Competency Based Question Bank

CLASS XII

Informatics Practices(065)

Session 2025-26

KENDRIYA VIDYALAYA SANGATHAN

Zonal Institute of Education & Training, Gwalior

OUR MENTOR:

MR. B.L. MORODIA

Deputy Commissioner & Director

KVS Zonal Institute of Education and Training, Gwalior

Course Coordinator

MRS. ANITA KANAJIA, T.A. ECONOMICS

RESOURCE PERSONS

1. **MRS SANGEETA M CHAUHAN ,**
   PGT CS , PM SHRI K V NO 3 GWALIOR
2. **MR. ALOK GUPTA**
   PGT COMP, PM SHRI K V ETAWAH

VETTED BY:

1. **MR RAJU DIXIT ,**
   PGT CS, PM SHRI KV GOMTINAGAR Shift 1
2. **MR. RAKESH KUMAR SINGH YADAV**
   PGT CS, PM SHRI KV ALIGANJ SHIFT 1
3. **MR. SUNIL KUMAR BHELE**
   PGT CS, CHOURAI
4. **MR. MANISH GUPTA**
   PGT CS, PM SHRI K V NO.2 SAGAR
5. **MR PANKAJ SINGH**
   PGT(CS) , PM SHRI KV TALBEHAT

TOPIC - SERIES

Q.No.	Questions	Marks
1	Series is a one-dimensional labeled array capable of holding any data type. (T/F)	1
2	Element-wise arithmetic operations (like addition and subtraction) can be performed between two Series of the same length. (T/F)	1
3	Series based head() and tail () functions can be used on one single series. (T/F)	1
4	Suppose L1 is list and S1 is series then L1*2 (list) and S1*2 (Series) will give same output? (T/F)	1
5	Series is size _____ and value _____. a. mutable, mutable b. immutable, immutable c. mutable, immutable d. immutable, mutable	1
6	Series operations align data based on _____ rather than position.	1
7	To access the first 5 elements of a Series **s**, we use **s.**_____().	1
8	Which statement creates a Series from a dictionary{'x':100,'y':200}? a. pd.Series(['x', 'y'], [100, 200]) b. pd.Series({'x': 100, 'y': 200}) c. pd.Series(100, 200, index=['x', 'y']) d. pd.Series.from_dict({'x': 100, 'y': 200})	1
9	Which of the following is TRUE about a Pandas Series? a. It is always two-dimensional b. It has labeled indices c. It cannot store string values d. It requires all values to be unique	1
10	What will s1 + s2 do when s1 and s2 are Series? a. Concatenate the Series b. Add elements by position c. Add elements by matching index labels d. Subtract elements from each other	1
11	To display Third Element of a Series object S, you will write : a. S[:3] b. S[2] c. S[3] d. S[:2]	1
	Assertion(A) and Reason(R) based questions. Mark the correct choice as: *a. Both A and R are true and R is the correct explanation for A* *b. Both A and R are true and R is not the correct explanation for A* *c. A is True but R is False* *d. A is False but R is True*	
12	**Assertion (A):** In a Series, each element must be of the same data type. **Reason (R):** A Series in Pandas is similar to a list in Python, which also enforces uniform data types.	1
13	**Assertion (A):** If an index label is missing in one Series, Pandas will raise an error during operations. **Reason (R):** Pandas returns NaN when a label is missing in any Series during operations.	1
14	**Assertion (A):** Boolean indexing s[s > 5] can return a Series with fewer elements. **Reason (R):** It filters elements based on a condition.	1
15	Find error(s) import pandas as pd s = pd.Series(1, 2, 3) print(s)	2
16	Find error(s) import pandas as pd s = pd.Series([1, 2, 3], index=[0, 1, 2]) s[3] = 4	2

17	Find error(s) import pandas as pd s = pdd.series([10, 20, 30], index=['a', 'b', 'c', 'd']) print(s[s > '20'])	2
18	Write the output import pandas as pd s = pd.Series([5, 10, 15], index=['a', 'b', 'c']) print(s['b'])	2
19	Write the output import pandas as pd s = pd.Series([10, 20, 30, 40], index=['a', 'b', 'c', 'd']) print(s['b'] + s['d'])	2
20	Write the output import pandas as pd nums=pd.Series([9,8,7,6,5],index=range(0,10,2)) print(nums[1:3])	2

Q.No.	Answers	Marks
1	True	1
2	True	1
3	True	1
4	False	1
5	d. immutable, mutable	1
6	index Explanation:When performing operations between two Series, Pandas matches values using index labels. If the indices are the same, it performs the operation; if not, it returns NaN for unmatched labels.	1
7	head()	1
8	a. pd.Series({'x': 100, 'y': 200})	1
9	b. It has labeled indices Explanation: A Series is a one-dimensional labeled array. Labels (indices) can be customized and are a key feature.	1
10	c. Add elements by matching index labels Explanation: Series arithmetic operations are label-based, not position-based.	1
11	b. S[2] as method is seriesname[index] and starting index is 0 and 3rd element will have 2 value	1
12	*c. A is True but R is False* *(Explanation: A Series can contain mixed data types; Python lists also allow mixed types.)*	1
13	d. The Assertion is false, but the Reason is true.	1
14	*a. Both A and R are true and R is the correct explanation for A*	1
15	**Correction:** s = pd.Series([1, 2, 3]) Explanation: pd.Series() takes the data as the first argument and index as a keyword argument (if needed).	2
16	Error: to assign a value to an index (3) that does not exist in the Series. Pandas raises an error because the index does not already exist. To add an element at index 3	2

	s.loc[3] = 4 # Corrected: Adds the value 4 at index 3	

17	s = **pdd**.series([10, 20, **30**], index=['a', 'b', 'c', 'd']) # pandas library imported as pd
	# there are 03 elements and index is given 04 values
	print(s[s > '**20**'])
	# values are of int type in series
		2

18	10	2
19	60	2
20	2 8 4 7 dtype: int64 as series be as nums=pd.Series([9,8,7,6,5],index= [0,2,4,6,8]) and slicing [1:3] will extract 1st element as 8 having index as 2 and 2nd element as 7 having index as 4	2

TOPIC - DATAFRAME

Q.No.	Questions	Marks
1	Multiple series can be combined as list of series to form a DataFrame. (True/False)	1
2	Pandas library is needed to import to create a DataFrame(True/False)	1
3	Dataframe is size mutable. (True /False)	1
4	The head() function in Pandas DataFrame returns the last five rows by default. (True/False)	1
5	Data Frame can be created using list, dictionary and _____	1
6	We can add a new row to a DataFrame using the _____method	1
7	The tail() function returns the last ____ rows by default	1
8	The following code create a dataframe named 'KV' with _____ columns. import pandas as pd dicts = [{'a':100, 'b':200}, {'a':50, 'b':100, 'c':200}] KV = pd.DataFrame(dicts) 1 b. 2 c. 3 d. 4	1
9	Given a Pandas DataFrame called S, the command which will display the last 4 rows is _____. a. print(S.tail(4)) b. print(s.Tail()) c. print(s.tails(4)) d. print(s.tail(4))	1
10	When we create DataFrame from List of Dictionaries, then number of columns in DataFrame is equal to the _____ a. maximum number of keys in first dictionary of the list b. maximum number of different keys in all dictionaries of the list c. maximum number of dictionaries in the list d. None of the above	1
11	Given a DataFrame df containing employee details, how can you extract rows where the salary is greater than 50,000? a. df[df['salary']>50000] b. df['salary']>50000 c. df.loc[df['salary']>50000] d. df.iloc[df['salary']>50000]	1
	Assertion(A) and Reason(R) based questions. Mark the correct choice as: *a. Both A and R are true and R is the correct explanation for A* *b. Both A and R are true and R is not the correct explanation for A* *c. A is True but R is False* *d. A is False but R is True*	

12	**Assertion (A):-** A Series is a one dimensional array and a DataFrame is a two dimensional array containing sequence of values of any data type(string,list,int,float etc.) **Reasoning (R): -** Both Series and DataFrame have by default numeric indexes starting from zero.	1
13	**Assertion (A):-** DataFrame has both a row and column index. **Reasoning (R): -** A DataFrame is a two-dimensional labelled data structure like a table of MySQL.	1
14	**Assertion (A):** df[2:5] selects rows with indices 2, 3, and 4 from the DataFrame. **Reason (R):** Slicing with df[start:end] in Pandas includes the start index but excludes the end index.	1
15	The Python code written below has syntactical errors. Rewrite the correct code and underline the correction(s) made. import Pandas as pd countries=[{'country';'INDIA','capital':'New Delhi'}, {'country':'USA','capital':'New York'}, {'country':'JAPAN','capital':'Tokyo'} df=pd.Dataframe(country) print(df)	2
16	Identify the syntax error in following code: df = pd.DataFrame({'Name':['A','B'], 'Age':[20, 25]}) df.rename(columns='Age':'Years')	2
17	Given a DataFrame df find what is wrong with this statement? df.iloc['2:5']	1

18	Write the output
	import pandas as pd
	# Create a 2D dataset (DataFrame)
	data = {
	'Name': ['Alice', 'Bob', 'Charlie', 'David'],
	'Age': [25, 30, 35, 40],
	'City': ['New York', 'Los Angeles', 'Chicago', 'Houston']
	}
	
	df = pd.DataFrame(data)
	# Print rows from index 1 to 2 (inclusive of 1, exclusive of 3)
	print(df[1:3])
		2

19	Write the output What is the output of the following program? import pandas as pd df=pd.DataFrame(index=[0,1,2,3,4,5],columns=[‘one’,’two’]) print df[‘one’].sum()	2
20	Write the output Consider following Dataframe and find output : import pandas as pd data = {'Product': ['Laptop', 'Tablet', 'Smartphone', 'Monitor', 'Keyboard'], 'Price': [800, 300, 600, 200, 50], 'Stock': [50, 100, 200, 150, 300]} df = pd.DataFrame(data, index=['P1', 'P2', 'P3', 'P4', 'P5']) print(df.loc[['P4'], ['Price']])	2

Q.No.	Answers	Marks
1	True	1
2	True	1
3	True	1
4	False, it returns the first five rows by default.	1
5	Series	1
6	loc[ ]	
7	5	1
8	c. 3	1
9	print(S.tail(4))	1
10	b. maximum number of different keys in all dictionaries of the list	1
11	a. df[df[′salary′]>50000]	1
12	a. Both A and R are true and R is the correct explanation for A	1
13	a. Both A and R are true and R is the correct explanation for A	1
14	a. Both A and R are true and R is the correct explanation for A	1
15	import **p**andas as pd countries=[{'country':'INDIA','capital':'New Delhi'}, {'country':'USA','capital':'New York'}, {'country':'JAPAN','capital':'Tokyo'}**]** df=pd.Data**f**rame(**countries**) print(df)	2
16	Syntax error in rename() — should use columns={'Age':'Years'}.	2
17	'2:5' should be integer-based indexing, but it's given as a string. The correct format is df.iloc[2:5]	1
18	Name Age City 1 Bob 30 Los Angeles 2 Charlie 35 Chicago	2
19	It will produce an error	2
20	Price P4 200	2

TOPIC – DATA VISUALIZATION-1

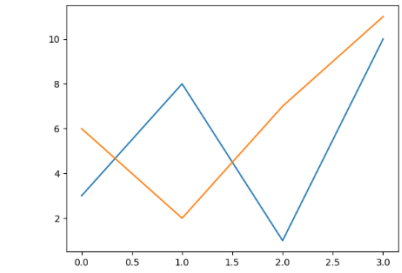
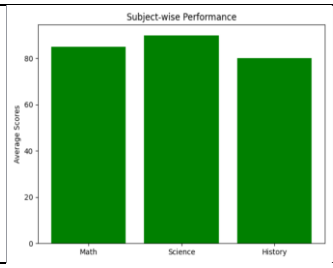
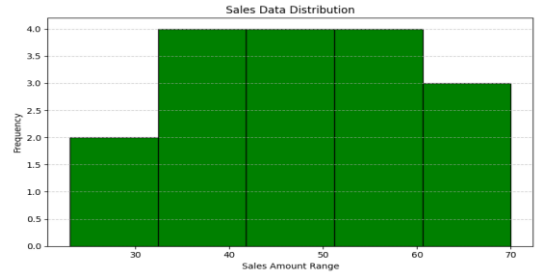
Q.No.	Questions	Marks
	Scenario: Imagine you have the following data representing the monthly sales of a bookstore **"MANGALAM STORE"** for the year 2024: months = ['Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun', 'Jul', 'Aug', 'Sep', 'Oct', 'Nov', 'Dec'] sales = [15000, 18000, 22000, 20000, 25000, 28000, 30000, 26000, 24000, 21000, 23000, 27000] Answer the following MCQ questions 1 and 2:	

1	**Statement:** The plt.plot() function in Matplotlib is used to create line plots.	1
2	**Statement:** The plt.xlabel() function in Matplotlib is used to set the title of the graph.	1
3	Multiple bar graphs can be plotted on the same axes using Matplotlib. (True/False)	1
4	State True or False:- The histtype parameter in the plt.hist() allows you to create difference style of histogram, such as 'bar', 'step' ,and 'stepfilled.'	1
5	The labels for the x and y axes in a Matplotlib plot are set using the _____ and _____ functions, respectively.	1
6	Fill in the blanks to show subject scores as a horizontal bar chart: import matplotlib.pyplot as plt subjects = ['IP', 'Math', 'History'] scores = [91, 85, 78] plt._____(subjects, scores) plt.title("Subject-wise Scores") plt.xlabel("Score") plt.ylabel("Subjects") plt._____()	2
7	Anita wants to show the legends on the upper left of histogram used by her for her project. Her sample code is given here:- import matplotlib as plt data=[2,2,2,1,1,1,2,4,5,6,6,7,7,7,7,8,9,1,2] plt.hist(data) …….. plt.show() help her to write missing function that add legends in the graph.	1
8	To display the created line graph in Python using Matplotlib, which function is typically called? a. plt.save() b. plt.show() c. plt.close() d. plt.figure()	1
9	Which module is primarily used to create bar plots in Python ? a.pandas b. numpy c. matplotlib.pyplot d. seaborn	1
10	Which method is used to create horizontal bar plots? a. plot() b. barh() c. bar() d. hbar()	1
11	Out of the following functions which one is not used in matplotlib. a. xlabel() b. title() c. xticks() d. xaxis()	1
	Assertion(A) and Reason(R) based questions. Mark the correct choice as: *a. Both A and R are true and R is the correct explanation for A* *b. Both A and R are true and R is not the correct explanation for A* *c. A is True but R is False* *d. A is False but R is True*	

12	**Assertion (A):** To plot a line graph in Python using Matplotlib, you must import the matplotlib.pyplot module. **Reason (R):** The pyplot module provides a collection of functions that allow you to create various types of plots, including line graphs, easily.	1
13	**Assertion (A):** Matplotlib can be used to generate bar graphs using the bar() function. **Reason (R):** The bar() function in Matplotlib allows users to plot categorical data with rectangular bars.	1
14	**Assertion(A):-** In histogram bars are close to each other, since it uses continuous ranges. **Reason(B):-** Data values given in the histogram are not grouped together as per defined range.	1
15	What is the error in the code snippet above? import matplotlib.pyplot as plt x = [1, 2, 3, 4] y = [5, 7, 6] plt.plot(x, y) plt.xlabel("Time") plt.ylabel("Value") plt.title("Trend Over Time") plt.show()	2
16	Find and correct the error in the following code: import matplot.pyplot as plt subjects = ['IP', 'Math'', 'English'] scores = [90, 85, 88) plt.bar(subjects, scores) plt.show	2
17	Identify the syntax error(s) in given code and rewrite the correct code with underline each correction. Import matplotlib.pyplot as plt data = [12, 15, 13, 17, 19, 21, 22, 22, 23, 25, 28, 29, 30, 31, 32, 35, 36, 37, 38, 40] Plt.hist(data, bins=8, color='skyblue', edgecolor='black') plt.xtitle('Sample Histogram') plt.xlabel('Value') plt.ylabel('Frequency') plt.Show()	2
18	Predict the output graph for the following code. import matplotlib.pyplot as plt import numpy as np y1 = np.array([3, 8, 1, 10]) y2 = np.array([6, 2, 7, 11]) plt.plot(y1) plt.plot(y2) plt.show()	2
19	Predict the output graph for the following code. import matplotlib.pyplot as plt labels = ['Math', 'Science', 'History'] scores = [85, 90, 80] plt.bar(labels, scores, color='green') plt.ylabel('Average Scores') plt.title('Subject-wise Performance') plt.show()	2

20	Predict the output graph for the following code. import matplotlib.pyplot as plt sales_data = [23, 45, 56, 67, 45, 34, 23, 40, 49, 52, 60, 65, 70, 33, 38, 55, 48] plt.figure(figsize=(8, 5)) plt.hist(sales_data, bins=5, color='green', edgecolor='black') plt.title('Sales Data Distribution') plt.xlabel('Sales Amount Range') plt.ylabel('Frequency') plt.grid(axis='y', linestyle='--', alpha=0.7) plt.tight_layout() plt.show()	2

Q.No.	Answers	Marks
1	True	1
2	False	1
3	True	1
4	True	1
5	xlabel() , ylabel()	1
6	Use plt.barh() and plt.show()	2
7	plt.legend(loc=”upper left”)	1
8	b. plt.show()	1
9	c. matplotlib.pyplot	1
10	b. barh()	1
11	d. xaxis()	1
12	*a. Both A and R are true and R is the correct explanation for A*	1
13	a. Both A and R are true, and R is the correct explanation of A.	1
14	*c. A is True but R is False*	1
15	**Explanation:** The error lies in the inconsistency of the lengths of the x and y lists provided to the plt.plot() function. The x list has 4 elements, while the y list has only 3. For a line graph, Matplotlib requires an equal number of data points for both the x and y axes to correctly plot the relationship.	2
16	Error: Incorrect import statement, String Math starts with single quotes but ends at double quotes scores starts with square brackets but ends with parenthesis show is a function not attribute Correction: import matplotlib.pyplot as plt subjects = ['IP', 'Math’, 'English'] scores = [90, 85, 88] plt.bar(subjects, scores) plt.show()	2
17	import matplotlib.pyplot as plt data = [12, 15, 13, 17, 19, 21, 22, 22, 23, 25, 28, 29, 30, 31, 32, 35, 36, 37, 38, 40] plt.hist(data, bins=8, color='skyblue', edgecolor='black') plt.title('Sample Histogram') plt.xlabel('Value') plt.ylabel('Frequency') plt.show()	2

18		2
19		2
20		2

TOPIC – DATA VISUALIZATION-2

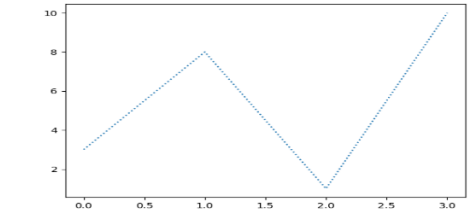
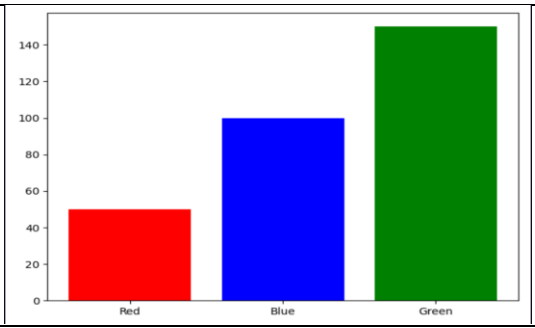
Q.No.	Questions	Marks
	Scenario: Imagine you have the following data representing the monthly sales of a bookstore **"MANGALAM STORE"** for the year 2024: months = ['Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun', 'Jul', 'Aug', 'Sep', 'Oct', 'Nov', 'Dec'] sales = [15000, 18000, 22000, 20000, 25000, 28000, 30000, 26000, 24000, 21000, 23000, 27000] Answer the following MCQ questions 1 and 2:	
1	**Statement:** A decreasing trend in a line graph is represented by a line that generally slopes downwards from left to right.	1
2	**Statement:** You can plot multiple lines on the same graph using Matplotlib by calling the plt.plot() function multiple times with different datasets.	1
3	A bar graph is a type of chart that displays data using lines instead of bars. (True/False)	
4	State True of False:- You can overlay multiple histograms on the same plot by calling hist() multiple times with different datasets.	1
5	The Matplotlib function used to save a plot to a file is _____.	1
6	Complete the code to generate the following bar graph: Expected Output: A bar graph showing "Books Read" by 3 students with blue bars. X-axis: ['Anil', 'Sunita', 'Ravi'] Y-values: [4, 7, 5] Code:	2

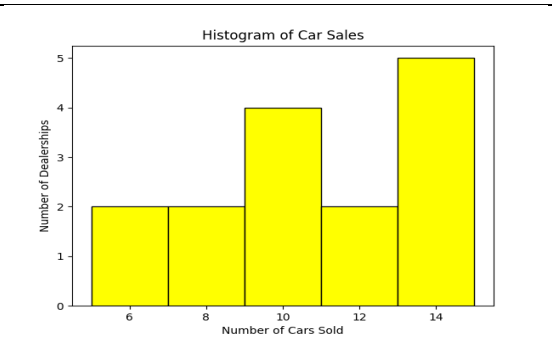
	import matplotlib.pyplot as plt students = ['Anil', 'Sunita', 'Ravi'] books = [4, 7, 5] plt._____(students, books,_____) plt.title("Books Read by Students") plt.xlabel("Student name") plt._____("Books Read") plt._____()	
7	Identify the function that saves the graph in a image file. <pyplot obj>. ……("Histogram_Data.png")	1
8	If you wanted to add a grid to your line graph, which Matplotlib function would you use? a. plt.style.use('grid') b. plt.add_grid(True) c. plt.grid(True) d. grid = True	1
9	Ramesh wanted to create a visual representation of some record but he forget how to import the library to use it. Help him to find the correct option? a. import matplotlib.pyplot as plt b. import matplotlib as plt c. import pyplot d. from matplotlib import barplot	1
10	Hari wants to display two sets of bars side-by-side, he needs to: a. change axis b. modify the x values c. use subplots d. use pie chart	1
11	Identify the function that sets the tick location and label on x-axis a. xlabel() b. xtitle() c. xticks() d. xaxis()	1
	Assertion(A) and Reason(R) based questions. Mark the correct choice as: *a. Both A and R are true and R is the correct explanation for A* *b. Both A and R are true and R is not the correct explanation for A* *c. A is True but R is False* *d. A is False but R is True*	
12	**Assertion (A):** A line graph is an effective way to visualize the trend of a continuous variable over time. **Reason (R):** Line graphs connect discrete data points with straight lines, making it easy to observe changes and patterns.	1
13	**Assertion (A):** plt.plot() is the correct function to create bar graphs in Matplotlib. **Reason (R):** Line graphs and bar graphs are created using the same function in Matplotlib.	1
14	**Assertion (A):** Histogram is much similar to the Bar graph. **Reason (R):** But histogram represents quantitative data and bar graph represents categorical data.	1
15	Identify the error in this code: time = [10, 11, 12, 13, 14] temperature = [25, 28, 26, 30, 29] plt.plot(temperature, time) plt.xlabel("Time (Hours)") plt.ylabel("Temperature (°C)") plt.title("Temperature Variation") plt.show()	2
16	Identify the error in this code: Import matplotlib.pyplot as plt x = ['A', 'B', 'C']	2

	y = [10, 20, 30] plt.bars(x, y) matplotlib.pyplot.title("Simple Bar Graph") plt.show()	
17	Identify the syntax error(s) in given code and rewrite the correct code with underline each correction. import matplotlib.pyplot as plt data = [23, 45, 56, 67, 45, 34, 23, 40, 49, 52, 60, 65, 70, 33, 38, 55, 48] plt.hist(DATA, bins=5, color='green', edgecolor='black') plt.title(“Sales Data Distribution') plt.xlabel(Sales Amount Range) plt.ylabel('Frequency') plt.grid(axis='y', linestyle='--', alpha=0.7) plt.show	2
18	Predict the output of following codes: import matplotlib.pyplot as plt import numpy as np ypoints = np.array([3, 8, 1, 10]) plt.plot(ypoints, linestyle = 'dotted') plt.show()	2
19	Predict the output of following codes: import matplotlib.pyplot as plt categories = ['Red', 'Blue', 'Green'] values = [50, 100, 150] plt.bar(categories, values, color=['red', 'blue', 'green']) plt.show()	2
20	Study the following code segment and what is the output graph will be plotted by the code segment import matplotlib.pyplot as plt car_sales = [5, 12, 9, 15, 7, 10, 13, 6, 9, 14, 8, 11, 10, 15, 13] plt.hist(car_sales, bins=5, color='yellow', edgecolor='black') plt.title('Histogram of Car Sales') plt.xlabel('Number of Cars Sold') plt.ylabel('Number of Dealerships') plt.show()	2

- DATA VISUALIZATION-2

Q.No.	Answers	Marks
1	True	1
2	True	1
3	False	1
4	True	1
5	plt.save( )	1

6	Use plt.bar(students,books,color=”blue”) Plt.ylabel(“Books Read”)and plt.show()	2
7	savefig	1
8	c. plt.grid(True)	1
9	a. import matplotlib.pyplot as plt	1
10	b. modify the x values	1
11	c. xticks()	1
12	*a. Both A and R are true and R is the correct explanation for A*	
13	d. A is False but R is True	1
14	*a. Both A and R are true and R is the correct explanation for A*	1
15	**Explanation:** The error is that the arguments passed to plt.plot() are in the incorrect order. The first argument should represent the x-axis values, and the second argument should represent the y-axis values. In this case, temperature is being plotted against time, which is likely not the intended representation. It should be plt.plot(time, temperature).	
16	Error: Import I is capital plt.bars() should be plt.bar() matplotlib.pyplot.title should be plt.title	2
17	import matplotlib.pyplot as plt data = [23, 45, 56, 67, 45, 34, 23, 40, 49, 52, 60, 65, 70, 33, 38, 55, 48] plt.hist(data, bins=5, color='green', edgecolor='black') plt.title(“Sales Data Distribution”) plt.xlabel(“Sales Amount Range”) plt.ylabel('Frequency') plt.grid(axis='y', linestyle='--', alpha=0.7) plt.show()	2
18		
19		2

20		2

Importing/ Exporting Data between CSV Files and DataFrames

Q.No	Section A: Multiple Choice Questions	Marks
1	Savita, a student of class 12 is working with CSV file and dataframe. She wishes to skip row labels and column headers while writing data to a CSV file using to_csv() method. By using which of the following statement, she can perform her task. a. header=False, index=False. b. header=False, index=False. c. header=False, index=False. d. header=False, index=False. **Competency Tested: Applying multiple arguments in to_csv()**	1
2	Ankit has created a dataframe named result containing marks of monthly test. He wants to write the dataframe to CSV file named 'monthlytest.csv' replacing marks of absentee students with the string 'ABSENT'. a. result.to_csv('d:\\ monthlytest.csv', na_rep="Null") b. result.to_csv('d:\\ monthlytest.csv', na_rep="ABSENT") c. result.to_csv('d:\\ monthlytest.csv', rep_na="ABSENT") d. result.to_csv('d:\\ monthlytest.csv', rep_na="Null") **Competency Tested: Applying practical use of arguments of to_csv()**	1
3	Kiran wants to skip 2nd and 6th rows while reading the data from csv file named car_prizes.csv into dataframe, which of the following statement will perform the task: a. skiprows = 2 6 b. skiprows = (2,6) c. skiprows = [2,6] d. Any of these **Competency Tested: Applying knowledge of parameters**	
4	Mrityunja wishes to export a DataFrame named staff to a CSV file named employees.csv without index . Which of the following statement will be correct: a. df.to_csv("employees.csv", index=True) b. df.to_csv("employees.csv", index=True) c. df.to_csv("employees.csv", index=False) d. df.to_csv("employees.csv", index=False) **Competency Tested: function arguments**	1
5	Ravi has received a CSV file named record. By using which of the following software, he can open the CSV file. a. Only Microsoft Excel b. Only Notepad c. Only spreadsheet software d. Excel, Notepad, OpenOffice, etc. **Competency Tested: Understanding usage of CSV file**	1
6	Arman, a student of Class 12 listed the following features of CSV file in a class test. Identify the incorrect feature from the list. a. CSV file can not be edited by simple text editor. b. CSV is simple to implement and parse.	1

	c. CSV cannot be processed by existing spreadsheet applications. d. CSV is faster to handle and smaller in size. **Competency Tested: Analyzing misconceptions and features**	
7	Raman is using a CSV file where values are separated by a semicolon (;) instead of a comma. He is getting errors while reading the file using the default read_csv() function. Which of the following statements will correctly solve the problem? a. pd.read_csv("data.csv") b. pd.read_csv("data.csv", sep=",") c. pd.read_csv("data.csv", sep=";") d. pd.read_csv("data.csv", separator=";") **Competency Tested: Applying knowledge of parameters**	1
8	Which argument is used to replace missing values while exporting a DataFrame to CSV? a. na_values b. replace_na c. fillna d. na_rep **Competency Tested: Recognize how to manage missing (NaN) values during export using the na_rep parameter.**	1
9	What happens when header=None is used while reading a CSV file in pandas? a. First row is treated as header b. Default numeric column labels are assigned c. File cannot be read d. Columns are dropped **Competency Tested: Understand the impact of header=None in read_csv() and how default column names are assigned.**	1
	Section B: Assertion-Reason Based Questions	
	Choose the correct option: a. Both Assertion and Reason are true, and Reason is the correct explanation of Assertion. b. Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion. c. Assertion is true but Reason is false. d. Assertion is false but Reason is true.	
10	Assertion (A): We can export a DataFrame containing missing values to a CSV file using the to_csv() method Reason (R): The na_rep parameter in to_csv() replaces missing values with a custom string during export. **Competency Tested: Understanding of exporting data and handling missing values in pandas.**	1
11	Assertion (A): Maya can exclude the first row of a CSV file while importing data using read_csv() by setting header=None. Reason (R): Setting header=None tells read_csv() to treat all rows, including the first, as data and not as column headers. **Competency Tested: Understanding of header parameter usage in data import using pandas.**	1
12	Assertion (A): index_col parameter of read_csv() is used to assign a column as the index. Reason (R): Without it, pandas assigns numeric indices starting from 0. **Competency Tested: Demonstrates understanding of how to customize DataFrame indices in pandas.**	1
13	Assertion (A): Using nrows=3 while reading a CSV file helps in memory optimization. Reason (R): This argument limits the number of rows read into the DataFrame. **Competency Tested: Apply nrows to limit data import and optimize memory usage.**	1
	Section C: Fill in the Blanks	
14	The function used to write data of dataframe to CSV file is _____.	1

	Competency Tested: Recalls pandas functions for data export.	
15	To specify a different separator while reading csv file other than the default comma, use _____. **Competency Tested: Remembers how to customize delimiters during data import using pandas.**	1
16	_____Parameter of read_csv used by Kavita, a student of class 12 to set one of the column of csv file as index of dataframe. **Competency Tested: Recalls parameter in data import to assign labels of indexes of dataframe from one of the column label of csv file.**	1
17	_____ is a plain text format using structured tabular data. **Competency Tested: Remembers file formats used in data handling.**	1
18	_____ is the argument for reading only n rows from a CSV. **Competency Tested: Recalls how to limit rows while reading a CSV file.**	1
19	In the expression df.to_csv('data.csv', sep='#'), the character used to separate values in the output file is _____. **Competency: Interpret syntax to understand customization of CSV formatting.**	1
20	If you want to export a DataFrame without including index, the correct syntax is: df.to_csv('file.csv', _____). **Competency: Combine multiple parameters effectively in to_csv() function.**	1

Answer Key

Section A: Multiple Choice Questions

1. a. header=False, index=False
2. b. result.to_csv(‘d:\ monthlytest.csv’, na_rep=”ABSENT”)
3. c. skiprows = [2,6]
4. c. df.to_csv("employees.csv", index=False)
5. d. Excel, Notepad, OpenOffice, etc.
6. a. CSV file can not be edited by simple text editor. *(This is incorrect)*
7. c. pd.read_csv("data.csv", sep=";")
8. d. na_rep
9. b. Default numeric column labels are assigned

Section B: Assertion-Reason Based Questions

10. a. Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.
11. b. Both Assertion and Reason are true, but Reason is not the correct explanation of Assertion. *(header=None does not exclude the first row — it treats it as data)*

OR

c. Assertion is true but reason is false.

12. a. Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.
13. a. Both Assertion and Reason are true, and Reason is the correct explanation of Assertion.

Section C: Fill in the Blanks

14. to_csv()

15. sep 16. index_col 17. CSV (Comma Separated Values) 18.nrows 19 index=False

TOPIC: COMPUTER NETWORK

Total Questions:20 Total Marks:20

Q.No.	MCQs	Marks
1.	Which device helps in connecting multiple computers in a LAN and manages data traffic efficiently? a. Modem b. Switch c. Router d. Hub	1
2.	What device is commonly used to share an internet connection wirelessly in homes and cafes? a. Switch b. Repeater c. Router d. Bridge	1
3.	Which of the following is not a communication medium? a. Twisted pair cable b. Fiber optics c. Microwave d. Keyboard	1
4.	A company wants to connect its branches located in different cities. Which type of network should they implement? a. LAN b. PAN c. MAN d. WAN	1
5.	Which of the following is the fastest data transmission medium? a. Coaxial cable b. Twisted pair cable c. Optical fiber d. Infrared	1
6.	In a computer lab, 25 systems are connected to share a printer and files. What type of network is this? a. PAN b. WAN c. LAN d. VPN	1
7.	Which device is used to regenerate weak signals in a network? a. Hub b. Router c. Switch d. Repeater	1
8.	Which is an example of a domain name? a. 192.168.0.1 b. google.com c. /user/index.html d. 255.255.255.0	1
9.	You are browsing a website and the URL starts with https://. What does this indicate? a. The site is a government website b.The site uses a secure connection c.The site is hosted locally d. The site is blocked	1
10.	The data transfer speed of a network is usually measured in: a. Hertz b. Ohms c. Bits per second (bps) d. Seconds	1
11.	Which of the following is not a valid type of transmission mode? a. Simplex b. Duplex c. Triplex d. Half-Duplex	1
12.	Which of the following devices is used to connect different networks? a. Hub b. Switch c. Router d. Repeater	1
	FULL FORMS Questions	
13.	What is the full form of WAN?	1
14.	What is the full form of HTTP?	1
15.	What is the full form of NIC?	1
	Assertion and Reasoning Questions Directions: For each question, select the correct option:	

	a. Both Assertion and Reason are true and Reason is the correct explanation of Assertion. b. Both Assertion and Reason are true but Reason is NOT the correct explanation of Assertion. c. Assertion is true but Reason is false. d. Assertion is false but Reason is true.	
16.	Assertion (A): A switch is more efficient than a hub in a network. Reason (R): A switch sends data only to the intended recipient device, whereas a hub broadcasts data to all devices.	1
17.	Assertion (A): TCP is a connection-oriented protocol. Reason (R): TCP ensures reliable data transmission by establishing a connection before sending data.	1
18.	Assertion (A): An IP address uniquely identifies a computer on the internet. Reason (R): IP addresses are assigned to identify the physical location of a computer.	1
19.	Assertion (A): A firewall helps to protect a network from unauthorized access. Reason (R): A firewall filters incoming and outgoing data based on predefined rules.	1
20.	Assertion (A): A modem converts digital signals into analog signals and vice versa. Reason (R): Modems are used to connect digital devices over telephone lines.	1

Solutions:

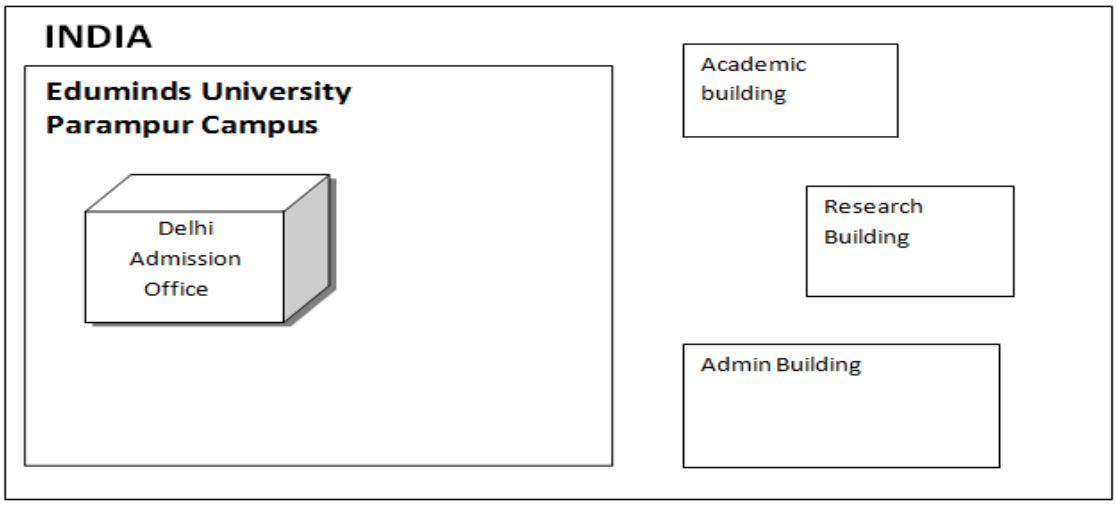
Q.No.	MCQs	Marks
1.	b. Switch	1
2.	c. Router	1
3.	d. Keyboard	1
4.	d. WAN	1
5.	c. Optical fiber	1
6.	c. LAN	1
7.	d. Repeater	1
8.	b. google.com	1
9.	The site uses a secure connection	1
10.	c. Bits per second (bps)	1
11.	c. Triplex	1
12.	c.Router	1
	FULL FORMS Questions	
13.	Wide Area Network	1
14.	Hypertext Transfer Protocol	1
15.	Network Interface Card	1
	Assertion and Reasoning Questions	
16.	a. Both A and R are true and R is the correct explanation of A.	1
17.	a. Both A and R are true and R is the correct explanation of A.	1
18.	c. A is true but R is false. (IP addresses identify devices, but not necessarily their physical locations.)	1

19.	a. Both A and R are true and R is the correct explanation of A.	1
20.	a. Both A and R are true and R is the correct explanation of A.	1

TOPIC: COMPUTER NETWORKING

<table>
<tr><td>Q.1</td><td>Indian Public School in Darjeeling is setting up the network between the different wings. There are 4 wings names as Senior(S), Junior (J), Admin(A) and Hostel(H). As a network expert, you need to suggest the network plan as per (i) to (v) to the authorities keeping in mind the distances and other given parameters.

Distance between various wings
<table><tr><td>Wing A to Wing S</td><td>100m</td></tr><tr><td>Wing A to Wing J</td><td>200m</td></tr><tr><td>Wing A to Wing H</td><td>400m</td></tr><tr><td>Wing S to Wing J</td><td>300m</td></tr><tr><td>Wing S to Wing H</td><td>100m</td></tr><tr><td>Wing J to Wing H</td><td>450m</td></tr></table>
No of Computers
<table><tr><td>Wing A</td><td>10</td></tr><tr><td>Wing S</td><td>200</td></tr><tr><td>Wing J</td><td>100</td></tr><tr><td>Wing H</td><td>50</td></tr></table>
i) Suggest a economically suitable Topology for Networking the computer of all wings
ii) Name the wing where the server is to be installed. Justify your answer.
iii) Suggest the placement of Hub/Switch in the network of each block.
iv) Mention an economic technology to provide internet accessibility to all wings.
v) If the school is opening one more branch in the city located in Delhi, how the school is connected in the low cost to the main branch of Admin block in Darjeelings.</td><td>5</td></tr>
<tr><td>Q2</td><td>“Eduminds University” is starting its first campus in a small town Parampur of Central India with its center admission office in Delhi. The University has 3 major buildings comprising of Admin building, AcademicBuilding and ResearchBuilding in the 5 KM area Campus. As a network expert, you need to suggest the network plan as per (i) to (v) to the authorities keeping in mind the distances and other given parameters.</td><td>5</td></tr>
</table>



Expected wire distances between various locations:

ResearchBuilding to AdminBuilding	90m
ResearchBuilding to AcademicBuilding	180m
AcademicBuilding to AdminBuilding	15m
Delhi Admission Office to Parampur campus	1450Km

Expected number of computers to be installed at various locations in the University is as follows:

ResearchBuilding	20
AcademicBuilding	150
AdminBuilding	35
DelhiAdmissionBuilding	5

(i) Suggest to the authorities, the cable layout amongst various buildings inside University campus for connecting the buildings.

(ii) Suggest the most suitable place (i.e. building) to house the server of this organization with a suitable reason.

(iii) Suggest an effective device from the following to be installed in each of the buildings to connect all the computers:

- Gateway Modem Switch

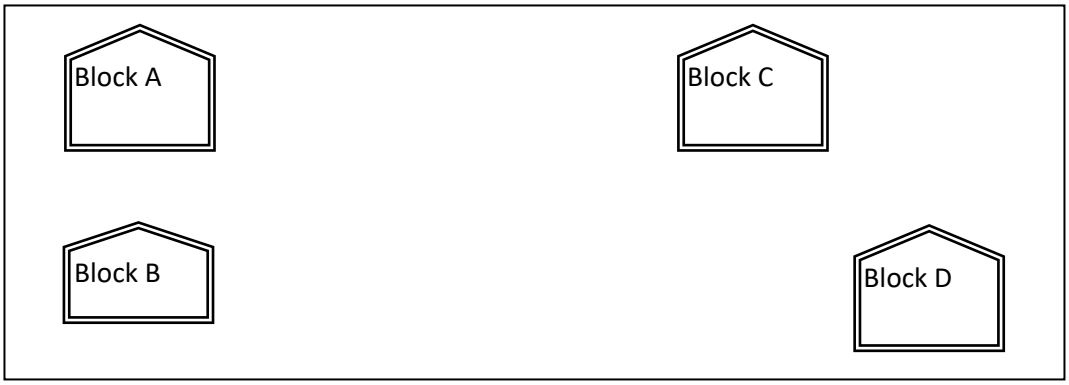
(iv) Suggest the most suitable (very high speed) service to provide data connectivity between Admission building located in Delhi and the campus located in Parampur from the following options:

- Telephone line Fixed line Dial-up connection
- Co-axial Cable Network Satellite Connection

(v) Which of the communication device useful to connect the Research Building and Academic buildings.

a) bridge b) gateway c) repeater

Q3 Knowledge Supplements Organization has set up its new center at Mangalore for its office and web based activities. It has 4 blocks of buildings as shown in the diagram below:



Center to center distances between various blocks

Black A to Block B	50 m
Block B to Block C	150 m
Block C to Block D	25 m
Block A to Block D	170 m
Block B to Block D	125 m
Block A to Block C	50 m

Number of Computers in each Block

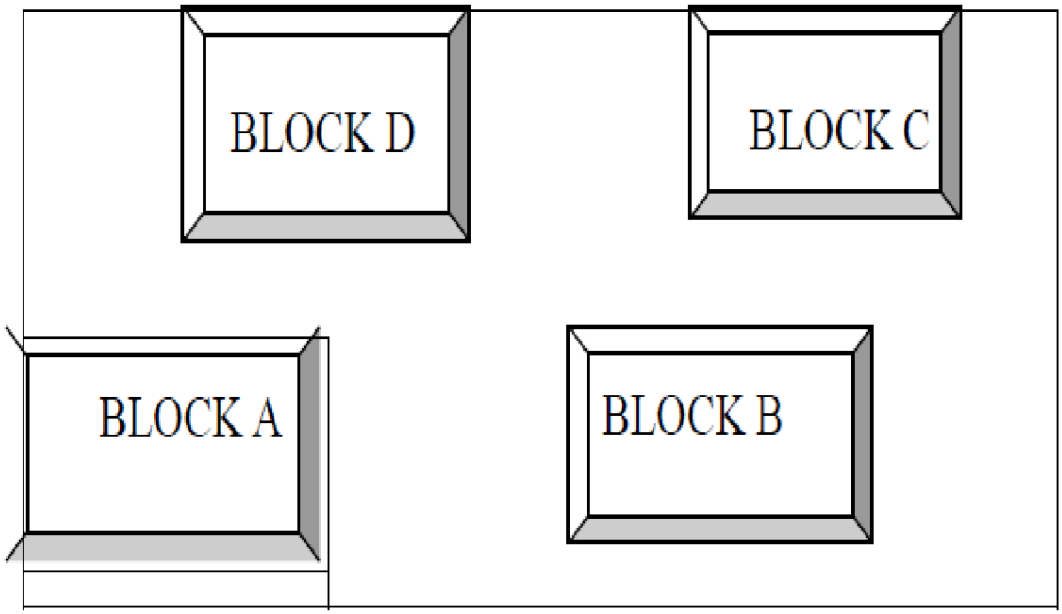
Black A	25
Block B	150
Block C	145
Block D	10

(i.) Suggest a cable layout of connections between the blocks.

(ii.) Suggest the most suitable place (i.e. block) to house the server of this Organization with a suitable reason.

(iii.) Suggest the placement of the following devices with justification

(i) Repeater (ii) Hub/Switch

	(iv) The organization is planning to link its front office situated in the city in a hilly region where cable connection is not feasible, suggest an economic way to connect it with reasonably high speed? (v) The organization is planning to link its front office situated in the city in a hilly region where cable connection is not feasible, what protocol is used for connectivity of front office to in city in hilly reason ? 1. FPT 2. SMTP 3. VoIP	
Q4	ABACUS Systems Organization has set up its new center at Delhi for its office and web based activities. It has 4 blocks of buildings as shown in the diagram below:  **Center to center distances between various blocks** Block A to Block B — 80m Block B to Block C — 250 m Block C to Block D — 50 m Block A to Block D — 190 m Block B to Block D — 25 m Block A to Block C — 50 m **Number of Computers in each Blocks**	

Block A	25
Block B	50
Block C	150
Block D	10

(i) Suggest a cable layout of connections between the blocks.

(ii) Suggest the most suitable place (i.e. block) to house the server of this organization with a suitable reason.

(iii) Suggest the placement of the following devices with justification

(i) Repeater (ii) Hub/Switch

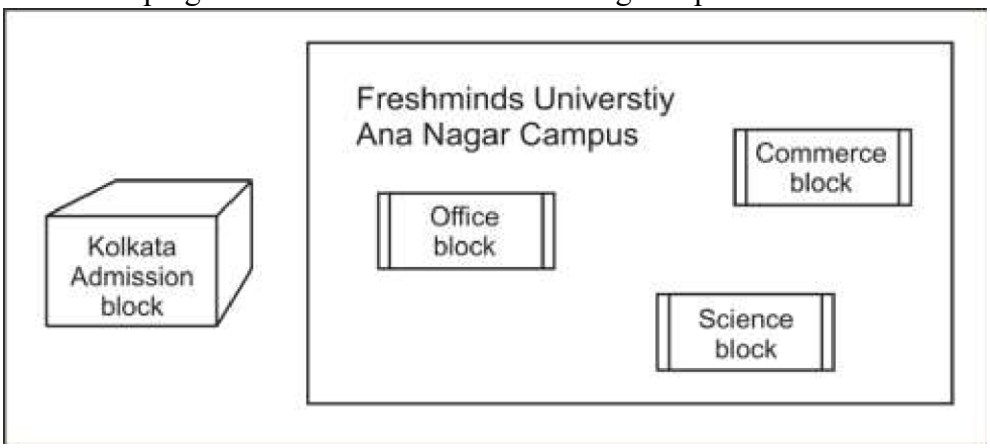
(iv) The organization is planning to link its International Office situated in Mumbai , which wired communication channel , you will suggest for a very high speed connectivity?

(v) Which types of networking is showing the connectivity between the blocks?

a) WAN b) MAN c) LAN

Q5 Freshminds University of India is starting its first campus in Ana Nagar of South India with its center admission office in Kolkata. The University has 3 major blocks comprising of office block, science block and commerce block in the 5 KM area campus.

As a network experts, you need to suggest the network plan as per (E1) to (E5) to the authorities keeping in mind the distances and other given parameters.



Expected Wire distances between various locations:

Office Block to Science Block	90m
Office Block to Commerce Block	80m
Science Block to Commerce Block	15m

Kolkata Admission Office to Ana Nagar Campus	2450Km

Expected number of Computers to be installed at various locations in the university are as follows:

Office Block	10
Science Block	140
Commerce Block	30
Kolkata Admission Office	8

(i.) Suggest the authorities, the cable layout amongst various blocks inside university campus for connecting the blocks.

(ii.) Suggest the most suitable place (i.e. block) to house the server of this university with a suitable reason.

(iii) Suggest an efficient device from the following to be installed in each of the blocks to connect all the computers:

(a) MODEM (b) SWITCH (c) REPEATER

(iv) Suggest the most suitable (very high speed) device to provide data connectivity between Admission Office located in Kolkata and the Campus located in Ana

Nagar from the following options:

- Telephone Line
- Fixed- Line Dial-up connection
- Co-axial Cable Network
- GSM
- Leased Line
- Satellite Connection

(v) Which types of networking is showing the connectivity between the Admission office located in kollkatta and Campus located in Anna Nagar blocks?

a) WAN b) MAN c) LAN

****

Answers From Questions 1 to 5

Q1	i. Any one Layout (Star or BUS) ii. Wing S (as per 80-20 rule more number of computers in the block) iii. Switch in each block iv. Dial-up Network or broad band connection v. Internet connectivity	
Q2	i. Any one Layout (Star or BUS) ii. Academic Building(as per 80-20 rule more number of computers in the block) iii. Switch iv. Satellite connection v. Repeater	
Q3	i. Any one Layout (Star or BUS) ii. Block B or Block C as per 80-20 rule more number of computers in the block) iii. a. Repeater in Block B to C, Block A to D and Block B to D b. Switch in all places iv. broad band internet connection v. VoIP	
Q4	i. Any one Layout (Star or BUS) ii. Block C as per 80-20 rule more number of computers in the block) iii. a. Repeater in Block B to C, Block A to D b. Switch in all places iv. Fiber optic internet connection or leased line v. LAN	
Q5	i. Any one Layout (Star or BUS) ii. Science Block(as per 80-20 rule more number of computers in the block) iii. Switch iv. Satellite connection v. WAN	

TOPIC – Database & SQL

Total Questions: 20 Total Marks: 20

<table>
<tr><th>Q. No.</th><th>Question</th><th>Marks</th></tr>
<tr><td>1</td><td>1. Which function is used to remove leading spaces from a string?
a. TRIM b. RTRIM c. LTRIM d. BTRIM</td><td>1</td></tr>
<tr><td>2</td><td>1. Which string function is used to concatenate two or more strings in SQL?
a. SUBSTRING b. CONCAT c. LENGTH d. REPLACE</td><td>1</td></tr>
<tr><td>3</td><td>Cardinality is the total number of ___ and Degree is Total number of _____.
a. rows, columns b. columns, rows c. non-null values d. None of these</td><td>1</td></tr>
<tr><td>4</td><td>Primary keys is a selected from the set of _____?
a. Super keys b. Candidate Keys c. Alternate Keys d. None of these</td><td>1</td></tr>
<tr><td>5</td><td>Which of the following function is used to return the current date of our system?
a. CUR_DATE() b. DATE() c. CURRENTDATE() d. CURDATE()</td><td>1</td></tr>
<tr><td>6</td><td>Identify DDL and DML Commands.
CREATE, UPDATE, ALTER and DELETE</td><td>1</td></tr>
<tr><td></td><td>Consider the following table and write sql command from QN 7 to 11.
Employee
<table>
<tr><th>Empid</th><th>empname</th><th>Salary</th></tr>
<tr><td>101</td><td>ALOK GUPTA</td><td>5000</td></tr>
<tr><td>102</td><td>ANITA KANNOJIA</td><td>Null</td></tr>
<tr><td>103</td><td>SANGEETA</td><td>4900</td></tr>
<tr><td>104</td><td>B L MARODIA</td><td>11000</td></tr>
</table></td><td></td></tr>
<tr><td>7</td><td>Insert a record into the table employee.
(105, PANKAJ,5100)
a. insert into table employee values (105,’PANKAJ’,5100);
b. insert into table emp (empid, empname, salary) values (105,’PANKAJ’,5100);
c. insert into employee (empid, empname, salary) values (105,’PANKAJ’,5100);
d. All of above</td><td>1</td></tr>
<tr><td>8</td><td>Update null values in column salary with 5000.
a. update employee set salary = 5000;</td><td>1</td></tr>
</table>

<table>
<tr><td></td><td>b. update employee set salary = 5000 where salary = null;
c. update employee set salary = 5000 where salary is null;
d. None of these</td><td></td></tr>
<tr><td>9</td><td>Show the structure of the table employee.
a. desc employee; b. show employee; c. display employee; d. desc emp;</td><td>1</td></tr>
<tr><td>10</td><td>Delete the record of employee with empid 101.
a. drop employee where empid = 101;
b. delete from employee where empid = 101;
c. delete from employee;
d. alter table employee drop empid = 101;</td><td>1</td></tr>
<tr><td>11</td><td>Change the data type of empname to varchar(50).
a. alter table employee modify empname varchar(50);
b. alter table employee change empname varchar(50);
c. alter table employee add empname varchar(50);
d. alter table employee edit empname varchar(50);</td><td>1</td></tr>
<tr><td></td><td>Consider the following table and write SQL command from QN 12 to 15 and output from 16 to 17.
TECH_COURSE
<table><tr><td>CNAME</td><td>FEES</td><td>TID</td></tr><tr><td>Animation</td><td>12000</td><td>101</td></tr><tr><td>Cad</td><td>15000</td><td>Null</td></tr><tr><td>Dca</td><td>10000</td><td>102</td></tr><tr><td>Dtp</td><td>9000</td><td>104</td></tr><tr><td>Mobile app</td><td>18000</td><td>101</td></tr><tr><td>Digital marketing</td><td>16000</td><td>103</td></tr></table></td><td></td></tr>
<tr><td>12</td><td>Display course name with fees between 10000 to 20000.
a. select cname from tech_course where fees between 10000 and 20000;
b. select cname from tech_course where fees between 10000 or 20000;
c. select * from tech_course where fees between 10000 and 20000;
d. select cname from tech_course where fees between 10000 to 20000;</td><td>1</td></tr>
<tr><td>13</td><td>Count the number of Records.
a. select count(cname) from tech_course;
b. select count(*) from tech_course;
c. select cname, count(*) from tech_course;
d. None of these</td><td>1</td></tr>
<tr><td>14</td><td>Display the candidate names in ascending order.
a. select * from tech_course;
b. select * from tech_course order by cname;
c. select cname from tech_course;</td><td>1</td></tr>
</table>

	d. select cname from tech_course order by cname;	
15	Show the unique TID. a. select distinct tid from tech_course; b. select unique tid from tech_course; c. select primary key tid from tech_course; d. show distinct tid from tech_course	1
16	SELECT AVG(FEES) FROM TECH_COURSE WHERE FEES BETWEEN 15000 AND 17000; a. AVG(FEES) 15500 c. AVG(FEES) 15500.00 b. 15500 d. All of these	1
17	SELECT TID, COUNT(*), MIN(FEES) FROM TECH_COURSE GROUP BY TID HAVING COUNT(TID) >1; a. TID COUNT(*) MIN(FEES) 101 2 12000 102 1 10000 103 1 16000 104 1 9000 c. TID COUNT(*) MIN(FEES) 102 1 10000 103 1 16000 104 1 9000 b. TID COUNT(*) MIN(FEES) 101 2 12000 d. All of these	1
	a. Both A & R are True and R is correct explanation of A b. Both A & R are True and R is not correct explanation of A c. A is True and R is False. d. A is False and R is True.	
18	Assertion(A): A database constraints can be added or removed any time in/from the database tables. Reason(R): Alter table command is to change the structure of the table.	1
19	Assertion(A): In SQL, aggregate function avg() calculates the average value on a set of values and produces a single result. Reason(R): The aggregate function are used to perform some fundamentals arithmetic tasks such as min(), max(), sum() etc	1
20	Assertion(A): Primary key is a key which ensures unique records in a table. Reason(R): A key is a attribute which retrieves a single record from the table.	1

Answer Key

1	C	11	A
2	B	12	A

3	A	13	B
4	B	14	D
5	D	15	A
6	DDL – CREATE, ALTER DML- UPDATE, DELETE	16	C
7	C	17	B
8	C	18	A
9	A	19	A
10	B	20	A

TOPIC: DATABASE CONCEPTS/ SQL

<table>
<tr><th>QN</th><th>Question</th><th>Marks</th></tr>
<tr><td>1</td><td>Ranjan, a car dealer has stored the details of all cars in his showroom in a table CARMARKET. The table CARMARKET has attributes CARCODE which is a primary key, CARNAME, COMPANY COLOR, COST (in lakh) of the car and DOM which is the Date of Manufacture of the car.
Table : CARMARKET
<table>
<tr><th>CARC-ODE</th><th>CARNAME</th><th>COMPANY</th><th>COLOR</th><th>COST</th><th>DOM</th></tr>
<tr><td>C01</td><td>BALENO</td><td>SUZUKI</td><td>BLUE</td><td>5.90</td><td>2019-11-07</td></tr>
<tr><td>C02</td><td>INDIGO</td><td>TATA</td><td>SILVER</td><td>12.90</td><td>2020-10-15</td></tr>
<tr><td>C03</td><td>GLC</td><td>MERCEDES</td><td>WHITE</td><td>62.38</td><td>2020-01-20</td></tr>
<tr><td>C04</td><td>A6</td><td>AUDI</td><td>RED</td><td>58.55</td><td>2018-12-29</td></tr>
<tr><td>C05</td><td>INNOVA</td><td>TOYOTA</td><td>BLACK</td><td>32.82</td><td>2017-11-10</td></tr>
<tr><td>C06</td><td>WAGON-R</td><td>SUZUKI</td><td>WHITE</td><td>12.11</td><td>2016-11-11</td></tr>
<tr><td>C07</td><td>BREZZA</td><td>SUZUKI</td><td>GOLDEN</td><td>9.80</td><td>2016-10-03</td></tr>
</table>
Write queries of the following questions based on the given table.
a. Display the carname along with the charges rounded off to 0 digit after decimal place.
b. Display the carname, name of the company of all cars whose year (of dom) is 2020.</td><td>4</td></tr>
</table>

c. Display the number of cars manufactured in year 2020.
d. Display the carname and color of all the cars.

2 Akhilesh is a clerical staff in a Doctor's Dispensary. He maintains records of visiting doctors in a table Doctor. Write queries of the following questions based on the given table. 4

Table : Doctor

Did	Dname	Dept	Charges	VisitDays
D01	R. Sharma	ENT	1000	Mon
D02	D. Basak	ENT	1500	Wed
D03	M. Agarwal	PAED	6000	Sat
D04	E. Joseph	Ortho	1200	Sun
D05	M. Fernandes	Ortho	4000	Thu

a. To display the maximum Charges among the Ortho Doctors.
b. To display the doctor names in uppercase along with their department names.
c. To display each department and the total number of doctors in them.
d. To display the detail of doctor whose department is ENT.

3 Consider the table PAINT : 4

Name	Code	Category	Title	Status	Price	Year
G Hussain	2098	Water	Demons	Sold	70000	2016
J Juneja	3099	Oil	Twilight	Not Sold	8000	2017
YD Sharma	8001	Collage	Masses	Sold	9500	2016
AD Souyza	7901	Oil	Tresses	Sold	13000	2018
Nevill	5400	Water	Holiday	Not Sold	8900	2019

Write the SQL queries for the following.

a. Display the complete list of all the paintings that belong to category water.
b. Display the Title and Code of those painting whose price is more than 9000.
c. Increase the price of all painting in the given table by 5%.
d. Display record of PAINTING having last alphabet 'a' in the Name with status Not Sold.

4 Consider the table PERSONS. Write output for queries (i) to (iv).

Table : PERSONS

PID	SurName	FirstName	Gender	City	PinCode	Salary
1	Sharma	Geeta	F	Udhamwara	182141	50000

	2	Singh	Surinder	M	Kupwara Nagar	193222	75000
	3	Jcob	Peter	M	Bhawani	185155	45000
	4	Alvis	Thomas	M	Ahmed Nagar	380025	50000
	5	Mohan	Gaurav	M	Nagar Coolangatta	390026	33000
	6	Azmi	Simi	F	New Delhi	110021	40000
	7	Kaur	Manpreet	F	Udhamwara	182141	42000

a. SELECT SurName FROM PERSONS WHERE Salary > = 50000;
b. SELECT SUM (Salary) FROM PERSONS WHERE Gender = 'F';
c. SELECT Gender, MIN (Salary) FROM PERSONS GROUP BY Gender;
d. SELECT SurName, FirstName from PERSONS where LEFT(City,1)='U';

5 Given a table Zoo storing details of some animals of a Zoo: 4

Table : Zoo

AId	Aname	Type	Qty
A01	Zebra	Land	25
A02	Lion	Land	10
A03	Giraffe	Land	15
A04	Crocodile	Aquatic	10
A05	Parrots	Bird	30

Write outputs of the following queries:

a. SELECT UCASE (SUBSTR(Aname, 3, 2)) FROM Zoo;
b. SELECT MAX(Qty) FROM Zoo;
c. SELECT MOD(Qty, 2) FROM Zoo WHERE NOT type = 'Land';
d. SELECT COUNT(AId) FROM Zoo WHERE Qty > (SELECT MIN(Qty) FROM Zoo);

6 Based on above table ORDER, write the output from (i) and (iv). 4

Table : ORDER

OrderId	OrderDate	SalesPerson	OrderAmount
0101	2015-09-12	Ravi Kumar	34000
0102	2015-08-15	Rashmi Arora	50000
0103	2015-11-01	Ravi Kumar	55000
0104	2015-12-09	Manjeet Singh	60000
0105	2015-11-10	Rashmi Arora	50000

a. SELECT Orderld, OrderAmount FROM Order WHERE OrderAmount BETWEEN 50000 AND 60000;

b. SELECT CONCAT (Orderld, SalesPerson), LENGTH (SalesPerson) FROM Order;
c. SELECT * FROM Order Where MONTH(OrderDate) = 12;
d. SELECT SUM(OrderAmount) FROM Order Where MONTHNAME(OrderDate) = 'November';

7 Consider the tables DOCTORS and PATIENTS given below

Table : DOCTORS

DocID	DocName	Department	OPD_Days
101	M Panday	ENT	FS
102	G P Gupta	Paed	MWF
201	C K Sharma	Ortho	MWF

Table : PATIENTS

PatNo	PatName	Department	DocID
1	Neeraj	ENT	101
2	Mohit	Ortho	201
3	Ragini	ENT	101
4	Mohit	Paed	102
5	Nandini	Ortho	201

Write the SQL queries for the following:

a. To display the PatNo, PatName, DocID with corresponding DocName for each patient.
b. To display the PatName, Department and corresponding DocName whose OPD_Days is MWF.
c. To display name of those patients whose name start with 'N'.
d. To change DocID to 202 of the patient with number as 5 in the table PATIENTS.

8 Consider the tables HOSPITALS and STAFF given below:

Table : HOSPITALS

HospID	HospName	City
1	City Care	Delhi
2	Green Health	Mumbai
3	LifeLine Clinic	Bangalore

Table : STAFF

StaffID	StaffName	Designation	HospID
101	Anita Rao	Nurse	1
102	S Sharma	Technician	2
103	R Patel	Nurse	1
104	M Khan	Doctor	3
105	A Verma	Doctor	2

Write the SQL queries for the following:

a. Show the total number of staff in each hospital.

b. Display the names of all hospitals that have at least one nurse.
c. Display details of all staff who work in hospitals located in Delhi.
d. Change the HospID to 3 for staff members currently working in hospital with HospID = 2.

9 Consider the tables COURSES and STUDENTS given below:

Table : COURSES

CourseID	CourseName	Duration
C101	Data Science	6
C102	Web Development	4
C103	Cyber Security	5

Duration in Months.

Table : STUDENTS

StudentID	StudentName	CourseID	City
S01	Riya Mehta	C101	Delhi
S02	Arjun Das	C102	Mumbai
S03	Kavita Rao	C101	Bangalore
S04	Tanmay Jain	C103	Delhi
S05	Mehul Sinha	C102	Chennai

Write the SQL queries for (i) & (ii) and predict output for (iii) and (iv):

a. Display StudentID, StudentName, and corresponding CourseName for each student.
b. List all students enrolled in courses with a duration greater than 4 months.
c. SELECT CourseName, StudentName from COURSES C, STUDENTS S WHERE C.CourseID=S.CourseID AND City='Mumbai';

d. SELECT StudentName from STUDENTS WHERE City NOT Like '%i';

10 Consider the tables BOOKS and MEMBERS given below: 4

Table : BOOKS

BookID	Title	Author	Genre
B001	The Silent Patient	Alex Michaelides	Thriller
B002	Atomic Habits	James Clear	Self-help
B003	Sapiens	Yuval Harari	History
B004	Educated	Tara Westover	Memoir

Table : MEMBERS

MemberID	MemberName	BookID	JoinDate
M01	Rahul Verma	B001	2024-10-01
M02	Anjali Mehta	B002	2024-11-15
M03	Kunal Sharma	B003	2024-12-05
M04	Riya Kapoor	B001	2025-01-20
M05	Neha Sinha	B004	2025-02-10

Write the SQL queries for (i) & (ii) and predict output for (iii) and (iv):

<table>
<tr><td></td><td>a. List all members who have borrowed books written by "James Clear".
b. Show the names of books that have been borrowed by more than one member.
c. SELECT MemberName from MEMBERS WHERE JoinDate > ‘2024-12-01’;
d. SELECT MemberName from MEMBERS WHERE MemberName LIKE ‘R%;</td><td></td></tr>
<tr><td>11</td><td>Write an SQL statement to create a table named EMPLOYEES, with the following specifications:
<table><tr><th>Column Name</th><th>Data Type</th><th>Constraints (if any)</th></tr><tr><td>EmpID</td><td>Integer</td><td>Primary Key</td></tr><tr><td>FirstName</td><td>Varchar(30)</td><td></td></tr><tr><td>LastName</td><td>Varchar(30)</td><td></td></tr><tr><td>JoinDate</td><td>Date</td><td></td></tr><tr><td>Salary</td><td>Decimal(10,2)</td><td></td></tr></table></td><td>2</td></tr>
<tr><td>12</td><td>Write an SQL statement to create a table named STUDENTS, with the following specifications:
<table><tr><th>Column Name</th><th>Data Type</th><th>Constraints (if any)</th></tr><tr><td>RN</td><td>INT</td><td>Primary Key</td></tr><tr><td>FirstName</td><td>VARCHAR(25)</td><td>Not Null</td></tr><tr><td>LastName</td><td>VARCHAR(25)</td><td></td></tr><tr><td>AADHAR</td><td>INT(12)</td><td>Unique</td></tr><tr><td>DOB</td><td>DATE</td><td></td></tr></table></td><td>2</td></tr>
</table>

Solution

Q1: Based on Table CARMARKET
a. SELECT CARNAME, ROUND(COST, 0) FROM CARMARKET;
b. SELECT CARNAME, COMPANY FROM CARMARKET
WHERE YEAR(DOM)=2020;
c. SELECT COUNT(*) FROM CARMARKET WHERE YEAR(DOM) = 2020;
d. SELECT CARNAME, COLOR FROM CARMARKET;
Marks: 4 (1 mark each)
Q2: Based on Table Doctor
a. SELECT MAX(Charges) FROM Doctor WHERE Dept = 'Ortho';
b. SELECT UPPER(Dname), Dept FROM Doctor;
c. SELECT Dept, COUNT(*) FROM Doctor GROUP BY Dept;
d. SELECT * FROM Doctor WHERE Dept = 'ENT';
Marks: 4 (1 mark each)
Q3: Based on Table PAINT
a. SELECT * FROM PAINT WHERE Category = 'Water';
b. SELECT Title, Code FROM PAINT WHERE Price > 9000;

c. UPDATE PAINT SET Price = Price * 1.05;

d. SELECT * FROM PAINT WHERE Name LIKE '%a' AND Status = 'Not Sold';

Marks: 4 (1 mark each)

Q4: Based on Table PERSONS – Output

a. Sharma,
Singh
Alvis

b. 132000

c.
F	40000
M	33000

d.
Sharma	Geeta
Kaur	Manpreet

Marks: 4 (1 mark each)

Q5: Based on Table Zoo – Output

a. 'BR',
'ON',
'RA',
'OC',
'RR'

b. 30

c. 0

d. 3

Marks: 4 (1 mark each)

Q6: Based on Table ORDER – Output

a.
0102	50000
0103	55000
0104	60000
0105	50000

b.
0101	Ravi Kumar	10
0102	Rashmi Arora	12
0103	Ravi Kumar	10
0104	Manjeet Singh	13
0105	Rashmi Arora	12

c.
0104	2015-12-09	Manjeet Singh	60000

d. 105000

Marks: 4 (1 mark each)

Q7: Tables DOCTORS and PATIENTS

a. SELECT P.PatNo, P.PatName, P.DocID, D.DocName FROM PATIENTS P, DOCTORS D WHERE P.DocID = D.DocID;

b. SELECT P.PatName, P.Department, D.DocName FROM PATIENTS P, DOCTORS D

WHERE P.DocID = D.DocID AND D.OPD_Days = 'MWF';
c. SELECT PatName FROM PATIENTS WHERE PatName LIKE 'N%';
d. UPDATE PATIENTS SET DocID = 202 WHERE PatNo = 5;
Marks: 4 (1 mark each)
Q8: Tables HOSPITALS and STAFF
a. SELECT COUNT(*) FROM STAFF GROUP BY HospID;
b. SELECT DISTINCT H.HospName FROM HOSPITALS H, STAFF S WHERE H.HospID = S.HospID AND S.Designation = 'Nurse';
c. SELECT * FROM STAFF S, HOSPITALS H WHERE S.HospID = H.HospID AND H.City = 'Delhi';
d. UPDATE STAFF SET HospID = 3 WHERE HospID = 2;
Marks: 4 (1 mark each)
Q9: Tables COURSES and STUDENTS
a. SELECT S.StudentID, S.StudentName, C.CourseName FROM STUDENTS S, COURSES C WHERE S.CourseID = C.CourseID;
b. SELECT * FROM STUDENTS S, COURSES C WHERE S.CourseID = C.CourseID AND C.Duration > 4;
c. Web Development Arjun Das
d. Kavita Rao
Marks: 4 (1 mark each)
Q10: Tables BOOKS and MEMBERS
a. SELECT MemberName FROM MEMBERS M, BOOKS B WHERE M.BookID = B.BookID AND B.Author = 'James Clear';
b. SELECT Title FROM BOOKS WHERE BookID IN (SELECT BookID FROM MEMBERS GROUP BY BookID HAVING COUNT(*) > 1);
c. Kunal Sharma Riya Kapoor Neha Sinha
d. Rahul Verma
Riya Kapoor
Marks: 4 (1 mark each)
Q11: CREATE TABLE EMPLOYEES
CREATE TABLE EMPLOYEES (
EmpID INT PRIMARY KEY,
FirstName VARCHAR(30),
LastName VARCHAR(30),
JoinDate DATE,
Salary DECIMAL(10,2)
Marks: 1 for CREATE TABLE and 1 for Data types and Constraints
Q12: CREATE TABLE STUDENTS
CREATE TABLE STUDENTS (
RN INT PRIMARY KEY,

FirstName VARCHAR(25) NOT NULL,
LastName VARCHAR(25),
AADHAR INT(12) UNIQUE,
DOB DATE
);
Marks: 1 for CREATE TABLE and 1 for Data types and Constraints.

Topic – E-Waste management

SN	QUESTION	MARKS
	MCQs	
1	In India, E-Waste management assumes greater significance because a. generation of own e-waste b. dumping of e-waste from developed countries c. lack of awareness d. All of these	1
2	Which of the following is one of the impacts of e-waste on the environment? a. heavy rainfall b. deforestation c. soil erosion d. emission of gases	1
3	Which of the following best explains why e-waste is considered a global concern? a. E-waste is expensive to recycle b. It occupies space in electronic stores c. It forms a significant part of global municipal waste and poses environmental hazards d. Most e-waste is biodegradable	1
4	A country with rising use of electronic devices but poor waste disposal infrastructure is likely to face which of the following problems first? a. Decrease in technological innovation b. Lower demand for electronics c. Increase in environmental pollution from unmanaged e-waste d. Rise in import taxes on electronics	1
5	Identify the correct inference from the statement: “Globally, e-waste constitutes more than 5% of the municipal solid waste.” a. E-waste is recycled more than any other type of waste b. E-waste is the smallest contributor to municipal waste c. E-waste is a minor issue in developed nations d. A considerable portion of waste generated in cities comes from electronics	1
6	Which combination of factors is most responsible for worsening the e-waste problem? a. Increased manufacturing and export taxes b. High sales and long product life c. Increased device usage and lack of disposal awareness d. Faster internet speed and smart devices	1
7	Rakesh suggests throwing away old electronics with regular household waste. What key concept is being overlooked?	1

	a. Economic inflation b. Environmental sustainability c. Digital privacy d. Internet connectivity	
8	Which of the following practices would most effectively minimize the environmental impact of e-waste? a. Dumping e-waste in sealed landfills to avoid contact with air b. Burning old electronic parts in open areas to reduce volume c. Reducing purchase of unnecessary gadgets and extending device lifespan d. Replacing devices every year to ensure better performance	1
9	Ramesh burns old circuit boards to extract metals for personal profit. Which health hazard is most directly associated with this practice? a. Anxiety due to social isolation b. Lung cancer caused by inhaling beryllium c. Vision problems due to blue light d. Skin tanning from chemical exposure	1
10	Which government initiative or law makes manufacturers directly responsible for the final disposal of their electronic products? a. CPCB's Solid Waste Regulation b. Environmental Protection Act with "Polluter Pays Principle" c. Digital India Program d. DIT's Digital Awareness Scheme	1
11	Nikita experiences dry eyes, shoulder pain, and wrist stiffness due to prolonged digital usage. Which branch of science should be referred to her for preventive guidance? a. Robotics b. Physiology c. Ergonomics d. Biomechanics	1
12	Despite recycling efforts, toxic metals like cadmium still harm the ecosystem. Which of the following is the most logical explanation? a. Cadmium makes electronics more efficient b. Recycled plastics produce cadmium c. Some toxic metals are hard to extract and remain in the waste stream d. Cadmium breaks down harmlessly in nature	1
True/False		
13	Discarding electronic devices after minimal use is a responsible e-waste practice.	1
14	Overuse of virtual keyboards can lead to wrist and finger pain.	1
Fill in the Blanks		
15	The garbage of electronic gadgets such as computers peripherals, laptop accessories, mobiles is known as _____.	1
16	When the e-waste dumped or thrown in landfills, the chemicals seep into the _____ and pollutes it.	1
Assertion Reasoning based questions (Question number 17 and 18) **Mark the correct choice as: -** **a. Both Assertion and Reason are true, and R is the correct explanation of A.** **b. Both Assertion and Reason are true, but R is not the correct explanation of A.** **c. Assertion is true, but Reason is false.** **d. Assertion is false, but Reason is true.**		

17	**Assertion**: Burning of e-waste is a safe way to dispose of electronic waste. **Reason**: Burning helps recover precious metals but causes side effects. (Hint: Evaluate safety vs. effects)	1
18	**Assertion**: Ergonomics helps prevent health issues related to long-term digital device use. **Reason**: It provides guidance on posture and equipment positioning to reduce physical strain. (Hint: Connect prevention and guidance)	1
19	**Assertion:** Cadmium present in e-waste can contaminate soil and water. **Reason:** Cadmium is a heavy metal that leaches into the environment when e-waste is dumped. (Hint: Link metal properties to pollution.)	1
20	**Assertion**: Reuse is not considered a method of e-waste management. **Reason**: Reuse doesn't promote waste generation. (Hint: Check if reuse reduces waste.)	1

Societal Impacts

Q.No.	Section A: Multiple Choice Questions	Marks
1	Vijay found a crumpled paper under her desk. He picked it up and opened it. It contained some text which was struck off thrice. But she could still figure out easily that the struck off text was the email ID and password of Garvit, her classmate. What is ethically correct for Vijay to do? a. Inform Garvit so that he may change his password. b. Give the password of Garvit's email ID to all other classmates. c. Use Garvit's password to access his account.	1
2	Ankit made a ERP - Enterprise resource planning solution for a renowned university and registered and Copyrights for the same. Which of the most important option; Ankit got the copyrights. a. To get society status b. To get fame c. To get community welfare d. To secure finance protection	1
3	Which of the following statement is invalid about Intellectual Property rights. a. Information must not be exchanged without the consent of owner. b. Owner of information can decide how much information can be shared. c. IPR does not promote investment in national economy. d. Owner of information can decide at what price information can be shared.	1
4	Which of the following act is not termed as Plagiarism. a. Using some authors work without giving credit to author. b. Wrongful citation. c. Modifying someone's music composition. d. Using some authors work with giving credit to author	1
5	Which of the following activity does not create any digital footprint? a. Search online information b. Online Ticket Booking c. Saving a word document d. Responding an email	1
6	Ajay have filled a form online for a survey. Which types of digital footprint he has generated while filling up the form? a. Active b. Passive c. Valid d. Invalid	1

7	The active digital footprint includes i) emails and their replies ii) Social media status and posts iii) data generated by a website or app a. i and ii b. ii and iii c. i and iii d. all of them	1
8	Which of the following is one of the best practices under be ethical net etiquette? i) No Copyright Violation ii) Share the expertise iii) Respect Privacy iv) Avoid Cyber bullying a. i and ii b. ii and iii c. ii and iv d. i and iv	1
9	State whether True or False: copyright is automatically granted to authors or creators of content.	1
10	State whether True or False: In FOSS source code is usually hidden from the users.	
For question 11 to 13 answer A, B , C or D as per following details (A) Both Assertion and reason are true and reason correctly explain Assertion (B) Both Assertion and reason are true but reason is not correct explanation of Assertion (C) Assertion is true but reason is false (D) Assertion is false but reason is true		
11	**Assertion**: Assertion: Digital footprints are the traces of our online activities. **Reasoning**: Digital footprints include information like websites visited, social media posts, and online purchases	1
12	**Assertion:** Intellectual Property Rights protect tangible physical assets. **Reasoning:** IPR primarily safeguards creations of the mind, such as inventions and artistic works.	1
13	**Assertion:** Paraphrasing a source without proper citation is considered plagiarism. **Reasoning:** Paraphrasing without proper attribution is a form of plagiarism, as it involves using someone else's ideas or language without giving them credit.	1
14	If someone uses a part of a novel written by someone else, It would be violation of the writer's _____ if someone use any part of this book without the written permission of the author. a. license b. copyright c. patent d. trademark	1
15	The _____ include right to copy (reproduce) a work, right to distribute copies of the work to the public, and right to publicly display or perform the work. a. Copyright b. Patent c. Plagiarism d. None of the above	1
Case Based MCQs on Societal Impacts Ashish is studying the concepts of digital footprints. Help him to clarify the concepts of digital footprints.		
16	Digital footprints are also known as _____ a. Digital data b. Plagiarism c. Digital tattoos d. Digital print	1

17	Digital footprints are stored _____ a. Temporarily (for few days) b. Permanently c. for 7 days only d. for 3 days	1
18	Whenever we surf the Internet using smartphones we leave a trail of data reflecting the activities performed by us online, which is our _____ a. Digital footprint b. Digital activities c. Online handprint d. Internet activities	1
19	There are ___ kinds of Digital footprints. a. 1 b. 2 c. 3 d. 4	1
20	Which is the correct type(s) of digital footprint? a. Active digital footprint b. Passive digital footprint c. Both a and b d. None	1

****

Q.No.	Section A: Multiple Choice Questions	Marks
1	Vijay found a crumpled paper under her desk. He picked it up and opened it. It contained some text which was struck off thrice. But she could still figure out easily that the struck off text was the email ID and password of Garvit, her classmate. What is ethically correct for Vijay to do? a. Inform Garvit so that he may change his password. b. Give the password of Garvit's email ID to all other classmates. c. Use Garvit's password to access his account.	1
2	Ankit made a ERP - Enterprise resource planning solution for a renowned university and registered and Copyrights for the same. Which of the most important option; Ankit got the copyrights. a. To get society status b. To get fame c. To get community welfare d. To secure finance protection	1
3	Which of the following statement is invalid about Intellectual Property rights. a. Information must not be exchanged without the consent of owner. b. Owner of information can decide how much information can be shared. c. IPR does not promote investment in national economy. d. Owner of information can decide at what price information can be shared.	1
4	Which of the following act is not termed as Plagiarism. a. Using some authors work without giving credit to author. b. Wrongful citation. c. Modifying someone's music composition. d. Using some authors work with giving credit to author	1
5	Which of the following activity does not create any digital footprint? a. Search online information b. Online Ticket Booking c. Saving a word document d. Responding an email	1
6	Ajay have filled a form online for a survey. Which types of digital footprint he has generated while filling up the form? a. Active b. Passive c. Valid d. Invalid	1
7	The active digital footprint includes i) emails and their replies ii) Social media status and posts iii) data generated by a website or app a. i and ii b. ii and iii c. i and iii d. all of them	1
8	Which of the following is one of the best practices under be ethical net etiquette? i) No Copyright Violation ii) Share the expertise iii) Respect Privacy iv) Avoid Cyber bullying a. i and ii b. ii and iii c. ii and iv d. i and iv	1
9	State whether True or False: copyright is automatically granted to authors or creators of content.	1
10	State whether True or False: In FOSS source code is usually hidden from the users.	

For question 11 to 13 answer A, B , C or D as per following details

(A) Both Assertion and reason are true and reason correctly explain Assertion

(B) Both Assertion and reason are true but reason is not correct explanation of Assertion

(C) Assertion is true but reason is false

	(D) Assertion is false but reason is true	
11	**Assertion**: Assertion: Digital footprints are the traces of our online activities. **Reasoning**: Digital footprints include information like websites visited, social media posts, and online purchases	1
12	**Assertion:** Intellectual Property Rights protect tangible physical assets. **Reasoning:** IPR primarily safeguards creations of the mind, such as inventions and artistic works.	1
13	**Assertion:** Paraphrasing a source without proper citation is considered plagiarism. **Reasoning:** Paraphrasing without proper attribution is a form of plagiarism, as it involves using someone else's ideas or language without giving them credit.	1
14	If someone uses a part of a novel written by someone else, It would be violation of the writer's _____ if someone use any part of this book without the written permission of the author. a. license b. copyright c. patent d. trademark	1
15	The _____ include right to copy (reproduce) a work, right to distribute copies of the work to the public, and right to publicly display or perform the work. a. Copyright b. Patent c. Plagiarism d. None of the above	1
	Case Based MCQs on Societal Impacts Ashish is studying the concepts of digital footprints. Help him to clarify the concepts of digital footprints.	
16	Digital footprints are also known as _____ a. Digital data b. Plagiarism c. Digital tattoos d. Digital print	1
17	Digital footprints are stored _____ a. Temporarily (for few days) b. Permanently c. for 7 days only d. for 3 days	1
18	Whenever we surf the Internet using smartphones we leave a trail of data reflecting the activities performed by us online, which is our _____ a. Digital footprint b. Digital activities c. Online handprint d. Internet activities	1
19	There are ___ kinds of Digital footprints. a. 1 b. 2 c. 3 d. 4	1
20	Which is the correct type(s) of digital footprint? a. Active digital footprint b. Passive digital footprint c. Both a and b d. None	1

****

Answer Key: -

MCQs

1.	**d**	**2.**	**d**	**3.**	**c**	**4.**	**C**	**5.**	**d**
6.	**c**	**7.**	**b**	**8.**	**C**	**9.**	**b**	**10.**	**b**

11. c **12. c**

True/False

13. FALSE **14. TRUE**

Fill in the Blanks

15. E-waste **16. Soil/Land**

Assertion Reasoning based questions

17. d **18. a** **19. a** **20. d**