

COMPETISHUN

CBSE CLASS 12 — INFORMATICS PRACTICES (CODE NO. 065)

Sample Paper: Questions and Solutions — 2026-27

Time Allowed: 3 Hours

Maximum Marks: 70

General Instructions

- All questions are compulsory.
- The examination paper contains five sections, from Section A to Section E.
- Section A consists of 21 questions (1 to 21). Each question carries 1 Mark.
- Section B consists of 7 questions (22 to 28). Each question carries 2 Marks.
- Section C consists of 4 questions (29 to 32). Each question carries 3 Marks.
- Section D consists of 2 questions (33 to 34). Each question carries 4 Marks.
- Section E consists of 3 questions (35 to 37). Each question carries 5 Marks.
- There is no overall choice. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions.
- All programming questions are to be answered using Python Language only.
- In case of MCQ, text of the correct answer should also be written.

SECTION - A

21 × 1 = 21 Marks

Questions 1 to 21

Question 1

[1 mark]

A Pandas Series S1 is created with index labels ['a', 'b', 'c', 'd', 'e']. State whether the following statement is True or False:

"The statement `S1['b':'d']` will produce the same result as `S1[1:3]`."

Answer and Solution

False

Label-based slicing includes the end label, so `S1['b':'d']` returns the three elements b, c and d. Positional slicing excludes the end position, so `S1[1:3]` returns only b and c.

Marking Scheme

1 mark for the correct answer.

Question 2

[1 mark]

Ravi needs to find the total number of characters in the StudentName column. Which SQL function should he use?

- A. COUNT() B. SIZE() C. LENGTH() D. TOTAL()

Answer and Solution

C. LENGTH()

LENGTH() returns the number of characters stored in a string value. COUNT() counts rows, not characters.

Marking Scheme

1 mark for the correct answer.

Question 3**[1 mark]**

Which type of Intellectual Property Right (IPR) protects an invention by giving the creator exclusive rights to make, use, and sell it for a specific period?

- A. Copyright
- B. Trademark
- C. Patent
- D. Software License

Answer and Solution**C. Patent**

A patent protects an invention. Copyright protects original creative work and a trademark protects a brand name, logo or symbol.

Marking Scheme

1 mark for the correct answer.

Question 4**[1 mark]**

While plotting a graph using Matplotlib, which function is used to specify the label for the Y-axis?

- A. label_y()
- B. ylabel()
- C. yaxis_name()
- D. set_y()

Answer and Solution**B. ylabel()**

plt.ylabel() sets the Y-axis label, just as plt.xlabel() sets the X-axis label.

Marking Scheme

1 mark for the correct answer.

Question 5**[1 mark]**

I am a networking device that converts digital data from a computer into analog signals for transmission, and then converts incoming analog signals back into digital data for the computer to understand. Who am I?

- A. Repeater
- B. Router
- C. Modem
- D. Switch

Answer and Solution**C. Modem**

Modem stands for MODulator-DEModulator — it modulates digital data into analog form and demodulates it back.

Marking Scheme

1 mark for the correct answer.

Question 6**[1 mark]**

Which of the following is a Data Manipulation Language (DML) command in SQL?

- A. ALTER B. DROP C. UPDATE D. CREATE

Answer and Solution**C. UPDATE**

UPDATE changes the data stored in a table. ALTER, DROP and CREATE change the structure, so they are DDL commands.

Marking Scheme

1 mark for the correct answer.

Question 7**[1 mark]**

The process of re-selling old electronic goods after minor repairs or modification is called:

- A. Recycling
B. Refurbishing
C. Reducing
D. Leaching

Answer and Solution**B. Refurbishing**

Refurbishing restores a used device to working condition so that it can be sold and used again.

Marking Scheme

1 mark for the correct answer.

Question 8**[1 mark]**

What will be the output of the following code?

```
import pandas as pd
print(pd.Series(5, index=[0, 1, 2]))
```

- A. A Series with values 5, 5, 5
B. A Series with value 5 only at index 0
C. A Series with values 0, 1, 2
D. Error

Answer and Solution**A. A Series with values 5, 5, 5**

When a scalar value is passed to pd.Series(), that value is repeated for every label in the given index.

Marking Scheme

1 mark for the correct answer.

Question 9**[1 mark]**

Fill in the blank:

The SQL clause used to filter the groups formed by the GROUP BY clause based on a specific condition is

_____.

Answer and Solution**HAVING**

WHERE filters individual rows before grouping; HAVING filters the groups produced by GROUP BY.

Marking Scheme

1 mark for the correct answer.

Question 10**[1 mark]**

Riya visited an online shopping website, and it saved small text files on her computer to remember her preferences and session details. What are these files called?

- A. Plug-ins B. Add-ons C. Cookies D. Scripts

Answer and Solution**C. Cookies**

Cookies are small text files stored by a website on the user's computer to remember preferences and session information.

Marking Scheme

1 mark for the correct answer.

Question 11**[1 mark]**

Which keyword is used with the ORDER BY clause to sort data in descending order?

- A. DESC B. DOWN C. DSC D. REVERSE

Answer and Solution**A. DESC**

ORDER BY sorts in ascending order (ASC) by default; DESC reverses it.

Marking Scheme

1 mark for the correct answer.

Question 12**[1 mark]**

If we add two Pandas Series that do not have matching index labels, the result for those non-matching indices will be:

- A. 0 B. Error C. NaN D. Empty string

Answer and Solution**C. NaN**

Pandas aligns the two Series on their index labels. A label present in only one Series has no value to add to, so the result is NaN.

Marking Scheme

1 mark for the correct answer.

Question 13**[1 mark]**

The process of buying electronic gadgets only when necessary to minimize the generation of electronic waste is an example of which 'R' of e-waste management?

- A. Recycle B. Reuse C. Reduce D. Refurbish

Answer and Solution

C. Reduce

Reduce means cutting down consumption at the source so that less e-waste is generated in the first place.

Marking Scheme

1 mark for the correct answer.

Question 14

[1 mark]

Which SQL function is used to extract a specific number of characters from a string starting from a given position?

- A. LEFT() B. RIGHT() C. LENGTH() D. MID()

Answer and Solution

D. MID()

MID(str, position, n) extracts n characters beginning at the given position. LEFT() and RIGHT() always work from an end of the string.

Marking Scheme

1 mark for the correct answer.

Question 15

[1 mark]

Aman is exporting a Pandas DataFrame to a CSV file using the to_csv() function. He wants to save only the data and avoid writing the row indices to the file. Which parameter should he set to False to prevent the indices from being included?

- A. header B. sep C. index D. columns

Answer and Solution

C. index

to_csv(..., index=False) suppresses the row labels; header=False would instead suppress the column names.

Marking Scheme

1 mark for the correct answer.

Question 16

[1 mark]

Fill in the blank:

The process of storing a website on a web server so that it can be accessed over the internet is known as _____.

Answer and Solution

Web hosting (or Hosting)

A hosting provider keeps the website files on a server that stays connected to the internet so that users can reach the site at any time.

Marking Scheme

1 mark for the correct answer.

Question 17**[1 mark]**

A HR manager queries an employee database. He wants to retrieve only those records where the Commission field actually contains a value. Which SQL condition should he use?

- A. WHERE Commission != NULL
- B. WHERE Commission IS NOT NULL
- C. WHERE Commission <> NULL
- D. WHERE Commission NOT NULL

Answer and Solution**B. WHERE Commission IS NOT NULL**

NULL means 'unknown', so it cannot be compared with =, != or <>. The IS NULL / IS NOT NULL operator must be used instead.

Marking Scheme

1 mark for the correct answer.

Question 18**[1 mark]**

When creating a DataFrame from a list of dictionaries, the dictionary keys become:

- A. Row indices
- B. Data values
- C. Column labels
- D. Positional Index

Answer and Solution**C. Column labels**

Each dictionary becomes one row; its keys become the column labels and its values become the data in those columns.

Marking Scheme

1 mark for the correct answer.

Question 19**[1 mark]**

State whether the following statement is True or False:

In SQL, the BETWEEN operator is inclusive of both the lower and upper values specified in the range.

Answer and Solution**True**

BETWEEN a AND b is equivalent to $\geq a$ AND $\leq b$, so both boundary values are included.

Marking Scheme

1 mark for the correct answer.

Q. 20 and Q. 21 are Assertion (A) and Reason (R) type questions. Choose the correct option as:

- A. Both Assertion (A) and Reason (R) are True and Reason (R) is the correct explanation for Assertion (A).
- B. Both Assertion (A) and Reason (R) are True and Reason (R) is not the correct explanation for Assertion (A).
- C. Assertion (A) is True and Reason (R) is False.
- D. Assertion (A) is False, but Reason (R) is True.

Question 20**[1 mark]**

Assertion (A): The statement `df.drop('Science', axis=0)` will remove the column labeled 'Science' from the DataFrame.

Reason (R): In Pandas `drop()` method, `axis=0` refers to row-wise operations and `axis=1` refers to column-wise operations.

Answer and Solution

D. Assertion (A) is False, but Reason (R) is True.

Assertion (A) is false — with `axis=0` the `drop()` method looks for a row label, so it cannot remove a column. To delete the column the correct statement is `df.drop('Science', axis=1)`. Reason (R) correctly states the meaning of the axis values, and it is in fact the reason why the assertion is wrong.

Marking Scheme

1 mark for the correct answer.

Question 21**[1 mark]**

Assertion (A): In SQL, the query `select * from emp;` and `SELECT * FROM EMP;` will produce the same result.

Reason (R): SQL is a case-sensitive language.

Answer and Solution

C. Assertion (A) is True and Reason (R) is False.

Assertion (A) is true — SQL keywords are not case-sensitive, so both queries return the same result. Reason (R) is false, because SQL is a case-insensitive language as far as its keywords are concerned.

Marking Scheme

1 mark for the correct answer.

SECTION - B**7 × 2 = 14 Marks**

Questions 22 to 28

Question 22**[2 marks]**

(A)

- (i) Explain the use of the `head()` function in a Pandas DataFrame.
- (ii) What happens if the parameter `n` is not specified in the `head()` function?

OR

(B)

Explain the concept of Boolean Indexing in DataFrames. Write a small Python code example to demonstrate it.

Answer and Solution — (A)

- (i) The `head()` function displays the first `n` rows of a DataFrame.
- (ii) If `n` is not specified in `head()`, it returns the first 5 rows by default.

Marking Scheme

1 mark for each correct part.

Answer and Solution — (B)

Boolean indexing is a technique used to select subsets of data based on the actual values in the DataFrame rather than row/column labels.

Example:

```
import pandas as pd
data = [
    {'Name': 'Aarav', 'Age': 24},
    {'Name': 'Priya', 'Age': 30}
]
df = pd.DataFrame(data)
print(df['Age'] > 25)
```

Output:

```
0    False
1     True
Name: Age, dtype: bool
```

Marking Scheme

1 mark for the correct explanation of Boolean indexing.

1 mark for a correct code example.

Question 23**[2 marks]**

Differentiate between an Active and a Passive digital footprint.

Answer and Solution

Active digital footprint: An active digital footprint is created when a person intentionally shares or submits information online — for example, posting on social media, filling an online form or sending an e-mail.

Passive digital footprint: A passive digital footprint is created when information is collected automatically, often without the user's knowledge or direct involvement — for example, the IP address logged by a website or the data stored in cookies.

Marking Scheme

2 marks for the correct differentiation (1 mark for each type).

Question 24**[2 marks]**

Define Data Visualization and state its primary purpose.

Answer and Solution

Data visualization is the graphical or pictorial representation of data using graphs, charts, etc.

Its primary purpose is to visualize variations or show relationships between variables, helping users to infer conclusions that might not be easily visible by looking at raw numerical data.

Marking Scheme

1 mark for the correct definition.

1 mark for stating the primary purpose.

Question 25**[2 marks]**

(A)

Define Star Topology. Mention one major advantage of using it.

OR

(B)

What is VoIP? State any one advantage of using VoIP for communication.

Answer and Solution — (A)

In star topology, each node is directly connected to a central controller (hub or switch).

Advantage: Failure of one node does not affect the rest of the network.

Marking Scheme

1 mark for the correct definition.
1 mark for one correct advantage.

Answer and Solution — (B)

VoIP stands for Voice over Internet Protocol, which allows voice transmission over a computer network rather than traditional telephone lines.

Advantage: It is very economical, often free, compared to traditional international calls.

Marking Scheme

1 mark for the correct definition of VoIP.
1 mark for one correct advantage.

Question 26**[2 marks]**

Write SQL queries for the following requirements:

- (i) Display the last 3 characters of the attribute Ename from the EMPLOYEE table.
- (ii) Find the position of the substring 'ma' in the string 'Informatics'.

Answer and Solution

(i)

```
SELECT RIGHT(Ename, 3) FROM EMPLOYEE;
```

(ii)

```
SELECT INSTR('Informatics', 'ma');
```

This query returns 6, because the substring 'ma' begins at the sixth character of 'Informatics'.

Marking Scheme

1 mark for each correct query.

Question 27**[2 marks]**

Mention and briefly explain any two guidelines of netiquette.

Answer and Solution

Be Ethical: Do not violate copyright laws; always seek permission before using or sharing copyrighted material.

Be Respectful: Respect the privacy, opinions and cultural diversity of others, especially in public online forums.

(Any two correct guidelines, each with a brief explanation, are acceptable.)

Marking Scheme

1 mark for each correct guideline with its explanation.

Question 28**[2 marks]****(A)**

Consider the following two dictionaries:

```
dict1 = {'a': 10, 'b': 20}
dict2 = {'a': 5, 'b': 10, 'c': 20}
```

Write Python code to create a DataFrame from a list containing the above two dictionaries.

OR**(B)**

Mention the purpose of read_csv() and explain the use of its sep parameter.

Answer and Solution — (A)

```
import pandas as pd
dict1 = {'a': 10, 'b': 20}
dict2 = {'a': 5, 'b': 10, 'c': 20}
df = pd.DataFrame([dict1, dict2])
print(df)
```

The key 'c' is missing from dict1, so the first row stores NaN in column c.

Marking Scheme

2 marks for the correct program.

Answer and Solution — (B)

read_csv() is used to load data from a CSV file into a Pandas DataFrame.

sep: Specifies the delimiter that separates the values in the file (for example a comma or a semicolon).

Marking Scheme

1 mark for the purpose of read_csv().
1 mark for the use of the sep parameter.

SECTION - C**4 × 3 = 12 Marks**

Questions 29 to 32

Question 29**[3 marks]**

Consider the following digital security scenarios and answer the questions:

- (i) Mehak receives an SMS from an unknown number stating she has won a lottery. To claim it, she must click a link and enter her Aadhaar number and bank OTP. What type of cybercrime is this?
- (ii) A group of people repeatedly post insulting comments and spread rumors about a classmate on a social media platform to distress them. What is this activity called?
- (iii) Suggest one Communication Etiquette that should be followed to maintain credibility while participating in an online discussion forum.

Answer and Solution

- (i) **Phishing** — confidential details are being obtained by pretending to be a genuine offer.
- (ii) **Cyber Bullying** — repeated online harassment intended to distress a person.
- (iii) **Be Credible** — post only verified information and use polite, respectful language.

Marking Scheme

1 mark for each correct part.

Question 30

[3 marks]

(A)

(i) Write a Python program to create a Pandas Series named Inventory from the following dictionary:

```
stock = {'Pens': 150, 'Erasers': 80, 'Sharpener': 60, 'Notebooks': 200}
```

(ii) Consider two Series S1 and S2:

```
import pandas as pd
S1 = pd.Series([10, 20], index=['a', 'b'])
S2 = pd.Series([30, 40], index=['b', 'c'])
```

Write the output of the statement: print(S1 + S2)

OR

(B)

Consider a DataFrame df as shown below:

	Name	IP	Maths
0	Arpit	95	88
1	Vani	89	92
2	Chetan	78	80

Write Pandas statements to perform the following actions:

- (i) Add a new column 'Total' containing the values [183, 181, 158].
- (ii) Rename the 'Name' column to 'Student'.
- (iii) Delete the 'Maths' column from the DataFrame.

Answer and Solution – (A)

(i)

```
import pandas as pd
stock = {'Pens': 150, 'Erasers': 80, 'Sharpener': 60, 'Notebooks': 200}
Inventory = pd.Series(stock)
print(Inventory)
```

(ii) Output:

```
a    NaN
b    50.0
c    NaN
dtype: float64
```

Only the label 'b' is present in both Series, so only it gets a value (20 + 30 = 50). Labels 'a' and 'c' appear in just one Series each, so the result is NaN.

Marking Scheme

2 marks for the correct program in part (i).
1 mark for the correct output in part (ii).

Answer and Solution — (B)**(i)**

```
df['Total'] = [183, 181, 158]
```

(ii)

```
df.rename(columns={'Name': 'Student'}, inplace=True)
```

(iii)

```
df.drop(columns=['Maths'], inplace=True)
```

Marking Scheme

1 mark for each correct statement.

Question 31**[3 marks]**

Consider the table HOSPITAL, which contains the following columns:

Column Name	Remark
PNo	Patient Number
PName	Patient Name
Dept	Department
DOA	Date of Admission

Table: HOSPITAL

PNo	PName	Dept	DOA
101	Ravi Kumar	Cardiology	2024-05-12
102	Anita Sharma	Neurology	2025-06-01
103	Mohan Das	Cardiology	2023-05-18
104	Seema Verma	Orthopedics	2022-04-22
105	Rahul Singh	Cardiology	2025-03-30

Write SQL queries to perform the following tasks:

- Display the names of all patients in the Cardiology department in lowercase.
- Display each patient's number along with the day name of the week on which they were admitted.
- Display the patient names arranged in alphabetical order.

Answer and Solution**(i)**

```
SELECT LOWER(PName) FROM HOSPITAL WHERE Dept = 'Cardiology';
```

(ii)

```
SELECT PNo, DAYNAME(DOA) FROM HOSPITAL;
```

(iii)

```
SELECT PName FROM HOSPITAL ORDER BY PName ASC;
```

Marking Scheme

1 mark for each correct query.

Question 32

[3 marks]

(A)

Consider a table named STUDENT containing the following data:

ID	Name	DOB
1	Aman	2005-08-15
2	Vinod	2006-01-26
3	Saurabh	2004-01-01

Write the output of the following SQL queries:

```
(i) SELECT UPPER(Name), LENGTH(Name) FROM STUDENT WHERE ID = 2;
(ii) SELECT DAY(DOB), YEAR(DOB) FROM STUDENT WHERE ID = 3;
(iii) SELECT RIGHT(Name, 3) FROM STUDENT WHERE ID = 1;
```

OR

(B)

Write the output of the following SQL queries:

```
(i) SELECT POWER(MOD(13, 5), 2);
(ii) SELECT UCASE(MID("Digital India", 9, 5));
(iii) SELECT LENGTH(TRIM(" Informatics "));
```

Answer and Solution – (A)

(i)

UPPER(Name)	LENGTH(Name)
VINOD	5

(ii)

DAY(DOB)	YEAR(DOB)
1	2004

(iii)

RIGHT(Name, 3)
man

Marking Scheme

1 mark for each correct output.

Answer and Solution – (B)

(i) 9

MOD(13, 5) = 3 and POWER(3, 2) = 9.

(ii) INDIA

MID("Digital India", 9, 5) returns "India", and UCASE() converts it to upper case.

(iii) 11

TRIM() removes the leading and trailing spaces, leaving "Informatics", which has 11 characters.

Marking Scheme

1 mark for each correct output.

SECTION - D**2 × 4 = 8 Marks**

Questions 33 to 34

Question 33**[4 marks]**

Write a Python program using Matplotlib to plot a Line Graph showing the "Monthly Sales" of a shop with the following data:

```
Months: ['Jan', 'Feb', 'Mar', 'Apr']  
Sales:  [12000, 15000, 11000, 18000]
```

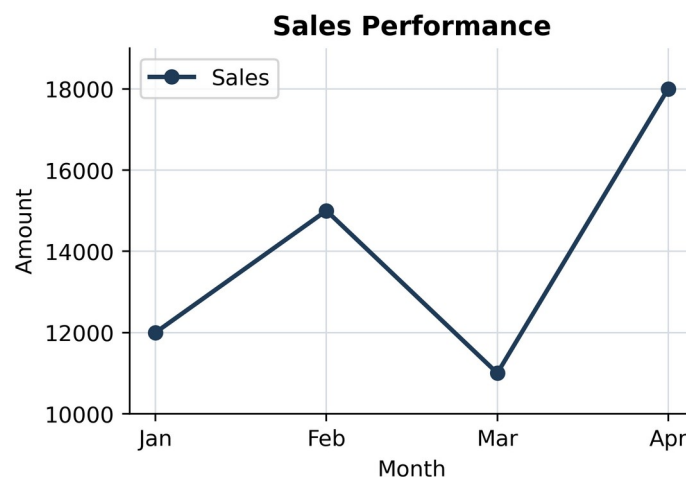
The program should include:

- Code to import the required library.
- Code to plot the line graph with a label "Sales".
- A title "Sales Performance".
- Labels for both X-axis ("Month") and Y-axis ("Amount").
- Code to display the legend and show the plot.

Answer and Solution

```
import matplotlib.pyplot as plt  
months = ['Jan', 'Feb', 'Mar', 'Apr']  
sales = [12000, 15000, 11000, 18000]  
plt.plot(months, sales, label="Sales")  
plt.title("Sales Performance")  
plt.xlabel("Month")  
plt.ylabel("Amount")  
plt.legend()  
plt.show()
```

Output produced by the program:



Marking Scheme

- 1 mark for the correct import.
- 1 mark for the correct use of plot() with the label.
- ½ mark for the title.
- ½ mark for the axis labels.
- ½ mark for the legend.
- ½ mark for show().

Question 34

[4 marks]

(A)

Consider the following tables:

Table: SPORTS

RegNo	SName	Game	Fees
101	Aryan	Cricket	500
102	Riya	Tennis	600
103	Kabir	Cricket	500
104	Ishaan	Tennis	600
105	Tejas	Football	750

Table: COACH

CoachID	CName	Game
C1	Venkatesh	Cricket
C2	Rameshwar	Tennis
C3	Sridhar	Football

Write SQL queries for the following:

- (i) Display the Game name and the total fees collected for each game, but only for those games where the total fees exceed 1000.
- (ii) Display the Student Name (SName) and their respective Coach Name (CName).

OR

(B)

Consider the following tables:

Table: Employee

EmpID	Name	DeptID	Salary
301	Aarav	D1	5200
302	Riya	D2	7500
303	Kabir	D2	6800
304	Ananya	D3	4000
305	Ishaan	D1	4900



Table: Department

DeptID	DeptName
D1	HR
D2	IT
D3	Sales

Write the output of the following SQL queries:

- (i) `SELECT DeptID, COUNT(*), MAX(Salary) FROM Employee
GROUP BY DeptID HAVING COUNT(*) > 1 ORDER BY DeptID;`
- (ii) `SELECT Name, DeptName FROM Employee, Department
WHERE Employee.DeptID = Department.DeptID AND Employee.Salary > 6000;`

Answer and Solution – (A)**(i)**

```
SELECT Game, SUM(Fees) FROM SPORTS
GROUP BY Game HAVING SUM(Fees) > 1000;
```

(ii)

```
SELECT SName, CName FROM SPORTS, COACH
WHERE SPORTS.Game = COACH.Game;
```

Marking Scheme

- 2 marks for the correct query in part (i).
2 marks for the correct query in part (ii).

Answer and Solution – (B)**(i)**

DeptID	COUNT(*)	MAX(Salary)
D1	2	5200
D2	2	7500

D3 has only one employee, so it is removed by `HAVING COUNT(*) > 1`.

(ii)

Name	DeptName
Riya	IT
Kabir	IT

Only Riya (7500) and Kabir (6800) earn more than 6000, and both belong to department D2 (IT).

Marking Scheme

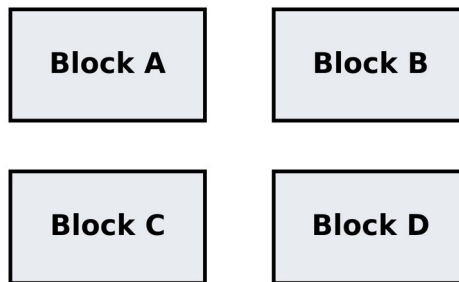
- 2 marks for the correct output of part (i).
2 marks for the correct output of part (ii).

SECTION - E**3 × 5 = 15 Marks**

Questions 35 to 37

Question 35**[5 marks]**

Tech-Innovate Pvt Ltd is a leading technology solutions provider renowned for delivering innovative digital services to clients worldwide. The company operates from a spacious campus comprising four blocks: Block A, Block B, Block C, and Block D.

Tech-Innovate Pvt Ltd*Campus layout (not to scale).*

To ensure smooth communication, centralized data storage, and high-speed connectivity across the campus, the organization plans to set up a structured network connecting all blocks.

The following tables provide the distances between the blocks and the number of computers in each block.

From	To	Distance (meters)
Block A	Block B	40 m
Block A	Block C	50 m
Block A	Block D	160 m
Block B	Block C	70 m
Block B	Block D	60 m
Block C	Block D	120 m

Block	Number of Computers
Block A	25
Block B	60
Block C	15
Block D	150

As a network engineer, answer the following questions based on the details given above:

- Suggest the most suitable block to install the server. Justify your answer.
- What type of network (PAN, LAN, MAN, or WAN) will be formed within the campus?
- Suggest the placement of a Switch with suitable justification.
- The company wants to host a website where clients can log in and see real-time project updates. Should they develop a Static or a Dynamic website? Why?

(v) Identify between which blocks a repeater is needed and justify your answer.

Answer and Solution

(i) Block D. It is the most suitable because it has the maximum number of computers (150), so network traffic to the server is kept lowest.

(ii) LAN (Local Area Network). The distance is within a single campus / limited area.

(iii) Switch: Every block (A, B, C and D) should have a switch, to connect the multiple computers within that block.

(iv) Dynamic Website. Since it involves user logins and real-time data updates from a database, a dynamic site is required.

(v) Between Block A and Block D, and between Block C and Block D, because a repeater is needed where the distance exceeds about 100 m for Ethernet (A-D is 160 m and C-D is 120 m).

Marking Scheme

1 mark for each correct part.

Question 36

[3 + 1 + 1 = 5 marks]

(i) Create a DataFrame named StoreDF as shown below using dictionary of series:

	Items	Quantity	Unit_Price
0	Bread	50	30
1	Milk	100	25
2	Eggs	120	6

Write suitable Pandas statements to perform the following operations:

(ii) Add a new row containing data [Butter, 40, 55].

(iii) Display values of Items column only.

Answer and Solution

(i)

```
import pandas as pd
data = {
    'Items': pd.Series(['Bread', 'Milk', 'Eggs']),
    'Quantity': pd.Series([50, 100, 120]),
    'Unit_Price': pd.Series([30, 25, 6])
}
StoreDF = pd.DataFrame(data)
print(StoreDF)
```

(ii)

```
StoreDF.loc[3] = ['Butter', 40, 55]
```

(iii)

```
print(StoreDF['Items'])
```

Marking Scheme

3 marks for the correct program in part (i).

1 mark for the correct statement in part (ii).

1 mark for the correct statement in part (iii).

Question 37**[5 marks]****(A)**

Refer to the table given below:

Table: BOOK

BookID	Title	Author	Price
201	Wings of Fire	A P J Abdul Kalam	350
202	The Guide	R. K. Narayan	299
203	The God of Small Things	Arundhati Roy	399
204	Malgudi Days	R. K. Narayan	280

Write SQL commands for the following tasks:

- (i) Insert a new record into the table with the values: 205, The White Tiger, Aravind Adiga, 350.
- (ii) Update the Price of the book with BookID 202 to 325.
- (iii) Delete the records of all books written by 'R. K. Narayan'.
- (iv) Add a new column Publisher of type VARCHAR(30) to the table.
- (v) Drop the table BOOK from the database.

OR**(B)**

Consider a table named PRODUCT, which contains the following columns: PCode, PName, Category, Qty, Price, ExpiryDate.

The columns are described as follows:

Column	Description
PCode	A unique code assigned to each product.
PName	The name of the product.
Category	The category or type of the product.
Qty	The available quantity of the product.
Price	The unit price of the product.
ExpiryDate	The expiration date of the product.

Write SQL queries for:

- (i) Display PName and its Price rounded to one decimal place.
- (ii) Display the names of products that end with the letter 's'.
- (iii) Display the PName and Category of those products whose Price is less than or equal to 500.
- (iv) Display the total quantity of all products.
- (v) Display PName after removing leading spaces only.

Answer and Solution – (A)**(i)**

```
INSERT INTO BOOK VALUES (205, 'The White Tiger', 'Aravind Adiga', 350);
```

(ii)

```
UPDATE BOOK SET Price = 325 WHERE BookID = 202;
```

(iii)

```
DELETE FROM BOOK WHERE Author = 'R. K. Narayan';
```

(iv)

```
ALTER TABLE BOOK ADD Publisher VARCHAR(30);
```

(v)

```
DROP TABLE BOOK;
```

Marking Scheme

1 mark for each correct SQL command.

Answer and Solution — (B)

(i)

```
SELECT PName, ROUND(Price, 1) FROM PRODUCT;
```

(ii)

```
SELECT PName FROM PRODUCT WHERE RIGHT(PName, 1) = 's';
```

(iii)

```
SELECT PName, Category FROM PRODUCT WHERE Price <= 500;
```

(iv)

```
SELECT SUM(Qty) FROM PRODUCT;
```

(v)

```
SELECT LTRIM(PName) FROM PRODUCT;
```

Marking Scheme

1 mark for each correct query.