	Candy	Boxer	11	22000	10
303	Dazzler	Bulldog	10	18000	NULL
404	Cooper	Yorkshire Terrier	16	20000	12
505	Akira	Pug	NULL	25000	8

		Write SQL queries for the following : (i) Display all the pet names in uppercase.	3
	Ans	`SELECT UPPER(Pname) FROM PETDATA;`	
		(½ mark for writing `SELECT UPPER(Pname)`*)*	

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		(½ mark for writing **`FROM PETDATA`** ***)***	
		(ii) Display the total price of all the pets.	
	Ans	**`SELECT SUM(Price) FROM PETDATA;`**	
		(½ mark for writing **`SELECT SUM(Price)`** ***)*** ***(½ mark for writing*** **`FROM PETDATA`** ***)***	
		(iii) Display the average discount available on all the pets.	
	Ans	**`SELECT AVG(Discount) FROM PETDATA;`**	
		(½ mark for writing **`SELECT AVG(Discount)`** ***)*** ***(½ mark for writing*** **`FROM PETDATA`** ***)***	
9		Write the names of SQL functions to perform the following operations :	3
	(a)	Display the name of the month from the given date value.	
	Ans	**`MONTHNAME()`**	
		(1 mark for writing the correct function name)	
	(b)	Display the day of month from the given date value.	
	Ans	**`DAYOFMONTH()`**	
		(1 mark for writing the correct function name)	
	(c)	Count the number of characters in a given string.	
	Ans	**`LENGTH()`**	
		(1 mark for writing the correct function name)	
10		Consider the following Table : ITEM :	3

Table : ITEM

ID	INAME	PRICE	QTY
P1001	Sketch Pen	20.50	5
P1002	Roller Ball Pen	55.00	1
P1003	Gel Pen	25.10	3
P1004	Notebook	75.80	1

Find the output of the following SQL queries :

	(a)	**`SELECT 10+ QTY FROM ITEM WHERE ID = "P1003";`**	
	Ans	`13`	
		(1 mark for writing the correct output)	
	(b)	**`SELECT PRICE*QTY FROM ITEM WHERE QTY < 2;`**	
	Ans	`55.00` `75.80`	
		(1 mark for writing the correct output)	
	(c)	**`SELECT LEFT(INAME,3) FROM ITEM;`**	

	Ans	`Ske`
		`Rol`
		`Gel`
		`Not`	

		(1 mark for writing the correct output)	
		SECTION C **(Each question carries 4 marks)**	

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11 Consider the Table FURNITURE with the following data :

Table : FURNITURE

S.No.	Item	Type	Price	Stockdate
1	Hammock	Bedroom	35500.58	2020-04-21
2	Divan	Living	31000	2019-03-18
3	Bookshelf	Study	38000.657	2019-01-10
4	Writing Desk	Living	61357.425	2020-10-18
5	Nightstand	Bedroom	NULL	2021-07-23

4

Write SQL queries for the following :

(a) Display all the records in alphabetical order of Item.

Ans `SELECT * FROM FURNITURE ORDER BY ITEM ;`

(½ mark for writing `SELECT * FROM FURNITURE` *)*
(½ mark for writing `ORDER BY ITEM` *)*

(b) Display the Type and total number of items of each Type.

Ans `SELECT TYPE, COUNT(ITEM) FROM FURNITURE GROUP BY TYPE;`

(½ mark for writing `SELECT TYPE, COUNT(ITEM) FROM FURNITURE` *)*
(½ mark for writing `GROUP BY TYPE` *)*

(c) Display the highest Price.

Ans `SELECT MAX(PRICE) FROM FURNITURE;`

(½ mark for writing `SELECT MAX(PRICE)` *)*
(½ mark for writing `FROM FURNITURE` *)*

(d) Display the Item with their price rounded to 1 decimal place.

Ans `SELECT ITEM, ROUND(PRICE,1) FROM FURNITURE;`

(½ mark for writing `SELECT ITEM, ROUND(PRICE,1)` *)*
(½ mark for writing `FROM FURNITURE` *)*

12 (a) Consider the following table :

Table : EMPLOYEE

Ecode	Ename	Area	Salary	Dept	Doj
S001	Ramesh	North	12000	Sales	2015-12-01
S002	Rohit	South	10500	Finance	2012-08-01
S003	Sunil	South	6800	Front Office	2018-02-01
S004	Sambhav	West	28000	Back Office	2010-04-01
S005	Ankit	East	9000	NULL	2018-10-01
S006	Rishu	North	25000	Finance	2019-02-01

Predict the output for the following SQL queries :

(i) `SELECT MAX(Salary), FROM EMPLOYEE;`

Ans 28000

		OR **Error in command (due to comma after MAX() function)**	
		(1 mark for writing the correct output OR mention of Error in Query)	
	(ii)	`SELECT COUNT(Dept) FROM EMPLOYEE;`	
	Ans	5	
		(1 mark for writing the correct output)	
	(iii)	`SELECT UCASE(Ename) FROM EMPLOYEE WHERE MONTH(Doj)=2;`	
	Ans	`SUNIL` `RISHU`	
		(1 mark for writing the correct output)	
	(iv)	`SELECT Ename FROM EMPLOYEE WHERE Right(Ecode,1)=5;`	
	Ans	`Ankit`	
		(1 mark for writing the correct output)	
	(b)	***OR*** Based on the given table **EMPLOYEE** write SQL queries to perform the following operations :	4
	(i)	Count the total number of employees.	
	Ans	`SELECT COUNT(*) FROM EMPLOYEE;`	
		(½ mark for `SELECT COUNT(*)`***)*** ***(½ mark for*** `FROM EMPLOYEE`***)***	
	(ii)	Display the minimum salary from each area.	
	Ans	`SELECT MIN(Salary), Area FROM EMPLOYEE GROUP BY Area;`	
		(½ mark for writing `SELECT MIN(Salary), Area FROM EMPLOYEE`***)*** ***(½ mark for writing*** `GROUP BY Area`***)***	
	(iii)	Display the average salary from each department where number of employees is more than 1.	
	Ans	`SELECT AVG(Salary), Dept FROM EMPLOYEE` `GROUP BY Dept HAVING COUNT(*)>1;`	
		(½ Mark for writing `SELECT AVG(Salary), Dept FROM EMPLOYEE`***)*** ***(½ Mark for writing*** `GROUP BY Dept HAVING COUNT(*)>1;`***)***	
	(iv)	Display all the records in descending order of date of joining.	
	Ans	`SELECT * FROM EMPLOYEE ORDER BY Doj DESC;`	
		(½ mark for writing `SELECT * FROM EMPLOYEE`***)*** ***(½ mark for writing*** `ORDER BY Doj DESC`***)***	
13		ABC Private Ltd., Bangalore has different divisions, Finance (A1), Sales (A2), Production (A3) and Marketing (A4). The layout of the Bangalore branch is :	4

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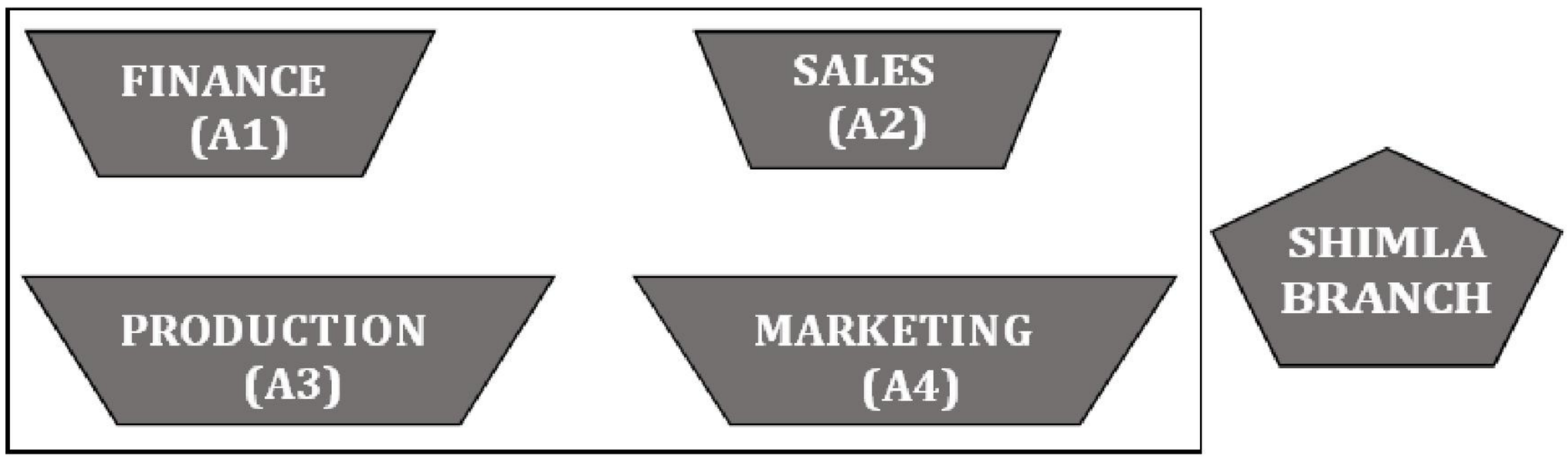


The company also has a branch in Shimla. The management wants to connect all the divisions as well as all the computers of each division (A1, A2, A3, A4).
Distance between the branches are as follows :

A3 to A1	25 m
A1 to A2	40 m
A2 to A4	25 m
A4 to A3	120 m
A3 to A2	990 m
A1 to A4	170 m

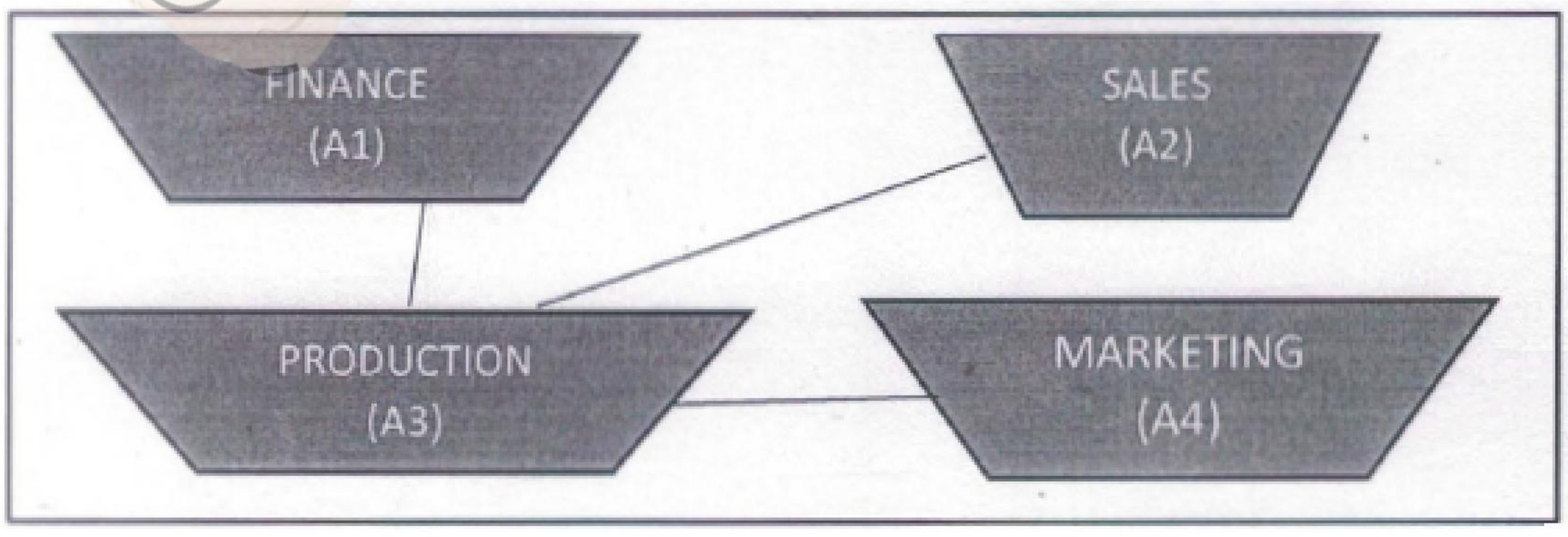
The number of computers in each branch is as follows :

A1	50
A2	40
A3	110
A4	60

Based on the above specifications, answer the following questions :

(a) Suggest the topology and draw the most suitable cable layout for connecting all the divisions of Bangalore branch.

Ans



As per direct connectivity with the server

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		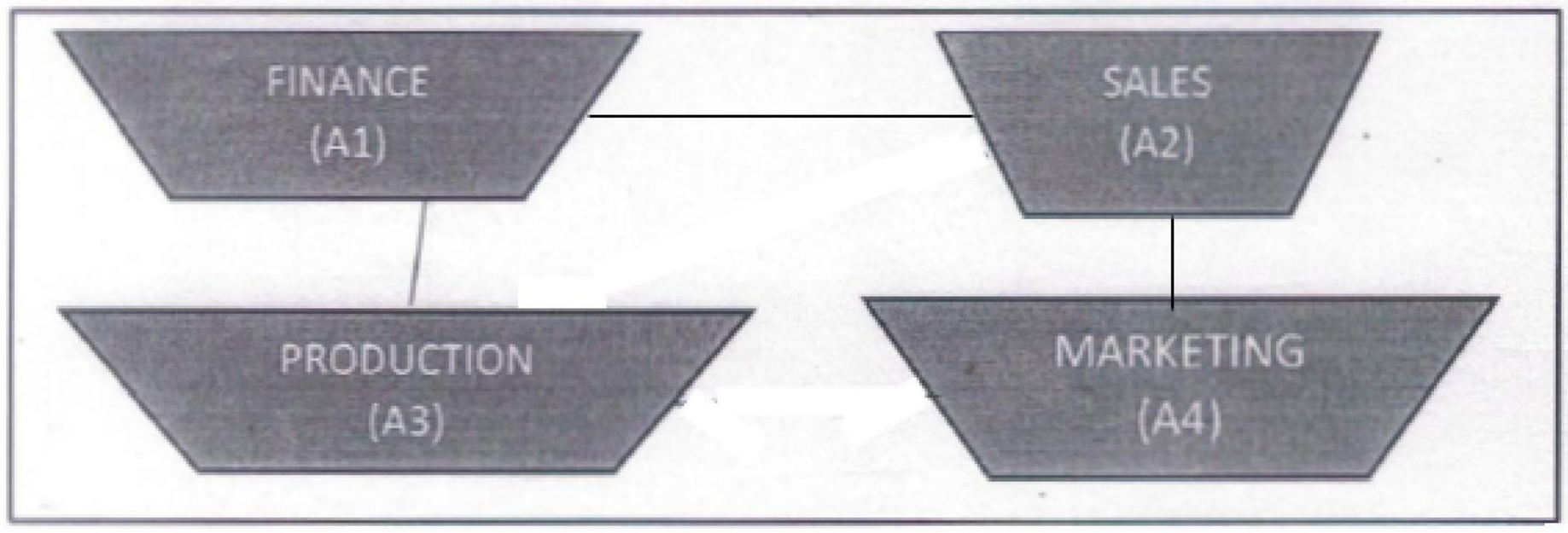 As per shortest distance ***(½ mark for any correct topology)*** ***(½ mark for any correct layout)***	
	(b)	Suggest the kind of network required (out of LAN, MAN, WAN) for connecting Production (A3) with Shimla branch.	
	Ans	**WAN**	
		(1 mark for writing the correct network type) ***Note: No marks for writing MAN or LAN***	
	(c)	Suggest the placement of the following devices : (i) Repeater (ii) Switch/Hub	
	Ans	(i) Repeater should be placed between A3 and A2 wings (ii) Switch/Hub should be placed in all divisions A1, A2, A3 and A4	
		(½ mark for writing the correct placement of repeater) ***(½ mark for writing the correct placement of Switch/Hub)***	
	(d)	The company wanted to develop a healthy relation among the employees, therefore the HRA planned an online session with everyone so that they could play games from their devices. Suggest the protocol that helped to send the voice signals over Internet.	
	Ans	**VoIP OR Voice over Internet Protocol**	
		(1 mark for writing the correct protocol)	

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