

केन्द्रीय विद्यालय संगठन क्षेत्रीय कार्यालय रायपुर

Kendriya Vidyalaya Sangathan Regional Office Raipur



Class - XII

Multiple Choice Question Bank

[MCQ] Term – I & Term- II

Informatics Practices [065]

Based on Latest CBSE Exam Pattern

for the Session 2021-22

केंद्रीय विद्यालय संगठन क्षेत्रीय कार्यालय रायपुर

Kendriya Vidyalaya Sangathan Regional Office Raipur

MESSAGE FROM DUPUTY COMMISSIONER



It is a matter of great pleasure for me to publish study material for different subjects of classes X and XII for Raipur Region. Getting acquainted and familiarized with the recent changes in curriculum and assessment process made by CBSE vide Circular No. 51 and 53 issued in the month of July 2021 will help students to prepare themselves better for the examination. Sound and deeper knowledge of the Units and Chapters is must for grasping the concepts, understanding the questions. Study materials help in making suitable and effective notes for quick revision just before the examination.

Due to the unprecedented circumstances of COVID-19 pandemic the students and the teachers are getting very limited opportunity to interact face to face in the classes. In such a situation the supervised and especially prepared value points will help the students to develop their understanding and analytical skills together. The students will be benefitted immensely after going through the question bank and practice papers. The study materials will build a special bond and act as connecting link between the teachers and the students as both can undertake a guided and experiential learning simultaneously. It will help the students develop the habit of exploring and analyzing the **Creative & Critical Thinking Skills**. The new concepts introduced in the question pattern related to case study, reasoning and ascertain will empower the students to take independent decision on different situational problems. The different study materials are designed in such a manner to help the students in their self-learning pace. It emphasizes the great pedagogical dictum that '*everything can be learnt but nothing can be taught*'. The self-motivated learning as well as supervised classes will together help them achieve the new academic heights.

I would like to extend my sincere gratitude to all the principals and the teachers who have relentlessly striven for completion of the project of preparing study materials for all the subjects. Their enormous contribution in making this project successful is praiseworthy.

Happy learning and best of luck!

Vinod Kumar
(Deputy Commissioner)

केंद्रीय विद्यालय संगठन क्षेत्रीय कार्यालय रायपुर

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1. **Prerequisite:** Informatics Practices – Class XI

2. Learning Outcomes

At the end of this course, students will be able to:

- Create Series, Data frames and apply various operations.
- Visualize data using relevant graphs.
- Design SQL queries using aggregate functions.
- Learn terminology related to networking and the internet.
- Identify internet security issues and configure browser settings
- Understand the impact of technology on society including gender and disability issues.

3. Distribution of Marks and Periods:

Unit No	Unit Name	Marks	Periods Theory	Periods Practical	Total Period
1	Data Handling using Pandas and Data Visualization	25	25	25	50
2	Database Query using SQL	25	20	17	37
3	Introduction to Computer Networks	10	12	0	12
4	Societal Impacts	10	14	-	14
	Project	-	-	7	7
	Practical	30	-	-	-
	Total	100	71	49	120

Syllabus for Term – 1

Distribution of Theory Marks

Unit No	Unit Name	Marks
1	Data Handling using Pandas and Data Visualization	25
4	Societal Impacts	10
	Total	35

Unit 1:

Data Handling using Pandas and Data Visualization Data

Handling using Pandas -I

- Introduction to Python libraries- Pandas, Matplotlib.
- Data structures in Pandas - Series and data frames. Series: Creation of series from dictionary, scalar value; mathematical operations; series attributes, head and tailfunctions; selection, indexing and slicing.
- Data Frames: creation of data frames from dictionary of series, list of dictionaries, text/CSV files, display, and iteration. Operations on rows and columns: add (insert /append), select, delete (drop column and row), rename, Head and Tail functions, indexing using labels, Boolean indexing.

Data Visualization

- Data Visualization: Purpose of plotting, drawing and saving of plots using Matplotlib (line plot, bar graph, histogram). Customizing plots: adding label, title, and legend in plots.

Unit 4:

Societal Impacts

- Digital footprint, net and communication etiquettes,
- Data protection, intellectual property rights (IPR), plagiarism, licensing and copyright,
- Free and open source software (FOSS),
- Cybercrime and cyber laws, hacking, phishing, cyber bullying, overview of Indian IT Act.
- E-waste: hazards and management. Awareness about health concerns related to the usage of technology.

Distribution of Practical Marks

Topic	Marks
Pandas program (pen and paper or Collab or any online idle or pyroid screen for mobile)	8
Practical File 15 Pandas Programs	3
Project synopsis	2
Viva	2
Total	15

Suggested Practical List

Data Handling

1. Create a panda's series from a dictionary of values and a ndarray
2. Given a Series, print all the elements that are above the 75th percentile.
3. Create a Data Frame quarterly sales where each row contains the item category, item name, and expenditure. Group the rows by the category and print the total expenditure per category.
4. Create a data frame for examination result and display row labels, column labels data types of each column and the dimensions
5. Filter out rows based on different criteria such as duplicate rows.
6. Importing and exporting data between pandas and CSV file

Visualization

1. Given the school result data, analyses the performance of the students on different parameters, E.g. subject wise or class wise.
2. For the Data frames created above, analyse, and plot appropriate charts with title and legend.
3. Take data of your interest from an open source (e.g. data.gov.in), aggregate and summarize it. Then plot it using different plotting functions of the Matplotlib library.

Project Synopsis

The synopsis should cover the brief description about the project along with reasons for selection of the dataset. The learner should write the source of the dataset whether created or taken from any reliable source. The learner should write what analytics can be done on the project.

:

Syllabus for Term – 2

Distribution of Theory Marks

Unit No	Unit Name	Marks
2	Database Query using SQL	25
3	Introduction to Computer Networks	10
	Total	35

Unit 2:

Database Query using SQL

- Math functions: POWER (), ROUND (), MOD ().
- Text functions: UCASE ()/UPPER (), LCASE ()/LOWER (), MID ()/SUBSTRING ()/SUBSTR (), LENGTH (), LEFT (), RIGHT (), INSTR (), LTRIM (), RTRIM (), TRIM ().
- Date Functions: NOW (), DATE (), MONTH (), MONTHNAME (), YEAR (), DAY (), DAYNAME (). Aggregate Functions: MAX (), MIN (), AVG (), SUM (), COUNT (); using COUNT (*).
- Querying and manipulating data using Group by, Having, Order by.

Unit 3:

Introduction to Computer Networks

- Introduction to networks, Types of network: LAN, MAN, WAN.
- Network Devices: modem, hub, switch, repeater, router, and gateway.
- Network Topologies: Star, Bus, Tree, Mesh.
- Introduction to Internet, URL, WWW and its applications- Web, email, Chat, VoIP.
- Website: Introduction, difference between a website and webpage, static vs dynamic web page, web server and hosting of a website.
- Web Browsers: Introduction, commonly used browsers, browser settings, add-ons and plug-ins, cookies.

Distribution of Practical Marks

Topic	Marks
SQL queries (pen and paper)	7
Practical File – 12 SQL Queries	2
Final Project Submission	3
Viva	3
Total	15

Suggested Practical List

Data Management

1. Create a student table with the student id, name, and marks as attributes where the student id is the primary key.
2. Insert the details of a new student in the above table.
3. Delete the details of a student in the above table.
4. Use the select command to get the details of the students with marks more than 80.
5. Find the min, max, sum, and average of the marks in a student marks table.
6. Find the total number of customers from each country in the table (customer ID, customer Name, country) using group by.
7. Write a SQL query to order the (student ID, marks) table in descending order of the marks.

Project Work

The aim of the class project is to create tangible and useful IT applications. The learner may identify a real-world problem by exploring the environment. E.g. Students can visit shops/business places, communities or other organizations in their localities and enquire about the functioning of the organization, and how data are generated, stored, and managed.

The learner can take data stored in csv or database file and analyze using Python libraries and generate appropriate charts to visualize. If an organization is maintaining data offline, then the learner should create a database using MySQL and store the data in tables.

Data can be imported in Pandas for analysis and visualization. Learners can use Python libraries of their choice to develop software for their school or any other social good. Learners should be sensitized to avoid plagiarism and violation of copyright issues while working on projects. Teachers should take necessary measures for this. Any resources (data, image etc.) used in the project must be suitably referenced.

The project can be done individually or in groups of 2 to 3 students. The project should be started by students at least 6 months before the submission deadline.

Term – 1

Data Handling using Pandas and Data Visualization

Unit No	Unit Name	Marks
1	Data Handling using Pandas and Data Visualization	25

Data Handling using Pandas -I

- Introduction to Python libraries- Pandas, Matplotlib.

- Data structures in Pandas - Series and data frames. Series: Creation of series from dictionary, scalar value; mathematical operations; series attributes, head and tail functions; selection, indexing and slicing.
- Data Frames: creation of data frames from dictionary of series, list of dictionaries, text/CSV files, display, iteration. Operations on rows and columns: add (insert /append) , select, delete (drop column and row), rename, Head and Tail functions, indexing using labels, Boolean indexing.

- Data Visualization : Purpose of plotting, drawing and saving of plots using Matplotlib (line plot, bar graph, histogram). Customizing plots:: adding label, title, and legend in plots.

TYPE A OBJECTIVE TYPE QUESTIONS

[1 Mark]

Multiple Choice Questions

1. To create an empty Series object, you can use:

- (a) pd.Series(empty)
- (c) pd.Series()
- (b) pd.Series(np.NaN)
- (d) all of these

ANS:- (c) pd.Series()

2. To specify datatype int16 for a Series object, you can write :

- (a) pd.Series(data = array, dtype = int16)
- (b) pd.Series(data = array, dtype = numpy.int16)
- (c) pd.Series(data = array.dtype pandas.int16)
- (d) all of the above

ANS:- (b) pd.Series(data = array, dtype = numpy.int16)

3. To get the number of dimensions of a Series object,

- (a) index
- (b) size attribute is displayed.
- (c) itemsize
- (d) ndim

ANS:- d) ndim

4. To get the size of the datatype of the items in Series object, you can display attribute.

- (a) index
- (b) size
- (c) itemsize
- (d) ndim

ANS:- (c) itemsize

5. To get the number of elements in a Series object, attribute may be used.

- (a) index
- (b) size
- (c) itemsize
- (d) ndim

ANS:- (b) size

6. To get the number of bytes of the Series data, attribute is displayed.

- (a) hasnans
- (b) nbytes
- (c) ndim
- (d) dtype

ANS:- b) nbytes

7 .To check if the Series object contains NaN values, attribute is displayd.

- (a) hasnans
- (b) nbytes
- (c) ndim
- (d) dtype

ANS:- a) hasnans

8. To display third element of a Series object S, you will write

- (a) S[:3]
- (b) S[2]
- (c) S[3]
- (d) S[:2]

ANS:- (b) S[2]

9. To display first three elements of a Series object S, you may write

- (a) S[:3]
- (b) S[3]
- (c) S[3rd]
- (d) all of these

ANS:- (a) S[:3]

10. To display last five rows of a Series object S, you may write

- (a) head()
- (b) head(5)
- (c) tail()
- (d) tail(5)

ANS:- (c) tail() and (d) tail(5)

11. Pandas object cannot grow in size.

- (a) Dataframe (b) Panel (c) Series (d) None of these

ANS. (c) Series

12. Given a Pandas series called Sequences, the command which will display the first 4 rows is

- (a) `print(Sequences.head(4))`
(b) `print(Sequences.Head (4))`
(c) `print(Sequences.heads(4))`
(d) `print(Sequences.Heads (4))`

ANS:- (a) `print(Sequences.head(4))`

13. If a Dataframe is created using a 2D dictionary, then the indexes/row labels are formed from

- (a) dictionary's values
(b) inner dictionary's keys
(c) outer dictionary's keys
(d) none of these

ANS:- (b) inner dictionary's keys

14. If a dataframe is created using a 2D dictionary, then the column labels are formed from

- (a) dictionary's values
(b) inner dictionary's keys
(c) outer dictionary's keys
(d) none of these

ANS:- (c) outer dictionary's keys

15. The axis 0 identifies a dataframe's

- (a) rows
- (b) columns
- (c) values
- (d) datatype

ANS:- (a) rows

16. The axis 1 identifies a dataframe's

- (a) row
- (b) columns
- (c) values
- (d) datatype

ANS:- (b) columns

17. To get the number of elements in a dataframe,

- (a) size
- (b) shape attribute may be used.
- (c) values
- (d) ndim

ANS:- (a) size

18. To get a number representing number of axes in a dataframe, used. attribute may be

- (a) size
- (b) shape
- (c) values
- (d) ndim

ANS:- (d) ndim

19. To extract row/column from a dataframe,

- (a) row()
- (b) column()
- (c) loc()
- (d) all of these

ANS:- (a) row()

21.. To display the 3rd, 4th and 5th columns from the 6th to 9th rows of a dataframe you can write

- (a) `DF.loc[6:9, 3:5]`
- (b) `DF.loc[6:10, 3:6]`
- (c) `DF.iloc[6:10, 3:6]`
- (d) `DF.iloc[6:9, 3:5]`

ANS:- c) `DF.iloc[6:10, 3:6]`

22. To change the 5th column's value at 3rd row as 35 in dataframe DF, you can write

- (a) `DF[4, 6] = 35`
- (b) `DF.iat[4, 6] = 35`
- (c) `DF[3, 5] = 35`
- (d) `DF.iat[3, 5] = 35`

ANS:- d) `DF.iat[3, 5] = 35`

23. Which among the following options can be used to create a DataFrame in Pandas ?

- (a) A scalar value
- (b) An ndarray
- (c) A python dict
- (d) All of these

ANS:- (d) All of these

24. Identify the correct statement:

- (a) Data frames can change their size.
- (b) Series act in a way similar to that of an array.
- ((c) Both (a) and b)
- (d) None of the above

ANS:- ((c) Both (a) and b)

25. To delete a column from a DataFrame, you may use statement.

- (a) remove
- (b) del
- (c) drop
- (d) cancel statement.

ANS:- (b) del

26. To delete a row from a DataFrame, you may use

- (a) remove
- (b) del
- (c) drop
- (d) cancel

ANS:- (c) drop

27. To iterate over horizontal subsets of dataframe,

- (a) iterate()
- (b) iterrows() function may be used.
- (c) itercols()
- (d) iteritems()

ANS:- (b) iterrows() function may be used.

28. To iterate over vertical subsets of a dataframe, function may be used.

- (a) iterate()
- (b) iterrows()
- (c) itercols()
- (d) iteritems()

ANS:- (d) iteritems()

29. To add two dataframes' values,

- (a) plus function may be used.
- (b) rplus
- (c) add
- (d) radd

ANS:- c) add , (d) radd

30. To subtract the values of two dataframes,

- (a) sub
- (b) difference
- (c) minus
- (d) rsub

ANS:- (a) sub, d) rsub

31. To divide the values of two dataframes, function may be used. function may be used.

- (a) divide
- (b) div
- (c) rdiv
- (d) division

ANS:- (b) div , c) rdiv

32. Which of the following two functions will produce the same result ?

- (a) add
- (b) radd
- (c) sub
- (d) rsub

ANS:- (a) add, b) radd

33. To get the 3 bottommost rows from a dataframe, you may use

- (a) bottom
- (b) bottom
- (3) function.
- (c) tail()

ANS:- b) radd

34. Which of the following arguments lets you specify index labels of dataframe through Dataframe() ?

- (a) index
- (b) columns
- (c) label
- (d) all of these function.

ANS:- (a) index

35. To get top 5 rows of a dataframe, you may use

- (a) head()
- (b) head(5)
- (c) top()
- (d) top(5)

ANS:- (a) head() , b) head(5)

36. Which of the following can be used to specify data for creating a Dataframe ?

- (a) Series
- (b) DataFrame
- (c) Structured ndarray
- (d) All of these

ANS:- (d) All of these

37. All Pandas' data structures are mutable but not always mutable.

- (a) size, value
- (b) semantic, size
- (c) value, size
- (d) none of these

ANS:- (c) value, size

38. Which of the following statement will import Pandas library ?

- (a) import pandas as pd
- (b) import pandas as py
- (c) import panda as py
- (d) All of these

ANS:- (a) import pandas as pd ,(b) import pandas as py

39. What will be the output for the following code ?

```
import pandas as pd
S = pd.Series([1,2,3,4,5],index = ['a', 'b', 'c', 'd', 'e'])
print ( s[ 'a' ] )
```

- (a) 2
- (b) 1
- (c) 3
- (d) 4

ANS:- (b) 1

40. What will be the output for the following code ?

```
import pandas as pd
import numpy as np
S = pd.Series (np.random.randn(2))
print (s.size)
```

- (a) 0
- (b) 1
- (c) 2
- (d) 3

ANS:- (c) 2

41. What will be the output for the following code ?

```
import pandas as pd
import numpy as np
S= pd.Series(np.random.randn(4))
print (s.ndim)
```

- (a) 0
- (b) 1
- (c) 2
- (d) 3

ANS:- b) 1

42. What is the purpose of using ndim attribute ?

- (a) It returns the number of elements in the given data structure.
- (b) It returns the Series object in the form of an ndarray.
- (c) It returns a list of the indexes / labels.
- (d) It returns the number of dimensions of the given data structure.

ANS:- (d) It returns the number of dimensions of the given data structure.

43. PyPlot is an interface of Python's.

- (a) seaborn
- (b) plotly library.
- (c) ggplot
- (d) matplotlib

ANS:- (d) matplotlib

44. For 2D plotting using a Python library, which library interface is often used ,

- (a) seaborn
- (b) plotly
- (c) matplotlib
- (d) matplotlib.pyplot

ANS:- d) matplotlib.pyplot

45. Which of the following is not a valid chart type ?

- (a) Statistical
- (b) Box
- (c) Pie
- (d) plot()

ANS:- (a) Statistical , (b) Box

46. Which of the following is not a valid plotting function of pyplot ?

- (a) pie()
- (b) plot()
- (c) bar()
- (d) line()

ANS:- d) line()

47. Which of the following plotting functions does not plot multiple data series ?

- (a) plot()
- (b) barh()
- (c) bar()
- (d) pie()

Ans:- (d) pie()

48. The plot which tells the trend between two graphed variables is the

- (a) scatter graph/chart.
- (b) pie
- (c) bar
- (d) line

ANS:- (d) line

49. Which of the following functions is used to create a line chart ?

- (a) line()
- (b) plot()
- (c) chart()
- (d) plotline()

ANS:- b) plot()

50. Which of the following function will produce a bar chart ?

- (a) plotbar()
- (b) plot()
- (c) bar()
- (d) barh()

ANS:- (c) bar()

51. Which of the following function will create a vertical bar chart ?

- (a) plot()
- (b) bar()
- (c) plotbar()
- (d) barh()

ANS:- (b) bar()

52. Which of the following function will create a horizontal bar chart ?

- (a) plot()
- (b) bar()
- (c) plotbar()
- (d) barh()

ANS:- (d) barh()

53. The data points plotted on a graph are called

- (a) points
- (b) pointers
- (c) marks graph is a type of chart which displays information as a series of data points
- (d) markers

ANS:- (d) markers

54. A connected by straight line segments.

- (a) line
- (b) bar
- (c) pie
- (d) boxplot

ANS:- a) line

55. Which argument of bar() lets you set the thickness of bar ?

- (a) thick
- (b) thickness
- (c) width
- (d) barwidth

ANS:- (c) width

56. Which function lets you set the title of the plot ?

- (a) title()
- (b) graphtitle().
- (c) plottitle()
- (d) All of these

ANS:- (a) title()

57. The command used to give a heading to a graph is

- (a) plt.show()
- (b) plt.plot()
- (c) plt.xlabel()
- (d) plt.title()

ANS:- d) plt.title()

58. Which function would you use to set the limits for x-axis of the plot?

- (a) limits()
- (b) xlimits()
- (c) xlim()
- (d) lim()

ANS:- c) xlim()

59. Which function is used to show legends?

- (a) display()
- (b) show()
- (c) legend()
- (d) legends()

ANS.- c) legend()

60. Which argument must be set with plotting functions for legend() to display the legends ?

- (a) data
- (b) label
- (c) name
- (d) sequence

ANS:- (b) label

61. Which function is used to create a histogram ?

- (a) histogram()
- (b) histo()
- (c) hist()
- (d) histtype

ANS:- (c) hist()

62. Which of the following is not a valid plotting function of pyplot ?

- (a) plot()
- (b) bar()
- (c) line()
- (d) pie()

ANS:- (c) line()

63. Which of the following plotting functions does not plot multiple data series ?

- (a) plot()
- (b) bar()
- (c) pie()
- (d) barh()

ANS:- (c) pie()

64. The plot which tells the trend between two graphed variables is the graph/chart.

- (a) line
- (b) scatter
- (c) bar
- (d) pie

ANS:- (a) line

65. A CSV file can take character as separator.

- (a), (b) - (c) I (d) \t (e) only (a) (f) all of these

ANS:- (f) all of these

66. In order to work with CSV files from Pandas, you need to import pandas. , other than

- (a) csv
- (b) pandas.io
- (c) no extra package required
- (d) newcsv

ANS:- (d) newcsv

67. The correct statement to read from a CSV file in a dataframe is :

- (a) <DF>.read_csv(<file>)
- (b) <File>. read_csv()(<DF>)
- (c) <DF> = pandas.read(<file>)
- (d) <DF> = pandas.read_csv(<files>)

ANS:- (d) <DF> = pandas.read_csv(<files>)

68. Which argument do you specify with read_csv() to specify a separator character ?

- (a) character
- (b) char
- (c) separator
- (d) sep

ANS:- (d) sep

69. To suppress first row as header, which of the following arguments is to be given in read_csv() ?

- (a) noheader = True
- (b) header = None
- (c) skipheader = True
- (d) header - Null

ANS:- (b) header = None

70. To read specific number of rows from a CSV file, which argument is to be given in read_csv() ?

- (a) rows = <n>
- (b) nrows = <n>
- (c) n_rows - <n>
- (d) number_rows = <n>

ANS:- (b) nrows = <n>

71. To skip first 5 rows of CSV file, which argument will you give in `read_csv()` ?

- (a) `skip_rows = 5`
- (b) `skiprows = 5`
- (c) `skip - 5`
- (d) `noread - 5`

ANS:- (a) `skip_rows = 5`

72. To skip 1st, 3rd and 5th rows of CSV file, which argument will you give in `read_csv()` ?

- (a) `skiprows = 11315`
- (b) `skiprows - (1, 3, 5]`
- (c) `skiprows = [1, 5, 1]`
- (d) Any of these

ANS:- (b) `skiprows - (1, 3, 5]`

73. While reading from a CSV file, to use a column's values as index labels, argument given in `read_CSV()` is :

- (a) `index`
- (b) `index_col`
- (c) `index_values`
- (d) `index_label`

ANS:- (b) `skiprows - (1, 3, 5]`

74. While writing a dataframe onto a CSV file, which argument would you use in `to_sql()` for NaN values' representation as NULL?

- (a) `NaN = NULL`
- (b) `na_rep = NULL`
- (c) `na_value = NULL`
- (d) `na = NULL`

ANS:- (b) `na_rep = NULL`

75. Which of the following command is used to install Pandas?

- a) Pip install python-pandas
- b) Pip install pandas
- c) Python install python
- d) Pip install pandas

ANS:- d) Pip install pandas

76. A two-dimension labelled array that is an ordered collection of columns to store heterogeneous datatype is

- i. Series
- ii. Numpy array
- iii. Dataframe
- iv. Panel

ANS:- iii. Dataframe

77. Which of the following statement is false:

- i. DataFrame is size mutable
- ii. DataFrame is value mutable
- iii. DataFrame is immutable
- iv. DataFrame is capable of holding multiple types of data

ANS:- iii. DataFrame is immutable

78. CSV stands for:

- i. Comma separated value
- ii. Comma separated variables
- iii. Column separated values
- iv. Column separated variables

ANS:- i. Comma separated value

79. Which method is used to access vertical subset of a dataframe?

- i. iterrows()
- ii. iteritems()
- iii. mod()
- iv. median()

ANS:- ii. iteritems()

80. Which method is used to access horizontal subset of a dataframe?

- i. iterrows()
- ii. iteritems()
- iii. mod()
- iv. median()

ANS:- i. iterrows()

81. Which function is used to rename an existing column or index?

- i. std()
- ii. hist()
- iii. groupby()
- iv. rename()

ANS:- rename()

82. To create an empty series object you can use:

- i. pd.Series(empty)
- ii. pd.Series(np.NaN)
- iii. pd.series()
- iv. All of these

ANS:- iii. pd.series()

83.To delete a column from a dataframe, you may use _____ statement.

- i. remove()
- ii. del()
- iii. drop()
- iv. cancel()

ANS:- iii. drop()

84. To delete a row from dataframe, you may use _____ statement.

- i. remove()
- ii. del()
- iii. drop()
- iv. cancel()

ANS:- ii. del()

85.To add two dataframes' values, _____ function may be used.

- i. plus
- ii. eplus
- iii. add
- iv. radd

ANS:- iv. radd

86.To skip NaN values in a calculation you can specify _____ attribute

- i. NaN
- ii. Na
- iii. skipna
- iv. All of these

ANS:- iv. All of these

87. The function to create histograms for all numeric columns of a dataframe is _____

- i. histogram()
- ii. hist(numeric_only=True)
- iii. hist()
- iv. All of these

ANS:- ii. hist(numeric_only=True)

88. The plot which tells the correlation between two variables which may not be directly related is _____ graph/chart.

- i. line
- ii. scatter
- iii. bar
- iv. pie

ANS:- ii. scatter

89. Which of the following function is used to create a line chart?

- i. line
- ii. plot
- iii. chart
- iv. plotline

ANS:- ii. plot

90. Which of the following produce a bar chart?

- i. plot
- ii. bar
- iii. plotbar
- iv. barh

ANS:- ii. bar

91. A _____ graph is a type of chart which displays information as a series of data points connected by straight line segments.

- i. line
- ii. bar
- iii. pie
- iv. boxplot

ANS:- i. line

92. A CSV file can take _____ character as separator.

- i. ,
- ii. _
- iii. !
- iv. \t
- v. All of these

ANS:- v. All of these

93. In order to work with CSV files from panda, we need to import

- i. .csv
- ii.pandas.io
- iii. newcsv
- iv. No extra module required

ANS:- i. .csv

94. Best way to import pandas in our program is _____

- a)import pandas
- b) import pandas as p
- c) from pandas import *
- d) All of the above

ANS:- d) All of the above

95. In given code dataframe 'D1' has _____ rows and _____ columns.

```
import pandas as pd
LoD = [{ 'a':10, 'b':20}, { 'a':5, 'b':10, 'c':20}, { 'a':7, 'd':10, 'e':20}]
D1 = pd.DataFrame(LoD)
```

- a. 3, 3
- b. 3, 4
- c. 3, 5
- d. None of the above

ANS:- c. 3, 5

96. `D1[:] = 77` , will set _____ values of a DataFrame 'D1' to 77.

- a. Only First Row
- b. Only First Column
- c. All
- d. None of the above

ANS:- c. All

97. The following statement will _____

```
df = df.drop(['Name', 'Class', 'Rollno'], axis = 1)
```

#df is a DataFrame object

- a. delete three columns having labels 'Name', 'Class' and 'Rollno'
- b. delete three rows having labels 'Name', 'Class' and 'Rollno'
- c. delete any three columns
- d. return error

ANS:- a. delete three columns having labels 'Name', 'Class' and 'Rollno'

98. Which of the following are ways of indexing to access Data elements in a DataFrame?

- a. Label based indexing
- b. Boolean Indexing
- c. All of the above
- d. None of the above

ANS:- c. All of the above

99. The following statement will display _____ rows of DataFrame 'DF'

```
print(df.loc[[True, False, True]])
```

- a. 1
- b. 2
- c. 3
- d. 4

ANS:- b. 2

100. NumPy stands for _____
- a. Number Python
 - b. Numerical Python
 - c. Numbers in Python
 - d. None of the above

ANS. b numerical python

101. PANDAS stands for _____
- a. Panel Data Analysis
 - b. Panel Data analyst
 - c. Panel Data
 - d. Panel Dashboard

ANS. c panel data

102. _____ is used when data is in Tabular Format
- a. NumPy
 - b. Pandas
 - c. Matplotlib
 - d. All of the above

ANS. b. Pandas

103. When you print/display any series then the left most column is showing _____ value.
- a. Index
 - b. Data
 - c. Value
 - d. None of the above

ANS:- a .index

104. When we create a series from dictionary then the keys of dictionary become _____
- a. Index of the series
 - b. Value of the series
 - c. Caption of the series
 - d. None of the series

ANS;- a. Index of the series

Case Study Based Question

Q-1

Mr. Ankit is working in an organization as data analyst. He uses Python Pandas and Matplotlib for the same. He got a dataset of the passengers for the year 2010 to 2012 for January, March and December. His manager wants certain information from him, but he is facing some problems. Help him by answering few questions given below:

	Year	Month	Passengers
0	2010	Jan	25
1	2010	Mar	50
2	2012	Jan	35
3	2010	Dec	55
4	2012	Dec	65

Code to create the above data frame:

```
import pandasas _____ #Statement 1
data={"Year":[2010,2010,2012,2010,2012],"Month":["Jan","Mar","Jan","Dec","Dec"],
      "Passengers":[25,50,35,55,65]}
df=pd._____ (data) #Statement 2
print(df)
```

1. He wants to print the details of "January" month along with the number of passengers, Identify the correct statement:

	Month	Passengers
0	Jan	25
2	Jan	35

- i. `.df.loc[['Month','Passengers']] [df['Month'] =='Jan']`
- ii. `df[['Month','Passengers']][df['Month'] =='Jan']`
- iii. `df. iloc[['Month','Passengers']][df['Month'] =='Jan']`
- iv. `df(['Month','Passengers']][df['Month']=='Jan')`

2. Mr. Ankit wants to change the index of the Data Frame and the output for the same is given below. Identify the correct statement to change the index

	Year	Month	Passengers
Air India	2010	Jan	25
Indigo	2010	Mar	50
Spicejet	2012	Jan	35
Jet	2010	Dec	55
Emirates	2012	Dec	65

- i. `df.index=["Air India","Indigo","Spicejet","Jet","Emirates"]`
- ii. `df.index["Air India","Indigo","Spicejet","Jet","Emirates"]`
- iii. `df.index=["Air India","Indigo","Spicejet","Jet","Emirates"]`
- iv. `df.index()=["Air India","Indigo","Spicejet","Jet","Emirates"]`

3. He wants to arrange records of all the passenger's year wise in descending order.

- (i) `df.sort_values(by='Year', ascending=True, inplace=False)`
- (ii) `df.sort_values(by='Year', ascending=False, inplace=False)`
- (iii) `df.sort_values(by='Year', ascending=False, inplace=True)`
- (iv) `df.sort_values(by='Year', descending=True, inplace=True)`

- ANS:-
1. (ii) `df[['Month','Passengers']][df['Month']=='Jan']`
 2. (iii) `df.index=["Air India","Indigo","Spicejet","Jet","Emirates"]`
 3. (iii) `df.sort_values(by='Year', ascending=False, inplace=True)`

Q-2 Consider the following DataFrame **df**

Roll No.	Name	UT1	UT2	UT3	UT4
1	Prerna Singh	24	24	20	22
2	Manish Arora	18	17	19	22
3	TanishGoel	20	22	18	24
4	Falguni Jain	22	20	24	20
5	KanikaBhatnagar	15	20	18	22
6	Ramandeep Kaur	20	15	22	24

1. Write down the command that will give output:

rollno	6
name	TanishGoel
UT1	24
UT2	24
UT3	24

- a. `print(df.max)`
 - b. `print(df.max())`
 - c. `print(df.max(axis=1))`
 - d. `print(df.max, axis=1)`
2. The teacher needs to know the marks scored by the student with roll number. Help her to identify the correct set of statement/s from the given options
- a. `df1=df[df['rollno']==4]`
`print(df1)`
 - b. `df1=df[rollno==4]`
`print(df1)`
 - c. `df1=df[df.rollno=4]`
`print(df1)`
 - d. `df1=df[df.rollno==4]`
`print(df1)`
3. Which of the following statement/s will give the exact number of values in each column of the dataframe?
- i) `print(df.count())`
 - ii) `print(df.count(0))`
 - iii) `print(df.count)`
 - iv) `print(df.count(axis='index'))`
- Choose the correct option:
- a. both (i) and (ii)
 - b. only (ii)
 - c. (i), (ii) and (iii)
 - d. (i), (ii) and (iv)
4. Which of the following command will display the column labels of the dataframe?
- i) `print(df.columns())`
 - ii) `print(df.column())`
 - iii) `print(df.column)`
 - iv) `print(df.columns)`
5. Ms. Sharma, the class teacher wants to add a new column, the scores of Grade with the values, 'A', 'B', 'A', 'A', 'B', 'A' choose the command to do so:
- a) `df.column=['A','B','A','A','B','A']`
 - b) `df['Grade']=['A','B','A','A','B','A']`
 - c) `df.loc['Grade']=['A','B','A','A','B','A']`
 - d) Both (b) and (c) are correct

ANS:- 1. b. `print(df.max())`
 2. a. `df1=df[df['rollno']==4]`
`print(df1)`
 d. `df1=df[df.rollno==4]`

- ```
print(df1)
```
3. a. both (i) and (ii)
  4. d. print(df.columns)
  5. b. df['Grade']=['A','B','A','A','B','A']

**Q-3** Consider the DataFrame dfmks having some missing values (shown as NaN) as shown below:

|      | A  | B     | C  | D    |
|------|----|-------|----|------|
| acct | 99 | 94.0  | 92 | 97.0 |
| eco  | 90 | 94.0  | 92 | 97.0 |
| eng  | 95 | 89.0  | 91 | 89.0 |
| ip   | 94 | NaN   | 99 | 95.0 |
| math | 97 | 100.0 | 99 | NaN  |

1) Which function will fill 0 in place of NaN.

- a. dfmks.fillna
- b. dfmks.fillNaN(0)
- c. dfmks.fillna(0)
- d. dfmks.fillNaN

2) Which function will not select all the rows that have NaN values.

- a. dfmks.drop(3,4)
- b. dfmks.dropna()
- c. dfmks.dropna(4,5)
- d. dfmks.dropNaN()

|      | A     | B     | C     | D     |
|------|-------|-------|-------|-------|
| acct | FALSE | FALSE | FALSE | FALSE |
| eco  | FALSE | FALSE | FALSE | FALSE |
| eng  | FALSE | FALSE | FALSE | FALSE |
| ip   | FALSE | TRUE  | FALSE | FALSE |
| math | FALSE | FALSE | FALSE | TRUE  |

3) The above output will be produced by using:

- a. dfmks.isnull()
- b. dfmks.show(True,False)
- c. dfmks.isnull(True,False)
- d. dfmks.show(Booleam)

4. Select code to arrange data in ascending order of section A.

- a. dfmks.sortvalue(by=['A'])

- b.dfmks.sort\_value(by=['A'])
- c.dfmks.sortvalues(by=['A'])
- d.dfmks.sort\_values(by=['A'])

5.Which library is necessary to import for above DataFrame.

- a. Import matplotlib
- b. Import pandas
- c. Import csv
- d. Import dataframe

ANS:- 1. c.dfmks.fillna(0)

- 2. b.dfmks.dropna()
- 3. a.dfmks.isnull()
- 4. d.dfmks.sort\_values(by=['A'])
- 5. b.import pandas

Q-4.Consider the following DataFrame df and answer any four questions

|              | <b>Fruits</b> | <b>Pulses</b> | <b>Rice</b> | <b>Wheat</b> |
|--------------|---------------|---------------|-------------|--------------|
| i) Andhra p. | 7830          | 931.0         | 7452.4      | NaN          |
| Gujarat      | 11950         | 818.0         | 1930.0      | 2737.0       |
| Kerala       | 113.1         | 1.7           | 2604.8      | NaN          |
| Punjab       | 7152          | 33.           | 11586.2     | 16440.5      |
| Tripura      | 44.1          | 23.2          | 814.6       | 0.5          |
| Uttar p.     | 140169.2      | 2184.4        | 13754.0     | 30056.0      |

Write down the command to find minimum value along the columns for each row.

- a.df.min()
- b.df.min(axis=1)
- c.df.min(axis=0)
- d.df.min(column)

ii) Which argument is used with max() function for only numeric values are used for calculation.

- a.NaN=True
- b.numerionly=True
- c.skipna=True,numeric\_value=True
- d.skipNaN=True,number\_value=True

iii) Select command to delete column wheat.



- a.deldf['wheat']
- b.del 'wheat'
- c.deldf.wheat
- d.deldf[4]

iv) Which function is used to change the name of index.

- a.df.change(index={"Andhra p.":"A","Gujrat":"B", "Kerala":"C", "Punjab":"D"})
- b.df.reindex(index={"Andhra p.":"A","Gujrat":"B", "Kerala":"C", "Punjab":"D"})
- c.df.named(index={"Andhra p.":"A","Gujrat":"B", "Kerala":"C", "Punjab":"D"})
- d.df.rename(index={"Andhra p.":"A","Gujrat":"B", "Kerala":"C", "Punjab":"D"})

v) Select code which will change value of '7152' Fruits column of row Punjab into 9658.

- a.df.Fruits(7152)=9658
- b.df.punjab[7152]=9658
- c.df.Fruits['punjab']=9658
- d.df.punjab['Fruits'](7152)=9658

**ANS:- i) b.df.min(axis=1)**

**ii) c.skipna=True,numeric\_value=True**

**iii) a.del df['wheat']**

**iv)d.df.rename(index={"Andhra p.":"A","Gujrat":"B", "Kerala":"C", "Punjab":"D"})**

**v) c. df.Fruits['punjab']=9658**

**Q-5 Consider the following DataFrame df and answer any four questions**

|           | Fruits   | Pulses | Rice    | Wheat   |
|-----------|----------|--------|---------|---------|
| Andhra p. | 7830     | 931.0  | 7452.4  | NaN     |
| Gujarat   | 11950    | 818.0  | 1930.0  | 2737.0  |
| Kerala    | 113.1    | 1.7    | 2604.8  | NaN     |
| Punjab    | 7152     | 33.    | 11586.2 | 16440.5 |
| Tripura   | 44.1     | 23.2   | 814.6   | 0.5     |
| Uttar p.  | 140169.2 | 2184.4 | 13754.0 | 30056.0 |

1. Add new row banglore with all columns value 1200

- a.df['banglore',:]=1200
- b.df.at['banglore']=1200

c.df.at['banglore',:]=1200

d.df.at.banglore=1200

2.The output:

|       |       |
|-------|-------|
| 11950 | 818.0 |
| 113.1 | 1.7   |

will be produced by:

a.df.show[1:3,0:2]

b.df.at[1:3,0:2]

c.df.loc[1:3,0:2]

d.df.iloc[1:3,0:2]

3.Which among given option produce output

|          |   |
|----------|---|
| Andhra p | 3 |
| gujarata | 4 |
| kerala   | 3 |
| Punjab   | 4 |
| Tripura  | 4 |
| uttar p  | 4 |

a.df.count(axis=1)

b.df.count(axis=0)

c.df.count(rows)

d.df.count(columns)

**ANS:-** 1. c.df.at['banglore',:]=1200

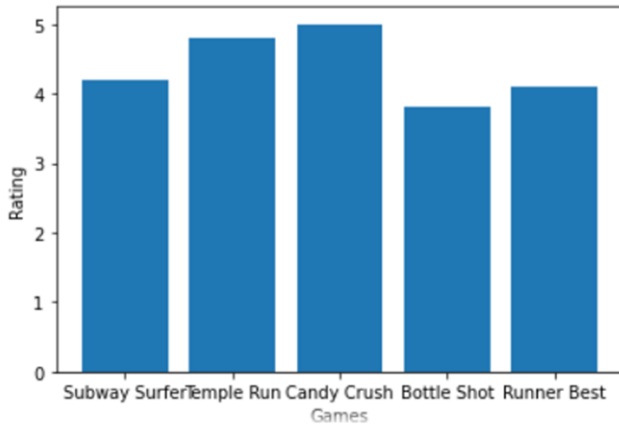
2. d.df.iloc[1:3,0:2]

3. b.df.T

4. c.median()

5. df.count(axis=1)

**Q-6.** Mr.Javed is working in a game software development industry and he was comparing the given chart on the basis of the rating of the various games available on the play store.



He is graph. code and

trying to write a code to plot the Help him to fill in the blanks of the get the desired output.

import \_\_\_\_\_ #Statement 1

Games=["Subway Surfer","Temple Run","Candy Crush","Bottle Shot","Runner Best"]

Rating=[4.2,4.8,5.0,3.8,4.1] plt. \_\_\_\_\_(Games,Rating) #Statement 2

plt.xlabel("Games") plt. \_\_\_\_\_("Rating") #Statement 3

plt. \_\_\_\_\_ #Statement 4

i. Choose the right code from the following for statement 1.

i. matplotlib as plt

ii. pyplot as plt

iii. matplotlib.pyplot as plt

iv. matplotlib.pyplot as pyplot

**ANS:-** (iii) matplotlib.pyplot as plt

ii. Identify the name of the function that should be used in statement 2 to plot the above graph.

i. line()

ii. bar()

iii. hist()

iv. barh()

**ANS:-** (ii) bar()

iii. Choose the correct option for the statement 3.

- i. title("Rating")
- ii. ytitle("Rating")
- iii. ylabel("Rating")
- iv. yaxis("Rating")

ANS:- (iii) ylabel("Rating")

iv) Choose the right function/method from the following for the statement 4.

- i. display()
- ii. print()
- iii. bar()
- iv. show()

**Answer:** (iv) show()

v) In case Mr. Javed wants to change the above plot to the any other shape, which statement, should he change.

- i. Statement 1
- ii. Statement 2
- iii. Statement 3
- iv. Statement 4

**Answer:** Statement 2

**Q-7** Khushi is the event incharge in a school. One of her students gave her a suggestion to use Python Pandas and Matplotlib for analysing and visualising the data, respectively. She has created a Data frame "SportsDay" to keep track of the number of First, Second and Third prizes won by different houses in various events.

|   | House  | First | Second | Third |
|---|--------|-------|--------|-------|
| 0 | Chenab | 5     | 7      | 6     |
| 1 | Ganges | 10    | 5      | 4     |
| 2 | Jamuna | 8     | 13     | 15    |
| 3 | Jhelum | 12    | 9      | 12    |
| 4 | Ravi   | 5     | 11     | 10    |
| 5 | Satluj | 10    | 5      | 3     |

Write Python commands to do the following:

i. Display the house names where the number of Second Prizes are in the range of 12 to 20.

a. `df['Name'][(df['Second']>=12) and (df['Second']<=20)]`

b. `df['Name'][(df['Second']>=12) & (df['Second']<=20)]`

c. `df['Name'][(df['Second']>=12) & (df['Second']<=20)]`

d. `df[(df['Second']>=12) & (df['Second']<=20)]`

**ANS: c.** `df['Name'][(df['Second']>=12) & (df['Second']<=20)]`

ii. Display all the records in the reverse order.

a. `print(df[::-1])`

b. `print(df.iloc[::-1])`

c. `print(df[-1:]+df[:-1])`

d. `print(df.reverse())`

**ANS: b.** `print(df.iloc[::-1])`

iii. Display the bottom 3 records.

a. `df.last(3)`

b. `df.bottom(3)`

c. `df.next(3)`

d. `df.tail(3)`

**ANS: d.** `df.tail(3)`

iv) Choose the correct output for the given statements:

```
x=df.columns[:1]
```

```
print(x)
```

- a. 0
- b. Name
- c. First
- d. Error

**ANS:-** b. Name

v. Which command will give the output 24:

- a. `print(df.size)`
- b. `print(df.shape)`
- c. `print(df.index)`
- d. `print(df.axes)`

**ANS:-** a. `df.size`

## SOCIETAL IMPACTS

### SECTION A- MULTIPLE CHOICE QUESTIONS

Q1. \_\_\_\_\_ are the records and traces that we left behind as we use Internet.

- a. Digital Footprints
- b. Data Protection
- c. Plagiarism
- d. Digital Data

Q2. Digital footprints are stored \_\_\_\_\_

- a. Temporarily (for few days)
- b. Permanently
- c. for 7 days only
- d. for 3 days

Q3. 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

Q4. There are \_\_\_\_\_ kinds of Digital footprints.

- a. 1
- b. 2
- c. 3
- d. 4

Q5. Which of the following is type of Digital Footprints?

- a. Active digital footprints
- b. Passive digital footprints
- c. Both of the above
- d. None of the above

Q6. The digital data trail we leave online unintentionally is called \_\_\_\_\_

- a. Active digital footprints
- b. Passive digital footprints
- c. Current digital footprints
- d. None of the above

Q7. The digital data trail we leave online intentionally is called \_\_\_\_\_

- a. Active digital footprints
- b. Passive digital footprints
- c. Current digital footprints
- d. None of the above

Q8. Which of the following activity is an example of leaving Active digital footprints?

- a. Surfing internet
- b. Visiting a website
- c. Sending an email to friend
- d. None of the above

Q9. Our digital footprint can be created by \_\_\_\_\_

- a. visiting any website
- b. sending email
- c. posting online
- d. All of the above

Q10. Our digital footprints are stored in local web browser in the form of \_\_\_\_\_

- a. browsing history
- b. cookies
- c. passwords
- d. All of the above



Q11. Our digital foot prints are stored in \_\_\_\_\_

- a. Local web browser
- b. Servers where the applications are hosted
- c. Both of the above
- d. None of the above

Q12. Digital footprints can be used to \_\_\_\_\_

- a. Trace the user's location
- b. Trace the user's digital activity
- c. know the digital personality of user.
- d. All of the above

Q13. Anyone who uses digital technology along with Internet is a \_\_\_\_\_

- a. Digital citizen
- b. Netizen
- c. Both of the above
- d. None of the above

Q14. In this era of digital society, we can do \_\_\_\_\_

- a. Online Shopping
- b. Online Banking
- c. Online Education
- d. All of the above

Q15. Which of the following are Net Etiquette?

- a. Be Ethical
- b. Be Respectful
- c. Be Responsible
- d. All of the above

Q16. Being a responsible digital citizen, we should \_\_\_\_\_

- a. not use copyrighted materials
- b. avoid cyber bullying
- c. respect privacy of others
- d. All of the above

Q17. Online posting of rumours, giving threats online, posting the victim's personal information, comments aimed to publicly ridicule a victim is termed as \_\_\_\_\_

- a. Cyber bullying
- b. Cyber crime
- c. Cyber insult
- d. All of the above

Q18. \_\_\_\_\_ is a person who deliberately sows discord on the Internet by starting quarrels or upsetting people, by posting inflammatory or off topic messages in an online community.

- a. Netizen
- b. Digital Citizen
- c. Internet troll
- d. None of the above

Q19. Digital communication includes \_\_\_\_\_

- a. Email
- b. Texting
- c. Instant messaging
- d. All of the above

Q20. Which of the following is example of Social media?

- a. Facebook
- b. Twitter
- c. Instagram
- d. All of the above

Q21. Which of the following is not an example of Social media platform?

- a. Facebook
- b. Pinterest
- c. Google+
- d. Social channel

Q22. \_\_\_\_\_ are websites or applications that enable users to participate by creating and sharing content with others in the community.

- a. Social media
- b. Social channel
- c. Social networking
- d. None of the above

Q23. A responsible netizen must abide by \_\_\_\_\_

- a. net etiquettes
- b. communication etiquettes
- c. social media etiquettes
- d. All of the above

Q24. In social media platform, we can share \_\_\_\_\_

- a. images
- b. text
- c. videos
- d. All of the above

Q25. To be a responsible netizen, we should \_\_\_\_\_

- a. Choose password wisely
- b. think before upload anything online.
- c. change our password frequently.
- d. All of the above

Q26. Data that can cause substantial harm, embarrassment, inconvenience and unfairness to an individual, if breached or compromised, is called \_\_\_\_\_

- a. Sensitive data
- b. Important data
- c. security data
- d. None of the above

Q27. Example of sensitive data is \_\_\_\_\_

- a. Name of a person
- b. Credit card detail of a person
- c. Date of birth of a person
- d. None of the above

Q28. IPR stands for \_\_\_\_\_

- a. Indian Property Right
- b. Intellectual Property Right
- c. Intelligent Property Right
- d. Intellectual Property Resource

Q29. Code of the software will be protected by \_\_\_\_\_

- a. copyright
- b. patent
- c. registered trademark
- d. None of the above

Q30. Functional expression of the idea/invention will be protected by \_\_\_\_\_

- a. copyright
- b. patent
- c. registered trademark
- d. None of the above

Q31. The name and logo of the software will be protected by \_\_\_\_\_

- a. copyright
- b. patent
- c. registered trademark
- d. None of the above

Q32. Intellectual Property is legally protected through \_\_\_\_\_

- a. copyright
- b. patent
- c. registered trademark
- d. All of the above

Q33. 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. Createright
- d. None of the above

Q34. A \_\_\_\_\_ provide an exclusive right to prevent others from using, selling, or distributing the protected invention

- a. copyright
- b. trademark
- c. patent
- d. All of the above

Q35. A patent protects an invention for \_\_\_\_\_ years, after which it can be freely used.

- a. 10
- b. 20
- c. 30
- d. 40

Q36. \_\_\_\_\_ includes any visual symbol, word, name, design, slogan, label, etc., that distinguishes the brand from other brands.

- a. Trademark
- b. Patent
- c. Copyright
- d. None of the above

Q37. EULA stands for \_\_\_\_\_

- a. End User Leave Agreement
- b. End User License Aim
- c. End User License Agreement
- d. None of the above

Q38. \_\_\_\_\_ covers all clauses of software purchase, viz., how many copies can be installed, whether source is available, whether it can be modified and redistributed and so on.

- a. EULA
- b. EULE
- c. AULA
- d. AULI

Q39. \_\_\_\_\_ means using other's work and not giving adequate citation for use.

- a. Plagiarism
- b. Licensing
- c. Copyright
- d. None of the above

Q40. Licensing and copyrights are same terms.(T/F)

- a. True
- b. False

Q41. A \_\_\_\_\_ is a type of contract between the creator of an original work permitting someone to use their work, generally for some price.

- a. Agreement
- b. License
- c. Patent
- d. Copyright

Q42. Presenting someone else's idea or work as one's own idea or work is called \_\_\_\_\_

- a. Plagiarism
- b. Copyright infringement
- c. Patent infringement
- d. None of the above

Q43. Ravi copy some contents from Internet, but do not mention the source or the original creator. This is an act of \_\_\_\_\_

- a. Plagiarism
- b. Copyright Infringement
- c. Trademark Infringement
- d. Licence Infringement

Q44. \_\_\_\_\_ means unauthorized use of other's trademark on products and services.

- a. Copyright Infringement
- b. Trademark Infringement
- c. Plagiarism
- d. Patent

Q45. GPL stands for \_\_\_\_\_

- a. General Public License
- b. GNU General Private License
- c. GNU General Public License
- d. GNU Public License

Q46. Which of the following is popular category of public licenses?

- a. GPL
- b. CC
- c. Both of the above
- d. None of the above

Q47. CC (in reference to public license) stands for \_\_\_\_\_

- a. Creative Commons
- b. Carbon copy
- c. Creative Comments
- d. Creative Culture

Q48. GPL is primarily designed for providing public license to a \_\_\_\_\_

- a. software
- b. websites
- c. literature
- d. music

Q49. FOSS stands for \_\_\_\_\_

- a. For open source software
- b. Free and open set software
- c. Free and open source software
- d. None of the above

Q50. \_\_\_\_\_ operating system come under FOSS.

- a. Ubuntu
- b. Unix
- c. Mac
- d. Windows



Q51. \_\_\_\_\_ browser come under FOSS.

- a. Internet explorer
- b. Chrome
- c. Mozilla Firefox
- d. None of the above

Q52. \_\_\_\_\_ is the unauthorized use or distribution of software.

- a. Software piracy
- b. Piracy
- c. Software copy
- d. Pirated Software

Q53. \_\_\_\_\_ package come under FOSS.

- a. Libre Office
- b. Open Office
- c. Both of the above
- d. None of the above

Q54. The owner of a work can create \_\_\_\_\_ different types of CC licenses.

- a. 2
- b. 4
- c. 6
- d. 8

Q55. \_\_\_\_\_ is defined as a crime in which computer is the medium of crime.

- a. Computer crime
- b. Cyber crime
- c. Internet crime
- d. Digital crime

Q56. Which of the following is cybercrime?

- a. Hacking
- b. Phishing
- c. Spamming
- d. All of the above

Q57. A \_\_\_\_\_ is some lines of malicious code that can copy itself and can have detrimental effect on the computers, by destroying data or corrupting the system.

- a. Cyber crime
- b. Computer virus
- c. Program
- d. Software

Q58. \_\_\_\_\_ is the act of unauthorized access to a computer, computer network or any digital system.

- a. Sign in
- b. Hacking
- c. Tracking
- d. None of the above

Q59. Hacking, when done with a positive intent, is called \_\_\_\_\_

- a. Ethical hacking
- b. Active hacking
- c. Passive hacking
- d. Ethics

Q60. Which of the following is called black hat hacker?

- a. Ethical hacker
- b. Non Ethical hacker
- c. Both of the above
- d. None of the above

Q61. Which of the following is white hat hacker?

- a. Ethical hacker
- b. Non Ethical hacker
- c. Both of the above
- d. None of the above

Q62. Primary focus of \_\_\_\_\_ is on security cracking and data stealing.

- a. ethical hacker
- b. non ethical hacker
- c. white hat hacker
- d. None of the above

Q63. Hackers try to break security system \_\_\_\_\_

- a. for Identity theft
- b. for monetary gain
- c. to leak sensitive information
- d. All of the above

Q64. \_\_\_\_\_ is an activity where fake websites or emails that look original or authentic are presented to the user.

- a. Phishing
- b. Hacking
- c. Spamming
- d. Identity theft

Q65. \_\_\_\_\_ is a kind of cyber crime in which attacker blackmails the victim to pay for getting access to the data.

- a. Phishing
- b. Identity theft
- c. Ransomware
- d. None of the above

Q66. Which of the following can be considered as safety measures to reduce the risk of cyber crime?

- a. Use an antivirus software and keep it updated always.
- b. Avoid installing pirated software.
- c. Use strong password for web login, and change it periodically.
- d. All of the above

Q67. E-waste stands for \_\_\_\_\_

- a. Electrical waste
- b. Electronic waste
- c. Electricity waste
- d. E-waste

Q68. Which of the following constitute e-waste?

- a. discarded computers
- b. damaged printers
- c. useless CDs
- d. All of the above

Q69. Which of the following are feasible methods of e-waste management?

- a. Reduce
- b. Reuse
- c. Recycle
- d. All of the above

Q70. The process of re-selling old electronic goods at lower prices is called \_\_\_\_\_

- a. refurbishing
- b. recycle
- c. reuse
- d. reduce

Q71. \_\_\_\_\_ is a branch of science that deals with designing or arranging workplaces including the furniture, equipment and systems so that it becomes safe and comfortable for the user.

- a. Ergonomics
- b. Ergomics
- c. Agonomics
- d. All of the above

Q72. Bad posture of using computer may cause \_\_\_\_\_

- a. Backache
- b. Neck Pain
- c. Shoulder pain
- d. All of the above

Q73. What we have to ensures to maintain good health of a computer system?

- a. Wipe monitor's screen often using the regular microfiber soft cloth.
- b. Keep it away from direct heat, sunlight and put it in a room with enough ventilation for air circulation.
- c. Do not eat food or drink over the keyboard
- d. All of the above

Q74. Proprietary software is a software which is available \_\_\_\_\_

- a. free of charge
- b. on paying license fee
- c. free for first year only
- d. none of the above

Q75. Which of the following is not a cyber crime?

- a. Phishing
- b. Ransomware
- c. Hacking
- d. Tracking

## ANSWERS

|      |      |      |      |
|------|------|------|------|
| 1. a | 2.b  | 3.a  | 4.b  |
| 5.c  | 6.b  | 7.a  | 8.c  |
| 9.d  | 10.d | 11.c | 12.d |
| 13.c | 14.d | 15.d | 16.d |
| 17.a | 18.c | 19.d | 20.d |
| 21.d | 22.a | 23.d | 24.d |
| 25.d | 26.a | 27.b | 28.b |
| 29.a | 30.b | 31.c | 32.d |
| 33.a | 34.a | 35.b | 36.a |
| 37.c | 38.a | 39.a | 40.b |
| 41.b | 42.a | 43.a | 44.b |
| 45.a | 46.c | 47.a | 48.a |
| 49.c | 50.a | 51.c | 52.a |
| 53.c | 54.c | 55.b | 56.d |
| 57.b | 58.b | 59.a | 60.b |
| 61.a | 62.b | 63.d | 64.a |
| 65.c | 66.d | 67.b | 68.d |
| 69.d | 70.a | 71.a | 72.d |
| 73.d | 74.b | 75.d |      |

## SECTION B- ADDITIONAL QUESTIONS

Q.1. Gaining unauthorised access to a network or computer or digital files with malicious intentions, is called \_\_\_\_\_

- a. Cracking
- b. Hacking
- c. Banging
- d. Phishing

Q.2. Legal term to describe the rights of a creator of original creative or artistic work is called \_\_\_\_\_

- a. Copyright
- b. Copyleft
- c. GPL
- d. None of these

Q.3. OSS stands for

- a. Open system security
- b. Open system source
- c. Open software and security
- d. Open source software

Q.4. Any fraudulent business practice that extracts money from an unsuspecting, ignorant person is called \_\_\_\_\_

- a. Stealing
- b. Scam
- c. Violation of copyright
- d. Digital footprint

Q.5. \_\_\_\_\_ means no price is to be paid for the software.

- a. Free software
- b. Freeware
- c. shareware
- d. Open source software

Q.6. Any work / information that exist in digital form on internet or on an electronic device, is known as \_\_\_\_\_ property.

- a. Licence property
- b. digital property
- c. source code property
- d. software property

Q.7. Discarded electrical or electronic devices are known as \_\_\_\_\_.

- a. E waste
- b. Software Waste
- c. Hardware waste
- d. Computer waste

Q.8. The least restrictive open source licence is \_\_\_\_\_ licence.

- a. Apache Licence
- b. MIT licence
- c. GNU licence
- d. BSD licence

Q.9. The original code written by programmers for a software is known as \_\_\_\_\_

- a. Object code
- b. Source code
- c. Python code
- d. Language code

Q.10. \_\_\_\_\_ means freedom to use the software.

- a. Plagiarism
- b. Freeware
- c. Open software
- d. Free software

Q.11. IAD means \_\_\_\_\_

- a. Internet advanced data
- b. Internet addiction disorder
- c. Internet advanced digitalization
- d. Internet aggregate data

Q.12. The \_\_\_\_\_ is the Digital trail of your activity on the internet.

- a. Copyleft
- b. Digital footprint
- c. Digital data
- d. Internet property

Q.13. The \_\_\_\_\_ are the permissions given to use a product or someone's creator by the copyright holder.

- a. Source code
- b. Licence
- c. Software authority
- d. Digital rights

Q.14. \_\_\_\_\_ is a licence that gives right opposite to copyright.

- a. Left copy
- b. Digital copy
- c. Copyleft
- d. IPR

Q.15. A software that can be freely accessed and modified is called

- a. synchronous software
- b. package software
- c. open source software
- d. middleware.



Q.16.Which of the following is an advantage of open source software?

- a. You can edit the source code to customise it
- b. you need to be an expert to edit code
- c. you have to pay
- d. can sometimes with two generic for specialist purposes.

Q.17.Which of the following is a disadvantage of open source software?

- a. high quality software with lots of features.
- b. not as customizable
- c. may not have been tested as much as proprietary software so might have bugs.
- d. you can added the source code to customize it

Q.18.Which of the following is an advantage of proprietary software?

- a. It is usually free
- b. thoroughly tested because people are paying to use it.
- c. Not as customizable.
- d. Can sometimes be to generate for specialist purposes.

Q.19.Which of the following is a disadvantage of proprietary software?

- a. You need to be an expert to edit code.
- b. You have to pay for this type of software.
- c. It's licensed.
- d. It is launched after proper testing.

Q.20.The generally recognized term for the government protection afforded to intellectual property written and electronic is called \_\_\_\_\_

- a. Computer security law.
- b. Aggregate information.
- c. Copyright law
- d. Data security standards.

Q.21.Which of the following would be a creative work protected by copyright?

- a. A list of all Indian President names
- b. A Portrait of your family
- c. A song you wrote
- d. The name of your pet dog

Q.22.Which of the following is not done by cyber criminals?

- a. Unauthorised account access
- b. Mass Attack using trojans as botnets
- c. Email spoofing and spamming
- d. report vulnerabilty in any system

Q.23.What is the name of the IT law that India is having in the Indian legislature?

- a. India's Technology IT Act 2000
- b. India's Digital information technology DIT Act, 2000
- c. India's Information Technology IT Act, 2000
- d. The technology act, 2008.

Q.24. What is meant by the term cybercrime?

- a. Any crime that uses computers to jeopardize or attempt to jeopardize national security
- b. The use of computer networks to commit financial or identity fraud
- c. The theft of Digital information
- d. Any crime that involves computers and networks

Q.25. Every activity you perform on the internet is safe for how long?

- a. 1 month
- b. 1 year
- c. As per my setting
- d. Forever

Q.26. A \_\_\_\_\_ is an injury or disorder of muscles, nerves, tendons, ligaments and joints.

- a. Repetitive Strain injury
- b. Muscle injury
- c. Nervous breakdown
- d. Joint pain
- e.

Q.27. \_\_\_\_\_ is a technology related health condition affecting eyesight.

- a. Computer vision strain
- b. Computer vision syndrome
- c. Eyesight syndrome
- d. Vision imbalance

### ANSWERS

|      |      |      |      |
|------|------|------|------|
| 1.b  | 2.a  | 3.d  | 4.b  |
| 5.b  | 6.b  | 7.a  | 8.b  |
| 9.b  | 10.d | 11.b | 12.b |
| 13.b | 14.c | 15.c | 16.a |
| 17.c | 18.b | 19.b | 20.c |
| 21.c | 22.d | 23.c | 24.d |
| 25.d | 26.a | 27.b |      |

## SECTION C- CASE STUDY BASED QUESTIONS

1. After practicals, Atharv left the computer laboratory but forgot to sign off from his email account. Later, his classmate Revaan started using the same computer. He is now logged in as Atharv. He sends inflammatory email messages to few of his classmates using Atharv's email account. Revaan's activity is an example of which of the following cyber crime?

- a) Hacking
- b) Identity theft
- c) Cyber bullying
- d) Plagiarism

2. Rishika found a crumpled paper under her desk. She 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 Rishika 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.

3. Suhana is down with fever. So, she decided not to go to school tomorrow. Next day, in the evening she called up her classmate, Shaurya and enquired about the computer class. She also requested him to explain the concept. Shaurya said, "Mam taught us how to use tuples in python". Further, he generously said, "Give me some time, I will email you the material which will help you to understand tuples in python". Shaurya quickly downloaded a 2-minute clip from the Internet explaining the concept of tuples in python. Using video editor, he added the text "Prepared by Shaurya" in the downloaded video clip. Then, he emailed the modified video clip to Suhana. This act of Shaurya is an example of —

- a) Fair use
- b) Hacking
- c) Copyright infringement
- d) Cyber crime

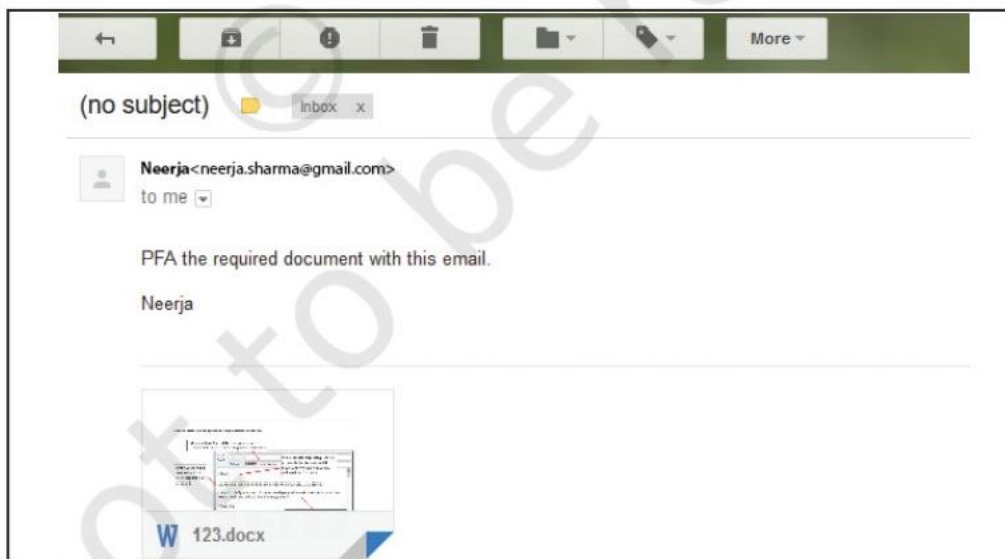
4. After a fight with your friend, you did the following activities. Which of these activities is not an example of cyber bullying?

- a) You sent an email to your friend with a message saying that "I am sorry".
- b) You sent a threatening message to your friend saying "Do not try to call or talk to me".
- c) You created an embarrassing picture of your friend and uploaded on your account on a social networking site.

5. Sourabh has to prepare a project on “Digital India Initiatives”. He decides to get information from the Internet. He downloads three web pages (webpage 1, webpage 2, webpage 3) containing information on Digital India Initiatives. Which of the following steps taken by Sourabh is an example of plagiarism or copyright infringement?

- a) He read a paragraph on “Digital India Initiatives” from webpage 1 and rephrased it in his own words. He finally pasted the rephrased paragraph in his project.
- b) He downloaded three images of “Digital India Initiatives” from webpage 2. He made a collage for his project using these images.
- c) He downloaded “Digital India Initiative” icon from web page 3 and pasted it on the front page of his project report.

6. Neerja is a student of Class XI. She has opted for Computer Science. Neerja prepared the project assigned to her. She mailed it to her teacher. The snapshot of that email is shown below.



Find out which of the following email etiquettes are missing in it.

- a) Subject of the mail
- b) Formal greeting
- c) Self-explanatory terms
- d) Identity of the sender
- e) Regards

### ANSWERS

1. b    2. a    3. c    4. a    5. b    6. A

**Sample Question Paper SET - 1 (Term-1)**  
**2021**  
**Informatics Practices (065)**  
**Class 12**

**Time: 02:00 Hrs**

**Marks: 35**

**Instructions:**

1. Do not open the question booklet until you are asked to do so.
2. There are 35 questions in the question booklet.
3. Each question is compulsory.
4. Each question has four possible answers - A, B, C and D. Students are required to choose the most appropriate answer out of the four alternatives.

| QNo. | Question                                                                                                                                                                                                               | Marks |
|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| 1    | Data which has no restriction of usage and is freely available to everyone under Intellectual Property Rights is categorised as:<br><br>(a) Open source (b) Open data<br><br>(c) Open content (d) Open education       | 1     |
| 2    | Which of the following is not a valid line style in matplotlib?<br><br>(a) '-' (b) '--'<br><br>(c) '-.' (d) '<'                                                                                                        | 1     |
| 3    | The best type of graph to represent distribution of elements is<br><br>(a) bar (b) histogram<br><br>(c) pie (d) basemap                                                                                                | 1     |
| 4    | Which of the following pandas attributes gives output in the form of tuple?<br><br>(a) nbytes (b) ndim<br><br>(c) shape (d) size                                                                                       | 1     |
| 5    | A student copies his final year project from a random internet source. This act is termed as<br><br>(a) Phishing (b) Spamming<br><br>(c) Plagiarism (d) Identity Theft                                                 | 1     |
| 6    | A series contains a total of 10 elements including a missing value. The output of count and len functions when applied to this Series respectively will be<br><br>(a) 10,10 (b) 9,10<br><br>(c) 9,9 (d) 10,9           | 1     |
| 7    | Which of the following parameters of the read_csv function is used to make one of the columns of the data in the csv file as index of the data frame.<br><br>(a) skiprows (b) index_row<br><br>(c) nrows (d) index_col | 1     |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                             |   |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 8  | A mail or message sent to a large number of people without their consent is called<br><br>(a) Cyberstalking (b) Eavesdropping<br>(c) Phishing (d) Spamming                                                                                                                                                                                                                                                                  | 1 |
| 9  | A trademark is valid for ____ years and can be renewed after that.<br><br>(a) 6 (b) 10<br>(c) 5 (d) 4                                                                                                                                                                                                                                                                                                                       | 1 |
| 10 | Which of the following is not the correct method of E-waste management?<br><br>(a) Regrow (b) Reduce<br>(c) Recycle (d) Reuse                                                                                                                                                                                                                                                                                               | 1 |
|    | <i>Directions (Q No. 11-15) In the questions given below there are two statements marked as Assertion (A) and Reason (R) . Read the statements and choose the correct option.</i><br><br>a. Both (A) and (R) are True, and (R) is the correct explanation of (A).<br>b. Both (A) and (R) are True, but (R) is not the correct explanation of (A).<br>c. (A) is true, but (R) is false.<br>d. (A) is false, but (R) is true. |   |
| 11 | <b>Assertion (A):</b> To display the first four elements of a Series object, you may write S[:4].<br><b>Reason (R):</b> To display the first five rows of a Series object S, you may use tail() function.                                                                                                                                                                                                                   | 1 |
| 12 | <b>Assertion (A):</b> The rename function of Data Frame does not rename the columns of the original data frame, but instead returns a dataframe with updated column names.<br><b>Reason (R):</b> Default value of inplace parameter in rename function is False.                                                                                                                                                            | 1 |
| 13 | <b>Assertion (A):</b> A series object is size mutable.<br><b>Reason (R):</b> A data frame is value mutable.                                                                                                                                                                                                                                                                                                                 | 1 |
| 14 | <b>Assertion (A):</b> loc is used to extract a subset of a data frame.<br><b>Reason (R):</b> Transpose of a dataframe df can be obtained using df.T.                                                                                                                                                                                                                                                                        | 1 |
| 15 | <b>Assertion (A):</b> Given a Series S, output of print(len(S.shape)) will be 1.<br><b>Reason (R):</b> A series is one dimensional in nature.                                                                                                                                                                                                                                                                               | 1 |
|    | <i>Directions (Q No. 16-20) Read the extract given below and answer the questions on the basis of the same.</i>                                                                                                                                                                                                                                                                                                             |   |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |   |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
|    | <p>Mr. Mathur wants to write Python code to create the following data frame containing marks of 3 students. However, he is facing some problems. Help him by answering a few questions below.</p> <pre> M1  M2  M3 S1  21  22  19 S2  23  22  16 S3  30  25  26 </pre> <p>Code to create the dataframe:</p> <pre> import pandas as pd df=pd.DataFrame([[21,22,19],[23,22,16],[30,25,26]],\                 _____=['S1','S2','S3'])#statement 1 df. _____=['M1','M2','M3'] #statement 2 print(df) </pre> |   |
| 16 | <p>Choose the right code for statement 1.</p> <p>(a) row (b) column<br/>(c) index (d) columns</p>                                                                                                                                                                                                                                                                                                                                                                                                       | 1 |
| 17 | <p>Choose the right code for statement 2.</p> <p>(a) column (b) columns<br/>(c) value (d) values</p>                                                                                                                                                                                                                                                                                                                                                                                                    | 1 |
| 18 | <p>Which of the following commands will output 2 for the above given Data Frame?</p> <p>(a) df.size (b) df.ndim<br/>(c) df.shape (d) df.index</p>                                                                                                                                                                                                                                                                                                                                                       | 1 |
| 19 | <p>He wants to rename the column M1 to MT1, which command should he execute?</p> <p>(a) df=df.rename(columns={'M1':'MT1'})<br/>(b) df=df.rename({'M1':'MT1'})<br/>(c) df=df.rename(columns={'M1':'MT1'},inplace=True)<br/>(d) df=df.rename(column={'M1':'MT1'})</p>                                                                                                                                                                                                                                     | 1 |



|    |                                                                                                                                                                                                                                                                                               |   |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 20 | <p>He wants to obtain the sum of marks for each student as given below. Choose the correct statement to obtain the same.</p> <pre>s1    62 s2    61 s3    81 dtype: int64</pre> <p>(a) print(df.sum(axis=0))<br/> (b) print(df.sum())<br/> (c) print(df.sum(0))<br/> (d) print(df.sum(1))</p> | 1 |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|

*Directions (Q No. 21-25) Read the extract given below and answer the questions on the basis of the same.*

Ms. Ankita wants to plot the below given graph of  $y=x^2$  vs  $y=x^3$  for  $x$  in the range 1 to 10. However, she is facing some problems. Help her by answering a few questions related to the code written by her.

| Value of x | x <sup>2</sup> | x <sup>3</sup> |
|------------|----------------|----------------|
| 1          | 1              | 1              |
| 2          | 4              | 8              |
| 3          | 9              | 27             |
| 4          | 16             | 64             |
| 5          | 25             | 125            |
| 6          | 36             | 216            |
| 7          | 49             | 343            |
| 8          | 64             | 512            |
| 9          | 81             | 729            |
| 10         | 100            | 1000           |

Code:

```
import matplotlib.pyplot as plt
import numpy as np
x=np.arange(1,11)
y=x*2
z=x*3
plt.bar(x,y,color=__,width=0.4,label='x*2')#statement 1
plt.bar(____,z,color='b',width=0.4,label='x*3')#statement 2
plt.____(x) #statement 3
plt.____() #statement 4
plt.xlabel('Value of x')
plt.ylabel('Values of x*2 and x*3')
plt.title('Function graph')
____ #statement 5
```

|    |                                                                                                                                                                                                                                                                                                                                                                                                                              |   |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 21 | <p>What color code should be used to assign black color to the plot of <math>y=x^2</math> in the line marked as statement 1?</p> <p>(a) bl (b) c<br/>(c) bk (d) k</p>                                                                                                                                                                                                                                                        | 1 |
| 22 | <p>What x axis should be chosen for <math>y=x^3</math> plot in statement 2 so that the bars do not overlap.</p> <p>(a) x (b) 0.4<br/>(c) <math>x+0.4</math> (d) <math>x*0.4</math></p>                                                                                                                                                                                                                                       | 1 |
| 23 | <p>Fill in the blank in statement 3 to print all the points on the x axis.</p> <p>(a) xticks (b) xtick<br/>(c) xlabel (d) xlabels</p>                                                                                                                                                                                                                                                                                        | 1 |
| 24 | <p>Fill in the blank in statement 4 to display the legends as shown in the plot.</p> <p>(a) legends (b) displaylegends<br/>(c) displaylegend (d) legend</p>                                                                                                                                                                                                                                                                  | 1 |
| 25 | <p>Fill in the blank in statement 5 to display the plot.</p> <p>(a) plt.display() (b) plt.show()<br/>(c) plt.showplot() (d) plt.displayplot()</p>                                                                                                                                                                                                                                                                            | 1 |
| 26 | <p>A Data Frame is having True and False as its boolean indexes. The command that can be used to access all the rows corresponding to True boolean index is</p> <p>(a) <code>print(df.loc(True))</code> (b) <code>print(df.loc[:,True])</code><br/>(c) <code>print(df.loc[True])</code> (d) <code>print(df.loc(True,:))</code></p>                                                                                           | 1 |
| 27 | <p>Consider the following Data Frame df containing missing values</p> <pre> C1    C2    C3 I3  NaN  NaN  NaN I1  3.0  11.0 NaN I2  7.0  30.0 40.0 </pre> <p>The command <code>df.dropna(how='all')</code> will</p> <p>(a) return Data Frame containing row(s) I3.<br/>(b) return Data Frame containing row(s) I1 and I2.<br/>(c) return Data Frame containing row(s) I1.<br/>(d) return Data Frame containing row(s) I2.</p> | 1 |

|    |                                                                                                                                                                                                                                                                                                                                                                                                                                          |   |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 28 | <p>Consider a Data Frame containing three columns C1, C2 and C3, which of the below given commands can be used to delete the column C3?</p> <p>(a) <code>del df.C3</code><br/> (b) <code>del df.loc[:, 'C3']</code><br/> (c) <code>del df.iloc[:, 2]</code><br/> (d) <code>del df['C3']</code></p>                                                                                                                                       | 1 |
| 29 | <p>Consider a Data Frame containing three rows R1, R2 and R3, which of the below given commands to delete the rows R1 and R2 is incorrect?</p> <p>(a) <code>df=df.drop(['R1', 'R2'], 1)</code><br/> (b) <code>df=df.drop(['R1', 'R2'])</code><br/> (c) <code>df=df.drop(['R1', 'R2'], 0)</code><br/> (d) <code>df=df.drop(['R1', 'R2'], axis='index')</code></p>                                                                         | 1 |
| 30 | <p>Consider the below given Data Frame df</p> <pre> C1  C2  C3 R1  11  19  20 R2  22   5   6 R3  12  15  16 </pre> <p>The output of the following command will be<br/> <code>print(df[df.C2&gt;10].max()['C1'])</code></p> <p>(a) 22<br/> (b) 10<br/> (c) 12<br/> (d) 11</p>                                                                                                                                                             | 1 |
|    | <p><i>Directions (Q No. 31-35) In the questions given below there are two statements marked as Assertion (A) and Reason (R) . Read the statements and choose the correct option.</i></p> <p>a. Both (A) and (R) are True, and (R) is the correct explanation of (A).<br/> b. Both (A) and (R) are True, but (R) is not the correct explanation of (A).<br/> c. (A) is true, but (R) is false.<br/> d. (A) is false, but (R) is true.</p> |   |
| 31 | <p><b>Assertion (A):</b> The electronic records available on DigiLocker are considered legitimate.<br/> <b>Reason (R):</b> The electronic records available on DigiLocker or mParivahan are deemed to be legally recognised at par with the original documents as per the provisions of the Information Technology Act, 2000</p>                                                                                                         | 1 |
| 32 | <p><b>Assertion (A):</b> Someone has created a fake social media profile in the name of Saket. Saket is a victim of cyberstalking.<br/> <b>Reason (R):</b> Cyberstalking is a form of cybercrime.</p>                                                                                                                                                                                                                                    | 1 |
| 33 | <p><b>Assertion (A):</b> Stealing money from someone's wallet is a type of cybercrime.<br/> <b>Reason (R):</b> Cybercrime is a crime that involves a computer and a network.</p>                                                                                                                                                                                                                                                         | 1 |
| 34 | <p><b>Assertion (A):</b> Amit has stolen the content of a research paper and published it online. Amit has performed cybercrime.<br/> <b>Reason (R):</b> Plagiarism is the act of stealing someone's work and presenting it as one's own work.</p>                                                                                                                                                                                       | 1 |

|    |                                                                                                                                                                                                                                                                                                                                                                         |   |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 35 | <p><b>Assertion (A):</b> The source code of weka software can be modified and shared as it's an open source data mining software.</p> <p><b>Reason (R):</b> Open-source software is computer software that is released under a license in which the copyright holder grants users the rights to use, study, change, and distribute the software and its source code</p> | 1 |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|

### MARKING SCHEME – SET 1 ( Term -1)

|    |   |    |   |    |   |
|----|---|----|---|----|---|
| 1  | b | 2  | d | 3  | b |
| 4  | c | 5  | c | 6  | b |
| 7  | c | 8  | d | 9  | b |
| 10 | a | 11 | c | 12 | a |
| 13 | d | 14 | b | 15 | a |
| 16 | c | 17 | b | 18 | b |
| 19 | a | 20 | d | 21 | d |
| 22 | c | 23 | a | 24 | d |
| 25 | b | 26 | c | 27 | b |
| 28 | d | 29 | a | 30 | c |
| 31 | a | 32 | b | 33 | d |
| 34 | d | 35 | a |    |   |

**Sample Question Paper Set 2 (Term 1)**  
**Session 2021-22**  
**Subject: Informatics Practices (065)**  
**Class XII**

**Max Time: 02:00 Hours**

**Max Marks: 35**

1. Smridh has recently changed his school so he is not aware of the people, but someone is posting negative demeaning comments on his social media profile. He is also getting repeated mails from unknown people. Everytime he goes online, he finds someone chasing him online. (5)
- i. Smridh is a victim of ..... :
- a. Eavesdropping
  - b. Stolen identity
  - c. Phishing
  - d. Cyber stalking
- ii. The action that Smridh should take :
- a. He should ONLY share with his friends
  - b. He should NOT share with anyone as it can cause serious problem
  - c. He should immediately report to the police
  - d. He should bring to the notice of his parents and school authorities.
- iii. .... is a set of moral principles that governs the behaviour of a group or individual and regulates the use of computers.
- a. Copyright
  - b. Computer ethics
  - c. Property rights
  - d. Privacy law
- iv. Smridh needs to protect his personal information or data from unintentional and intentional attacks and disclosure which is termed as .....
- a. Digital right
  - b. Copyright
  - c. Privacy
  - d. Intellectual property
- v. The act of fraudulently acquiring someone's personal and private information, such as online account names, login information and passwords is called as .....
- a. Phishing
  - b. Fraud
  - c. Scam
  - d. Plagiarism
1. Which of the following is NOT an intellectual property? 1
- a. A poem written by a poet
  - b. An original painting made by a painter
  - c. Trademark of a Company
  - d. A remixed song

2. An act of stealing others Intellectual Property without their consent or without citing the source is called.

- a. Plagiarism
- b. Hacking
- c. Phishing
- d. Bullying

3. Name the cyber law enforced in India to provide legal recognition to electronic commerce and to facilitate filing of electronic records with the Government \_\_\_\_\_1

- a. IT(Information Technology) Act 2000
- b. DIT(Digital Information technology) Act 2000
- c. IIT (Indian Information Technology) Act 2000
- d. EnC (Electronic and Commerce) Act 2000

4. A software that can be freely accessed and modified is called: 1

- a. Synchronous software
- b. Package software
- c. Open source software
- d. Middleware

5. Data which has no restriction on usage and is freely available to everyone under intellectual property rights is categorized as: 1

- e. Open source
- f. Open data
- g. Open content
- h. Open education

6. To change the width of bars in bar chart, which of the following argument with a float value is used? 1

- a. thick
- b. thickness
- c. width
- d. barwidth

7. Which of the following is/are correct statement for plot method? 1

- a. `pl.plot(x,y,color,others)`
- b. `pl.plot(x,y)`
- c. `pl.plot(x,y,color)`
- d. all of these

8. To give a title to x-axis, which of the following method is useful? 1

- a. `pl.xtitle("title")`
- b. `pl.xlabel("title")`
- c. `pl.xheader("title")`
- d. `pl.xlabel.show("title")`

9. Which of the following correct statement to import pyplot module? 1

- a. import matplotlib.pyplot
- b. import MatPlotLib.PyPlot
- c. import PyPlot as pl
- d. import pyplot.plot

5. Consider the following program and answer the questions from a to e 5

```
import matplotlib.pyplot as pl
```

- a. l1=[1,4,6,8]
- b. l2=[2,8,9,10]
- c. l3=[1,5,7,9]
- d. l4=[5,2,6,1]

```
_____ #Line 1
pl.plot(l3,l4,label="Australia")
pl.legend(loc="upper left")
_____ #Line 2
pl.ylabel("Goals")
_____ #Line 3
_____ #Line 4
_____ # Line 5
```

- a. What will be the line to be written in #Line 1 to plot a line chart:
  - i. pl.plt(l1,l2,label="India")
  - ii. pl.show(l1,l2,label="India")
  - iii. pl.plot(l1,l2,label="India")
  - iv. pl.line(l1,l2,label="India")
- b. What will be the line to be written in #Line 2 to set label on x axis:
  - i. pl.xlabel("Time")
  - ii. pl.labelx("Time")
  - iii. pl.xlabel("Time")
  - iv. pl.xaxislabel("Time")
- c. What will be the line to be written in #Line 3 to set title of the chart:
  - i. pl.titles("Chart of Score in game")
  - ii. pl.settitle("Chart of Score in game")**
  - iii. chart.title("Chart of Score in game")
  - iv. pl.title("Chart of Score in game")
- d. What will be the line to be written in #Line 4 to show the chart made:
  - i. pl.showchart()
  - ii. pl.chartshow()
  - iii. pl.show()
  - iv. pl.fullchartshow()
- e. What will be the line to be written in #Line 5 to save the chart made:
  - i. pl.savefig("abc.jpg")
  - ii. pl.savechart("abc.jpg")
  - iii. pl.chartsavefig("abc.jpg")
  - iv. pl.savefig("abc.jpg")

6. Consider the following Python code and write the output for statement. 1

```
import pandas as pd
values=["India", "Canada"]
code=["IND", "CAN"]
df=pd.DataFrame(values,Index=Code,columns=['Country'])
```

- a. Code Country  
IND India  
CAN Canada
- b. Code Country  
CAN Canada  
IND India
- c. Code  
IND India  
CAN Canada
- d. Code Country  
CAN Canada

7. The teacher needs to know the marks scored by the student with roll number 4. Help her to identify the correct set of statement/s from the given options : 1

- a. `df1=df[df['rollno']==4]`  
`print(df1)`
- b. `df1=df[rollno==4]`  
`print(df1)`
- c. `df1=df[df.rollno=4]`  
`print(df1)`
- d. `df1=df[df.rollno==4]`  
`print(df1)`

15. In Pandas the function used to delete a column in a DataFrame is 1

- a. remove
- b. del
- c. drop
- d. cancel

16. function applies the passed function on each individual data element of the dataframe. 1

- a. `apply()` b. `applymap()` c. `pivot()` d. `pivot_table()`



17. Which of the following statement/s will give the exact number of values in each column of the dataframe? 1

- i. `print(df.count())`
- ii. `print(df.count(0))`
- iii. `print(df.count)`
- iv. `print(df.count(axis='index'))`

Choose the correct option:

- a. both (i) and (ii)
- b. only (ii)
- c. (i), (ii) and (iii)
- d. (i), (ii) and (iv)

18. Which of the following command will display the column labels of the DataFrame? 1

- a. `print(df.columns())`
- b. `print(df.column())`
- c. `print(df.column)`
- d. `print(df.columns)`

19. Which method is used to access vertical subset of a dataframe? 1

- (i) `iterrows()`
- (ii) `iteritems()`
- (iii) `itertuples()`
- (iv) `itercols()`

20. To iterate over horizontal subset of dataframe, \_\_\_\_\_ function may be used: 1

- a. `iterate()`
- b. `iterrows()`
- c. `itercols()`
- d. `iteritems()`

21. To iterate over vertical subset of dataset of a dataframe, \_\_\_\_\_ function may be used: 1

- a. `iterate()`
- b. `iterrows()`
- c. `itercols()`
- d. `iteritems()`

22. The technique that divides total distribution of data into a given number of equal portion is called a: 1

- a. Quartile
- b. Tercile
- c. Median
- d. Quantile

23. To divide total distribution of data into four equal parts, \_\_\_\_\_ function is used: 1

- a. Median
- b. Quantile



**MARKING SCHEME – SET 2 (TERM -1)**

1. a. d  
b. d  
c. b  
d. c  
e. a

2. d

3. a

4. a

5. c

6. b

7. c

8. d

9. b

10. a

11. a. iii

b. iii

c. iv

d. iii

e. iv

12. a

13. a. `df1=df[df['rollno']==4]`

`print(df1)`

d. `df1=df[df.rollno==4]`

`print(df1)`

14. (b) `del`

15. a. `apply()`

16. a. both (i) and (ii)

17. a. `print(df.columns())` or d. `print(df.columns)`

18. (ii) `Iteritems( )`

19. b

20. d

21. d

22. c

23. (i) a. `Df1['fee']=(100,200,300)`

(ii) c. `Df1=Df1.T`

(iii) b. `del Df1['fee']`

(iv) d. `Df2=Df2.append(Df1)`

(v) a. `data.iloc[1:4]`

**Sample Question Paper Set - 3 (Term 1)**  
**Session 2021-22**  
**Subject : Informatics Practices (065)**  
**Class XII**

**Max Time: 02:00 Hours**

**Max Marks: 35**

1. What is meant by term cyber crime: 1
- a. Any crime that use computer to jeopardise or attempt to jeopardise national security
  - b. The use of computer network to commit financial or identity fraud
  - c. The theft of digital information
  - d. Any crime that involves computers and networks
2. Jhilmalini has stolen a credit card. She used that credit card to purchase a laptop. What type of offence has she committed? 1
- e. Cyber Fraud
  - f. Identity Theft
  - g. Hacking
  - h. Stealing of Card
3. Identify the type of cyber crime/activity from the following Situations: 5
- (a) A person who starts quarrels or upsets people on the internet to distract and sow discord by posting inflammatory and digressive, extraneous or off-topic messages to an online community. This person will be referred as \_\_\_\_\_ in cyber world.
- i. cyber troll
  - ii. cyber stalker
  - iii. Spyware
  - iv. Hacker
- (b) The activity of making false accusations or statements of fact, monitoring , making threats, identity theft ,damage to data or gathering information that may be used to harass someone by using internet or other electronic means. This may be referred as\_\_\_\_\_.
- i. Cyber stalking
  - ii. cyber bullying
  - iii digital footprinting
  - iv. Fishing
- (c)\_\_\_\_\_is the attempt to acquire sensitive information such as usernames, passwords and credit card details by masquerading as a trustworthy entity in an electronic communication.
- i. Pharming
  - ii. Phishing
  - iii. Attack
  - iv. Malware
- (d) \_\_\_\_\_is an attack in which a hacker attempts to redirect a website"s traffic to another fake or bogus website.
- i. Pharming
  - ii. Phishing
  - iii. Addware
  - iv. Malware

(e) \_\_\_\_\_ refers to a type of malware that displays unwanted advertisement on your computer or device.

- i. Pharming
- ii. spyware
- iii. Addware
- iv. Malware

4. Which of the following is an advantage of open source software: 1
- a. You can edit the source code to customize it
  - b. You need to be an expert to edit code
  - c. You have to pay
  - d. You sometimes can be too generic for specialist purposes
5. Which of the following is an disadvantage of open source software: 1
- a. High quality software with lots of features
  - b. Not as customizable
  - c. May not have been tested as much as proprietary software, s might have bugs
  - d. You can edit the source code to customize it
6. Which of the following is an advantage of proprietary software: 1
- a. It is usually free
  - b. Thoroughly tested because people are paying to use it
  - c. Not as customizable
  - d. Can sometimes be too generic for specialist purpose
7. Which of the following are (is) not the valid plotting functions in python? 1
- a. plot()
  - b. bar()
  - c. line()
  - d. pie()
8. Which of the following correct statement to import pyplot module? 1
- 1. import matplotlib.pyplot
  - 2. import MatPlotLib.PyPlot
  - 3. import PyPlot as pl
  - 4. import pyplot.plot
9. Data visualization helps to 1
- a. Understand data easily
  - b. Take a decisions
  - c. Improve the past performance
  - d. All of these

10. Which method is used to display or show the legends?

1

- a. pl.show()
- b. pl.display()
- c. pl.legend()
- d. pl.values()

11. To change the width of bars in bar chart, which of the following argument with a float value is used?

1

- a. thick
- b. thickness
- c. width
- d. barwidth

12. Consider the following program and answer the questions from a to e

5

```
import matplotlib.pyplot as pl
import numpy as np
l1=[2,4,6,7]
l2=[5,7,9,2]
l3=[2,5,9,12]
l=np.array(l3)
l4=[5,8,9,12]
_____ # Line 1
pl.bar(l+0.50,l4,width=0.50,label="australia")
_____ # Line 2
_____ # Line 3
pl.ylabel("goals")
pl.title("chart of score in game")
_____ # Line 4
_____ # Line 5
```

a. What will be the line to be written in #Line 1 to plot a bar chart:

- i. pl.hbar(l1,l2,width=0.50,label="india")
- ii. pl.barh(l1,l2,width=0.50,label="india")
- iii. pl.bar(l1,l2,width=0.50,label="india")
- iv. pl.plotbar(l1,l2,width=0.50,label="india")

f. What will be the line to be written in #Line 2 to set legend:

- i. pl.legend(loc="upper left")
- ii. pl.setlegend(loc="upper left")
- iii. pl.plotlegend(loc="upper left")
- iv. pl.legend(loc="upper left")

- g. What will be the line to be written in #Line 3 to set label on x axis:
- `pl.xlabel("Time")`
  - `pl.labelx("Time")`
  - `pl.xlabel("Time")`
  - `pl.xaxislabel("Time")`
- h. What will be the line to be written in #Line 4 to show the chart made:
- `pl.showchart()`
  - `pl.chartshow()`
  - `pl.show()`
  - `pl.fullchartshow()`
- i. What will be the line to be written in #Line 5 to save the chart made:
- `pl.savefig("abc.jpg")`
  - `pl.savechart("abc.jpg")`
  - `pl.chartsavefig("abc.jpg")`
  - `pl.savefig("abc.jpg")`

13. Consider the following DataFrame emp and answer the any four questions from (i) to (v) 5

| Empno | Name         | Dept | Salary | Experience<br>(in years) |
|-------|--------------|------|--------|--------------------------|
| 1     | Ram Singh    | IT   | 15000  | 2.5                      |
| 2     | Shyam Singh  | HR   | 18000  | 3                        |
| 3     | Nidhi Gupta  | IT   | 9000   | 2                        |
| 4     | Pooja Sharma | EXE  | 24000  | 8                        |
| 5     | Rohan Malik  | HR   | 20000  | 6                        |

(i) Write down the command that will give the following output.

```
Empno 5
Name Rohan Malik
Dept HR
Salary 20000
Experience 6
dtype: object
a. print(emp.max)
b. print(emp.max())
c. print(emp.max(axis=1))
d. print(emp.max,axis=1)
```

(ii) CEO needs to know the salary of the employee with empno 4. Help him to identify the correct set of statement/s from the given options:

- a. `emp1=emp[emp['empno']==4]`  
`print(emp1)`
- b. `emp1=emp[emp]`  
`print(emp1)`
- c. `emp1=emp[emp.empno=4]`  
`print(emp1)`
- d. `emp1=emp[emp.empno==4]`  
`print(emp1)`

(iii) Which of the following statement/s will give the exact number of values in each column of the dataframe?

- i. `print(emp.count())`
- ii. `print(emp.count(0))`
- iii. `print(emp.count)`
- iv. `print(emp.count(axis='index'))`

Choose the correct option:

- a. both (i) and(ii)
- b. only(ii)
- c. (i), (ii) and(iii)
- d. (i), (ii) and(iv)

(iv) Which of the following command will display the column labels of the DataFrame?

- a. `print(emp.columns())`
- b. `print(emp.column())`
- c. `print(emp.column)`
- d. `print(emp.columns)`

(v) Mr. Satvik Ahuja, the CEO wants to add a new column, the rating of the performance of employees with the values, 'A', 'A', 'B', 'A', 'B', to the DataFrame. Help him choose the command to do so:

- a. `emp.column=['A','A','B','A','B']`
- b. `emp['Performance']=['A','A','B','A','B']`
- c. `emp.loc['Performance']= ['A','A','B','A','B']`
- d. Both (b) and (c) are correct



8. To calculative cumulative sum of a column of a dataframe, you may use \_\_\_\_ function: 1
- sum()
  - sum(cumulative=True)
  - cumsum()
  - None of the above
9. Function \_\_\_\_\_ can be used to drop missing values: 1
- fillna()
  - isNull()
  - delna()
  - dropna()
10. Which of the following methods of combining two data frame is a patching method: 1
- concat()
  - merge()
  - join()
  - none of the above()
11. To get bottom three rows of a data frame, you may use \_\_\_\_\_ function: 1
- tail()
  - bottom(3)
  - bottom(3)
  - tail(3)
12. To get index of maximum value in a column of dataframe is: 1
- max(0)
  - index()
  - idmax()
  - maxidx()
13. Consider the given program and answer the questions from a to e 5
- ```

_____ # Line 1

import numpy as np

data = np.array([1,2,3,4,5,6])

_____ # Line 2

_____ # Line 3

_____ # Line 4

```
- Write the code to import pandas module
 - import pandas as pd
 - importing pandas as pds
 - import panda as pd
 - include pandas as pd
 - Write the code to create a series from the given data:
 - ser = pd.CreateSeries(data)
 - ser = pd.Series(data)
 - ser = pd.SeriesCreate(data)
 - ser = pd.Serie(data)

- c. Write the code to retrieve the first 5 element of the series:
- i. `print(ser[:6])`
 - ii. `print(ser[4:5])`
 - iii. `print(ser[1:5])`
 - iv. `print(ser[:5])`
- d. Write the code to sort the values of series:
- i. `ser.sort()`
 - ii. `ser.sortvalues()`
 - iii. `ser.values()`
 - iv. `ser.sort_values()`
- e. Write the code to rename the index of the series:
- i. `ser.index=['g','e','e','k','s','f']`
 - ii. `ser.setindex=['g','e','e','k','s','f']`
 - iii. `ser.renameindex=['g','e','e','k','s','f']`
 - iv. `ser.changeindex=['g','e','e','k','s','f']`

MARKING SCHEME SET – 3 (TERM -1)

1. d
2. a
3. a. ii
b.ii
c.ii
d.i
e.iii

4. a
5. c
6. b
7. c
8. a
9. a
10. c
11. c
12. a. iii
b.iv
c.iii
d.iii
e.iv
13. (i) b. `print(emp.max())`
(ii) a. `emp1=emp[emp['empno']==4]`
`print(emp1)`
`d.emp1=emp[emp.empno==4]`
`print(emp1)`
(iii) a. both (i) and (ii)
(iv) d. `print(emp.columns)`
(v) b. `emp['Performance']=['A','A','B','A','B']`

14. C
15. D
16. C
17. B
18. C
19. a. i
b. ii
c. iv
d. iv
e. i

Term – 2

Database Query using SQL Glimpses

Candidate Key	All the attributes combinations inside a relation that can serve as primary key.
Constraint	Rule and conditions set for data being stored in a database.
DDL	Data Definition Language. SQL part-language that facilitates defining creation/ modification etc. of database objects such as tables, indexes, sequences etc.
DML	Data Manipulation Language. SQL part-language that facilitates manipulation (addition/ deletion/ modification) of data residing in database object.
Equi Join	A Join formed by equality of common field of two or more tables and where common fields from all the tables appear in the final result.
Foreign Key	A non key attribute whose values are derived from the primary key of some other tables.
Join	A way to combine records coming from multiple tables having common fields.
Natural Join	A type of equi-join where common column from the joining tables appears once only.
Primary Key	A set of one or more attributes that can uniquely identify tuples within the relation.
Relation	A table having non-empty atomic values with unordered rows and columns is relation.
SQL	Structured Query Language. A non-procedural UGL used for querying upon relational database.
Tuple	A row in a relation is called tuple.
View	A virtual table that does not really exist in its own right but is instead derived from one or more underlying base tables in called a view.

OBJECTIVE TYPE QUESTIONS

Multiple Choice Questions

1. A ____ is a property of the entire relation, which ensures through its value that each tuple is unique in a relation. 1
(a) Rows (b) Key (c) Attributes (d) Fields
2. A relational database can have how many type of keys in a table ? 1
(a) Candidate Key (b) Primary Key (c) Foreign Key (d) All of these
3. Which one of the following uniquely identifies the tuples / rows in a relation. 1
(a) Secondary Key (b) Primary Key (c) Composite Key (d) Foreign Key
4. The Primary key is selected from the set of _____. 1
(a) Composite Key (b) Determinants (c) Candidates Key (d) Foreign Key
5. Which of the following is a group of one or more attributes that uniquely identifies a row? 1
(a) Key (b) Determinant (c) Tuple (d) Relation
6. Which of the following attributes cannot be considered as a choice for Primary Key ? 1
(a) Id (b) License number (c) Dept_Id (d) Street
7. An attribute in a relation is a foreign key if it is the _____ key in any other relation. 1
(a) Candidate (b) Primary (c) Super (d) Sub
8. Consider the table with structure as : 1
Student(ID, name, dept_name, tot_cred)
In the above table, which attribute will form the primary key?
(a) name (b) dept_name (c) Total_credits (d) ID
9. Which of the following is not a legal sub-language of SQL ? 1
(a) DDL (b) QAL (c) DML (d) TCL
10. Which of the following is a DDL command? 1
(a) SELECT (b) ALTER (c) INSERT (d) UPDATE
11. In SQL, which of the following will select only one copy of each set of duplicate rows from a table. 1
(a) SELECT UNIQUE
(b) SELECT DISTINCT
(c) SELECT DIFFERENT
(d) All of these.
12. Which of the following keywords will you use in the following query to display the unique values of the column dept_name? 1
SELECT _____ dept_name FROM COMPANY;
(a) All (b) From (c) Distinct (d) Name
13. The ____ clause of SELECT query allows us to select only those rows in the result that satisfy a specified condition. 1
(a) where (b) from (c) having (d) like

14. Which operator can take wild card characters for query condition? 1
 (a) BETWEEN (b) LIKE (c) IN (d) NOT
15. Which operator checks a value against a range of values? 1
 (a) BETWEEN (b) LIKE (c) IN (d) NOT
16. Which of the following SQL commands retrieves data from table(s) ? 1
 (a) UPDATE (b) SELECT (c) Union (d) All of these
17. Which of the following queries contains an error ? 1
 (a) Select * from emp where empid=10003;
 (b) Select empid from emp where empid=10006;
 (c) Select empid from emp;
 (d) Select empid where empid=10009 and lastname= 'GUPTA';

18. Consider the following table namely Employee : 1

Employee_id	Name	Salary
1001	Misha	6000
1009	Khushi	4500
1018	Japneet	7000

Which of the names will not be displayed by the below given query ?
 SELECT name from Employee WHERE employee_id>1009;

- (a) Misha, Khushi (b) Khushi, Japneet (c) Japneet (d)Misha, Japneet
19. Which operator perform pattern matching ? 1
 (a) BETWEEN (b) LIKE (c) IN (d) NOT
20. Consider the following query 1
 SELECT name FROM class WHERE Subject LIKE '___ Informatics Practices';
 Which one of the following has to be added into the blank space to select the subject which has *informatics practices* as its ending string?
 (a) \$(b) _ (c) |(d) %
21. Which operator tests a column for the absence of data(i.e. NULL value) ? 1
 (a) Exist Operator (b) NOT Operator (c) IS Operator (d) None of these
22. Which clause is used to sort the query result ? 1
 (a) Order By (b) Sort By (c) Group By (d) Arrange By
23. By default ORDER BY clause list the result in _____ order. 1
 (a) Descending (b) Any(c) Same (d) Ascending
24. Consider the following query 1
 SELECT * FROM employee ORDER BY salary _____, name _____;
 To display the salary from greater to smaller and name in alphabetical order which of the following options should be used ?
 (a) Ascending, Descending
 (b) Asc, Desc
 (c) Desc, Asc
 (d) Descending, Ascending

25. What is the meaning of **Remark LIKE “%5%5%”**; 1
 (a) Column Remark begin with two 5s
 (b) Column Remark ends with two 5s
 (c) Column Remark has more than two 5s
 (d) Column Remark has two 5s in it, at any position
26. In SQL, which command(s) is/are used to change a table’s structure/characteristics? 1
 (a) ALTER TABLE (b) MODIFY TABLE (c) CHANGE TABLE (d) All of these
27. Which of the following is/are the DDL Statement ? 1
 (a) Create (b) Drop (c) Alter (d) All of these
28. A Table can have _____ 1
 (a) Many primary keys and many unique keys.
 (b) One primary key and one unique key
 (c) One primary key and many unique keys.
 (d) Many primary keys and one unique key.
29. Which of the following types of table constraints will prevent the entry of duplicate rows? 1
 (a) Unique (b) Distinct (c) Primary Key (d) Null
30. Consider the following SQL Statement. What type of statement is this ? 1
 INSERT INTO instructor VALUES (10211, ‘SHREYA’ , ‘BIOLOGY’, 69000);
 (a) Procedure (b) DML (c) DCL (d) DDL
31. Which of the following statements will delete all rows in a table namely *mytable* without deleting the table’s structure. 1
 (a) DELETE FROM mytable;
 (b) DELETE TABLE mytable;
 (c) DROP TABLE mytable;
 (d) None of these.
32. Which of the following query will drop a column from a table ? 1
 (a) DELETE COLUMN column_name;
 (b) DROP COLUMN column_name;
 (c) ALTER TABLE table_name DROP COLUMN column_name;
 (d) None of these
33. Logical operator used in SQL are: 1
 (a) AND, OR, NOT (b) &&, ||, ! (c) \$,|,! (d) None of these
34. Which of the following requirement can be implemented using a CHECK constraint? 1
 (a) Student must be greater than 18 years old.
 (b) Student must be form a BRICS Country (Brazil, Russia, India, China, South Africa)
 (c) Student’s roll number must exist in another table(say, namely Eligible)
 (d) None of these

35. An attribute in a relation is termed as a foreign key when it reference the _____ of another relation. 1
 (a) Foreign Key (b) Primary Key (c) Unique Key (d) Check Constraint
36. Data integrity constraints are used to : 1
 (a) Control the access and rights for the table data.
 (b) Ensure the entry of unique records in a table.
 (c) Ensure the correctness of the data entered in the table as per some rule or condition etc.
 (d) Make data safe from accidental changes.
37. A relationship is formed via _____ that relates two tables where one table references other table's key. 1
 (a) Candidate Key (b) Primary Key (c) Foreign Key (d) Check Constraint
38. What is the maximum value that can be stored in NUMBER(4,2)? 1
 (a) 9999.99 (b) 99.9999 (c) 99.99 (d) 9.99
39. What should be the data type for the column *Pricestoring* values less than Rs.1000 e.g. 200.21 1
 (a) VARCHAR(50) (b) NUMBER (c) NUMBER(5,2) (d) NUMBER(6)
40. What is *aname* in the following SQL Statement ? 1
 SELECT aname FROM table1 UNION SELECT aname FROM table2;
 (a) row name (b) column Name (c) table name (d) database name
41. Data manipulation language (DML) includes statements that modify the _____ of the tables of database. 1
 (a) Structure (b) Data (c) User (d) Size
42. All aggregate functions ignore NULLs except for the _____ function. 1
 (a) Distinct (b) Count(*) (c) Average() (d) None of these
43. Which of the following are correct aggregate functions in SQL 1
 (a) AVERAGE() (b) MAX() (c) COUNT() (d) TOTAL()
44. Identify the correct INSERT queries from the following : 1
 (a) INSERT INTO Persons('xxx1', 'yyy1');
 (b) INSERT INTO Persons(LastName, FirstName)
 Values ('xxx', 'yyy');
 (c) INSERT INTO Persons Values('xxx1', 'yyy1');
 (d) INSERT INTO Persons Value('xxx1', 'yyy1');
45. Aggregate functions can be used in the select list or the _____ clause of the select statement. They cannot be used in a _____ clause. 1
 (a) Where, having (b) Having, where (c) Group by, having (d) Group by where
46. What is the meaning of "HAVING" clause in SELECT query. 1
 (a) To filter out the summary groups.
 (b) To filter out the column groups.
 (c) To filter out the row and column values.

(d) None of the mentioned.

47. Which of the following is not a text function? 1
(a) TRIM () (b) TRUNCATE() (c) LEFT() (d) MID ()
48. What will be returned by the given query ? 1
SELECT INSTR('INDIA', 'DI');
(a) 2 (b) 3 (c) -2 (d) -3
49. What will be returned by the given query ? 1
SELECT ROUND(153.669,2);
(a) 153.6 (b) 153.66 (c) 153.67 (d) 153.7
50. What will be returned by the given query? 1
SELECT month('2020-05-11');
(a) 5 (b) 11 (c) May (d) November

Fill in the Blanks

1. The SQL keyword _____ is used to specify the table(s) that contains the data to be retrieved. 1
2. The _____ command of SQL lets you make queries to fetch data from tables. 1
3. To remove duplicate rows from the result of a query, specify the SQL qualifier _____ in select list. 1
4. To obtain all columns, use a(n) _____ instead of listing all the column names in the select list. 1
5. The SQL _____ clause contains the condition that specifies which rows are to be selected. 1
6. The SQL keyword _____ is used in SQL expressions to select records based on patterns. 1
7. The _____ operator is used for making range checks in SELECT queries. 1
8. The null values in a column can be searched for in a table using _____ in the WHERE clause of SELECT query. 1
9. To sort the rows of the result table, the _____ clause is specified. 1
10. Columns can be sorted in descending sequence by using the SQL keyword _____. 1
11. By default, ORDER BY clause lists the records in _____ order. 1
12. A database can be opened with _____ <database> command. 1
13. _____ command is used to create new relations in a database 1
14. A _____ is a condition or check applicable on a field or set of fields. 1
15. The _____ constraint creates a foreign key. 1
16. To define a column as a primary key, _____ constraint is used in CREATE TABLE. 1
17. _____ is used to insert data in an existing table. 1
18. Rows of a table can be deleted using _____ command. 1
19. To increase the size of a column in an existing table, use command _____. 1
20. _____ command removes a table from a database permanently. 1
21. _____ command is used to alter the definition of already created table. 1

22. To remove table data as well table structure, use command _____ 1
23. Use _____ command to add new columns in an existing table. 1
24. A column added via ALTER TABLE command initially contains _____ value for all rows. 1
25. Issue _____ command to make changes to table permanent. 1
26. The _____ clause is used to divide result of SELECT query in groups. 1
27. To specify condition with a GROUP BY clause, _____ clause is used. 1
28. Only _____ functions are used with GROUP BY clause. 1
29. Nested grouping can be done by providing _____ in the GROUP BY expression. 1
30. The _____ clause is used in SELECT queries to specify filtering condition for groups. 1
31. Aggregate Functions cannot be used in _____ clause of the Select query. 1
32. The SQL built-in function _____ total values in numeric columns. 1
33. The SQL built-in function _____ computes the average of values in numeric columns. 1
34. The SQL built-in function _____ obtains the largest value in a in numeric columns. 1
35. The SQL built-in function _____ obtains the smallest value in a in numeric columns. 1
36. The SQL built-in function _____ computes the number of rows in a table. 1
37. The functions that work with one row at a time are _____ functions. 1
38. To compare an aggregate value in a condition, _____ clause is used. 1
39. In equi-join, the join condition joins the two tables using _____ operator 1
40. To get a substring of a string other than Substr() function _____ is also used. 1
41. To get the day part of a date _____ function is used. 1
42. To get day name from a date _____ function is used. 1
43. To remove a character from the right side of a string, _____ function is used 1
44. To get the current date, _____ function is used. 1
45. An SQL _____ clause combines records from two or more tables in database. 1
46. An _____ is specific type of join that uses only equality comparisons in the join-condition. 1

47. _____ join select all data starting from the left table and matching rows in the right table. 1
48. _____ join is a reversed version of left join. 1
49. _____ join produces a data set that includes only those rows from the left table which have matching rows from the right table. 1
50. The avg() function in MySQL is an example of _____ function. 1

True and False Questions

1. A primary key can store empty values in it. 1
2. Common attribute of two tables is called a foreign key. 1
3. A common attribute of two tables is called a foreign key it is the primary key in one table and the other table reference it. 1
4. Part of SQL which creates and defines tables and other database objects, is called DDL 1
5. Part of SQL which manipulates data in tables, is called TCL 1
6. Part of SQL which access and manipulates data in tables is called DML 1
7. Part of SQL which controls transactions, is called TCL. 1
8. MySQL is name of customized query language used by Oracle. 1
9. SQL is a case sensitive. 1
10. The condition in a WHERE clause in a SELECT query can refer to only one value. 1
11. SQL provides the AS keyword, which can be used to assign meaningful column name to the results of queries using the SQL built-in functions. 1
12. SQL is a programing language. 1
13. SELECT DISTINCT is used if a user wishes to see duplicate columns in a query. 1
14. ORDER BY can be combined with SELECT statement. 1
15. DELETE FROM <table> command is same as DROM TABLE <table> command. 1
16. The unique constraint can only be defined once in the CREATE TABLE command. 1
17. Unique and Primary Key constraints are the same. 1
18. Tuple based constraints can use multiple columns of the table. 1

19. The table based constraints can use multiple column of the table. 1
20. You can add a column with a NOT NULL constraint using ALTER TABLE, only to a table that contains no rows. 1
21. You can use the INSERT statement only to add one new row and not multiple new rows to an existing table. 1
22. The HAVING and WHERE clause are interchangeable. 1
23. The HAVING clauses can take any valid SQL function in its condition. 1
24. Truncate() is a text function. 1
25. Length() is a numeric function. 1
26. Functions MID() and SUBSTR() do the same thing. 1
27. INSTR() and SUBSTR() work identically. 1
28. Natural Join contains the duplicate columns 1
29. Equi Join contains the duplicate columns 1
30. Non- Equi Join is the name of Natural Join 1

Very Short Answer Questions

1. *What is a primary key?* 1
2. *What is a unique key ? It is a Primary key?* 1
3. *How many primary key and unique keys can be there in a table?* 1
4. *What is a foreign key?* 1
5. *What is a composite primary key?* 1
6. *What is a tuple* 1
7. *Give some examples of DDL commands.* 1
8. *What is DML ?* 1
9. *Give some examples of DML commands. Or Write the name of any two DML Commands of SQL ?*
10. *In SQL, write the query to display the list of tables store in database.* 1
11. *What are constraints?* 1
12. *Give some examples of integrity constraints.* 1
13. *What is the role of NOT NULL constraint?* 1
14. *What is the role of UNIQUE constraints ?* 1
15. *What is the role of FOREIGN KEY constraints?* 1
16. *An NULL values are same as a zero or a blank space?* 1
17. *What will the SELECT ALL command do?* 1
18. *What is wrong with following statement ?*
`SELECT * FROM Employee
WHERE grade = NULL;`
Write the corrected form of the above SQL Statement. 1
19. *Which SQL aggregate function is used to count all records of a table?* 1
20. *Write a query to create a string from the ASCII values 70,65,67,69* 1
21. *Write a query to concatenate the two strings : "Hello" and "World"* 1
22. *Display 4 characters extracted from 5th right character onwards from the string 'ABCDEFGG'* 1
23. *Convert and display string 'Large' into uppercase* 1

24. Write a query to remove leading space of the string ' RDBMS MySQL'. 1
25. Display the position of occurrence of string 'OR' in the string 'CORPORATE FLOOR' 1
26. How many characters are there in the string 'CANDIDE' 1
27. Write a query to extract 2 digit year from a string 'USS/23/67/09'. The last two character tell the year. 1
28. Write a query to extract institute code from a string 'USS/23/67/09'. The first three characters tell the institute code. 1
29. Write a query to find out the remainder of 11 divide by 4. 1
30. Write a query to round off value 15.193 to one decimal place. 1
31. Write a query to find out the square root of value 26. 1
32. Write a query to truncate value 15.79 to 1 decimal place. 1
33. Write a query to display current date on your system. 1
34. Write a query to extract month part from date 3rd Feb 2021 1
35. Write a query to display name of weekday for date 03rd Feb 2021 1

ANSWER

Multiple Choice Questions

- | | | | |
|----------------------------|----------------------|---------------------|---------------------|
| 1 (b) Key | 2 (d) All of these | 3 (b) Primary Key | 4 (c) Candidate Key |
| 5 (a) Key | 6 (d) Street | 7 (b) Primary | 8 (d) ID |
| 9 (b) QAL | 10 (b) ALTER | 11 (b) SELECT | 12 (c) Distinct |
| | | DISTINCT | |
| 13 (a) where | 14 (b) LIKE | 15 (a) BETWEEN | 16 (b) SELECT |
| 17 (d) | 18 (a) Misha, Khushi | 19 (b) LIKE | 20 (d) % |
| 21 (c) IS Operator | 22 (a) Order By | 23 (d) Ascending | 24 (c) Desc, Asc |
| 25 (d) | 26 (a) ALTER | 27 (d) All of these | 28 (c) |
| | TABLE | | |
| 29 (a) Unique | 30 (b) DML | 31 (a) | 32 (c) |
| 33 (a) | 34 (a) and (c) | 35 (b) Primary Key | 36 (c) |
| 37 (b) Foreign Key | 38 (c) 99.99 | 39 (c) NUMBER(5,2) | 40 (b) column Name |
| 41 (b) Data | 42 (b) Count(*) | 43 (b) And (c) | 44 (b) And (c) |
| 45 (c) Group by,
having | 46 (a) | 47 (b) TRUNCATE() | 48 (b) 3 |
| 49 (c) 153.67 | 50 (a) 5 | | |

Fill in the Blanks

1 FROM	2 SELECT	3 DISTINCT	4 ASTRIK(*)
5 WHERE	6 LIKE	7 BETWEEN	8 IS NULL
9 ORDER BY	10 DESC	11 ASCENDING	12 USE
13 CREATE TABLE	14 CONSTRAINT	15 REFERENCES	16 PRIMARY KEY
17 INSERT INTO	18 DELETE	19 ALTER TABLE	20 DROP TABLE
21 ALTER TABLE	22 DROP TABLE	23 ALTER TABLE	24 NULL
25 COMMIT	26 GROUP BY	27 HAVING	28 AGGREGATE
29 MULTIPLE FIELDS	30 HAVING	31 WHERE	32 SUM()
33 AVG()	34 MAX()	35 MIN()	36 COUNT()
37 SINGLE ROW	38 HAVING	39 =	40 MID()
41 DAY()	42 DAYNAME()	43 RTRIM()	44 CURDATE()
45 JOIN	46 EQUI-JOIN	47 LEFT JOIN	48 RIGHT JOIN
49 INNER	50 AGGREGATE FUNCTION		

True / False

1 False	2 False	3 True	4 True
5 False	6 True	7 True	8 False
9 False	10 False	11 True	12 False
13 False	14 True	15 False	16 False
17 False	18 False	19 True	20 True
21 False	22 False	23 False	24 False
25 False	26 True	27 False	28 False
29 True	30 False		

Very Short Answer Questions

1. *A Primary key is a field or a combination of fields that can uniquely identify a row/tuple in a table/relation.* 1
2. *A Unique key in table/relation is any non-primary key field which also stores unique values for each row just like a primary-key does. But only one key is designated as primary key. So unique refers to a unique non-key field of a table.* 1
3. *There can be multiple unique keys in a table but there can be only primary key in a table.* 1
4. *A foreign key is a field of a table which is the primary key of another table through a foreign key a relationship is established between two tables.* 1
5. *If a table / relation has a primary key which is a combination of multiple columns of a table, it is known as a composite primary key.* 1
6. *A tuple refers to a row of relation.* 1
7. *CREATE, ALTER, DROP* 1
8. *DML refers to the Data Manipulation Language component of SQL. The DML commands are used to manipulate and query upon the data stored in various tables of a database.* 1

9. *INSERT, UPDATE, SELECT and DELETE* 1
10. *SHOW TABLES;* 1
11. *Constraints are the rules or conditions imposed on various attributes of a table in a database so that only the data that satisfy these rules and conditions can get stored in the data table.* 1
12. *NOT NULL* 1
PRIMARY KEY
UNIQUE
CHECK
- 13 *It indicates that in the data being inserted, the column must have some value and can not be left NULL.* 1
- 14 *This constraint ensures that for an attribute there will be unique value for each row and no value is being repeated in any other row for that attribute.*
- 15 *This constraint is used to ensure the referential integrity of data in the table. It matches the value of the column designated as the foreign key in one table with another table's Primary key.* 1
- 16 *No, A Null value is not the same as zero or a blank space. A zero is a legal numeric value and blank space is legal character value, whereas NULL is a legal empty value that cannot be accessed or compared with other values.* 1
- 17 *The SELECT ALL command will fetch all the rows from a table as per the defined commands.* 1
- 18 *A relation operator '=' is not used with the NULL clause.* 1
The Corrected form is :
*SELECT * FROM Employee*
WHERE grade is NULL;
19. *COUNT(*)*
20. *SELECT CHAR(70,65,67,69);* 1

FACE
- 21 *SELECT CONCAT('Hello', 'World');* 1

HelloWorld
- 22 *SELECT SUBSTR('ABCDEFGH',-5,4) 'SUBS';* 1

CDEF
- 23 *SELECT UPPER('Large') 'uppercase';* 1
 ----- *LARGE*
- 24 *SELECT LTRIM(' RDBMS MySQL');* 1

RDBMS MySQL

- 25 *SELECT INSTR('CORPORATE FLOOR', 'OR');* 1

2
- 26 *SELECT LENGTH('CANDIDE')* 1

7
- 27 *SELECT RIGTH('USS/23/67/09',2);* 1

09
- 28 *SELECT LEFT('USS/23/67/09',3);* 1

USS
29. *SELECT MOD(11,4);* 1

3
- 30 *SELECT ROUND(15.193,1);* 1

15.2
- 31 *SELECT SQRT(26);* 1

5.09901951
- 32 *SELECT TRUNCATE(15.79,1);* 1

15.7
33. *SELECT CURDATE();* 1
- 34 *SELECT MONTH('2021-02-03');* 1

02
- 35 *SELECT DAYNAME('2021-02-03');* 1

Wednesday

SHORT ANSWER QUESTIONS

1. Explain each of the following with illustrations using a table 3
(i) Candidate Key (ii) Primary Key (iii) Foreign Key

2. Observe the following tables *TRANSACTIONS* and *CUSTOMERS* carefully and answer the questions that follows : 2

Table : Transaction

TNo	Type	Amount	CNo
T1	CREDIT	1000	C3
T2	DEBIT	1500	C1

Table : Customer

CNo	CNAME
C1	ZEESHAN
C2	AMAN
C3	JASPREET

- (i) What is the degree of the table *Transaction* ? what is the cardinality of the table *Customers* ?
- (ii) Identify the primary key and candidate keys from the table *Transactions*.
3. Are `count(*)` and `count(<column-name>)` the same functions? Why/ Why not? 2
4. Identify the problem/issue with the following SQL query : 2
SELECT house, count(*)
FROM student;
5. Consider the following SQL string : 'Preoccupied'. Write commands to display: 2
(a) 'occupied' (b) 'cup'
6. Consider the same string : 'Preoccupied'. Write commands to display: 2
(a) The position of the substring 'cup' in the string 'Preoccupied'.
(b) The first 4 letters of the string.
7. Anjali writes the following commands with respect to a table *employee* having fields, *empno*, *name*, *department*, *commission*. 2
Command1: `Select count(*) from employee;`
Command2 :`Select count(commission) from employee;`
She gets the output 4 for the first command but get an output 3 for the second command.
Explain the output with justification.
8. Gopi Krishna is using a table *Employee*. It has the following columns : 2
Code, Name, Salary, Deptcode
He wants to display maximum salary departmentwise. He wrote the following command :
`SELECT Deptcode, Max(Salary) FROM Employee;`
But he did not get the desired result.
Rewrite the above query with necessary changes to help him get the desired output.

9. A relation Vehicles is given below :

3

Vno	Type	Company	Price	Qty
AW125	Wagon	Maruti	250000	25
J0083	Jeep	Mahindra	4000000	15
S9090	SUV	Mitsubishi	2500000	18
M0892	Mini van	Datsun	1500000	26
W9760	SUV	Maruti	2500000	18
R2409	Mini van	Mahindra	350000	15

Write SQL Commands to :

- Display the average price of each type of vehicle having quantity more than 20.
- Count the type of vehicles manufactured by each company.
- Display the total price of all the types of vehicles.

10. Shanya Khanna is using a table Employee. It has the following columns :

2

Admno, Name, Agg, Stream

[Column Agg contain Aggregate marks]

She wants to display the highest Agg obtain in each Stream.

She wrote the following statement:

SELECT Stream, Max(Agg) FROM Employee;

But she did not get the desired result.

Rewrite the above query with necessary changes to help her get the desired output.

11. Write SQL queries for (i) to (iii), which are based on the following table PARTICIPANTS:

3

PNO	EVENT	SNAME	CLASS	DOB
P1	DEBATE	SANYAM	12	2001-12-25
P2	DEBATE	SHRUTI	10	2003-11-10
P3	DEBATE	MEHER	12	2001-11-10
P4	QUIZ	SAKSHI	11	2002-10-12
P5	QUIZ	RITESH	12	2001-10-12
P6	QUIZ	RAHUL	10	2003-10-12
P7	CROSSWORD	AMEER	11	2002-05-09
P8	CROSSWORD	MINAKSHI	12	2001-05-09

- To display details of all PARTICIPANTS of class 10 and 12.
- To display the SNAME and Class of all PARTICIPANTS in ascending order of their SNAME.
- To display the number of PARTICIPANTS along with their respective CLASS, of every CLASS.

12. Write outputs for SQL queries (i) to (iii), which are based on the following tables CUSTOMERS and PURCHASES :

3

Table : CUSTOMERS

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

Table : PURCHASES

SNO	QTY	PUR_DATE	CNO
S1	15	2018-12-25	C2
S2	10	2018-11-10	C1
S3	12	208-11-10	C4
S4	7	2019-01-12	C7
S5	11	2019-02-12	C2
S6	10	2018-10-12	C6
S7	5	2019-05-09	C8
S8	20	2019-05-09	C3
S9	8	208-05-09	C9
S10	15	2018-11-12	C5
S11	6	2018-08-04	C7

- (i) *SELECT COUNT(DISTINCT CITIES) FROM CUSTOMERS;*
 (ii) *SELECT MAX(PUR_DATE) FROM PURCHASES;*
 (iii) *SELECT CNAME, QTY, PUR_DATE FROM CUSTOMERS, PURCHASES
 WHERE CUSTOMERS.CNO=PURCHASES.CNO AND QTY IN (10,20);*

13. Write SQL queries for (i) to 9iv), which are based on the tables : CUSTOMERS and PURCHASES given in above. 3 / 4
- (i) To Display details of all CUSTOMERS whose CITIES are neither Delhi nor Mumbai.
- (ii) To Display the CNAME and CITIES of all CUSTOMERS in ascending order of their CNAME.
- (iii) To Display the number of CUSTOMERS along with their respective CITITES in each of the CITITES.
- (iv) To Display details of all PURCHASES whose Quantity is more than 15.

14. Consider the following table ACTIVITY and COACH and answer the following parts of this question : **Table : ACTIVITY** 4

Acode	ActivityName	Stadium	ParticipantsNum	PrizeMoney	ScheduleDate
1001	Relay 100 x 4	Star Annex	16	10000	23-Jan-04
1002	High Jump	Star Annex	10	12000	12-Dec-03
1003	Shot Put	Super Power	12	8000	14-Feb-04
1005	Long Jump	Star Annex	12	9000	01-Jan-04
1008	Discuss Throw	Super Power	10	15000	19-Mar-04

Table :COACH

PCode	Name	ACode
1	Ahmad Hussain	1001
2	Ravinder	1008
3	Janila	1001

4	Naaz	1003
---	------	------

Give the output of the following SQL queries:

- (i) *SELECT COUNT(DISTINCT ParticipantsNum) FROM ACTIVITY;*
- (ii) *SELECT MAX(ScheduleDate), MIN(ScheduleDate) FROM ACTIVITY;*
- (iii) *SELECT Name,ActivityName FROM ACTIVITY A, COACH C
WHERE A.Acde=C.Acode AND A.ParticipantsNum=10;*
- (iv) *SELECT DISTINCT ParticipantsNum FROM ACTIVITY;*

15. Consider the following table STOCK and DEALERS and answer the following parts of this question : 4

Table :STOCK

ItemNo	Item	Dcode	Qty	UnitPrice	StockDate
5005	Ball Pen 0.5	102	100	16	31-Mar-10
5003	Bal Pen 0.25	102	150	20	01-Jan-10
5002	Gel Pen Premium	101	125	14	14-Feb-10
5006	Gel Pen Classis	101	200	22	01-Jan-09
5001	Eraser Small	102	210	5	19-Mar-09
5004	Eraser Big	102	60	10	12-Dec-09
5009	Sharpener Classis	103	160	8	23-Jan-09

Table :DEALERS

Dcode	Dname
101	Reliable Stationers
103	Classis Plastics
102	Clear Deals

Give the output of the following SQL queries:

- (i) *SELECT COUNT(DISTINCT Dcode) FROM STOCK;*
- (ii) *SELECT QTY*UnitPrice FROM STOCK
WHERE ItemNo=5006;*
- (iii) *SELECT Item, Dname FROM STOCK S DEALERS D
WHERE S.Dcode=D.Dcode AND ItemNo=5004;*
- (iv) *SELECT MIN(StockDate) FROM STOCK;*

ANSWER

Short Answer Questions

1. (i) **Candidate Key** :It refers to any column/attribute that can uniquely identify record in a table.
(ii) **Primary key** : It referes to designated attribute(s)/column(s) that uniquely identifies a row/tuple in a table/relation. It is one of the candidates keys.
(iii) **Foreign key** :is an attribute in a table which is the primary key in linked table
2. (i) Degree of the table TRANSACTIONS=4
Cardinality of table CUSTOMERS=3
(ii) TNO PRIMARY KEY; TNO, CNO CANDIDATES KEYS
- 3 No, Count(*) and Count(<column-name>) are not the same.
While count(*) counts and return the number of records in a table, count(<column-name>) counts number of records where the mentioned column-name is not null.
- 4 The problem with the given SQL query is that there is no GROUP BY clause is given and thus, it will lead to an error.
The reason being that the select list use COUNT() function, which is an aggregate function, along with a field. When we use an aggregate function in the select list along with a database field, we need to add a GROUP BY clause.
To correct the error it should use GROUP BY clasue.
SELECT house, count(*) FROM student
GROUP BY house;
5. (a) SELECT substr('Preoccupied', 4); OR SELECT substring('Preoccupied',4);
Or
SELECT mid('Preoccupied', 4);

(b) SELECT substr('Preoccupied', 6,3); OR SELECT substring('Preoccupied',6,3);
Or
SELECT mid('Preoccupied', 6,3);
- 6 (a) SELECT instr('Preoccupied', 'cup');
(b) SELECT left('Preoccupied', 4);
7. The Count(*) function returns the total number of records in the table while count(<field>) will return the count of non-null values in the given field and this is the reason for the different results by the given queries above.
The field commission must be containing a NULL value and thus count(commission) returned the count of non-null values and count(*) return total number of records (Irrespective of NULL values in the field).
- 8 SELECT Deptcode,Max(Salary)
FROM Employee
GROUP BY Deptcode;
- 9 (a) SELECT Type, avg(Price) FROM Vehicle GROUP BY Type having Qty>20;
(b) SELECT Company, count(Distinct Type) FROM Vehicle GROUP BY Compnay;

(c) *SELECT Type, Sum(Price*Qty) FROM Vehicle GROUP BY Type;*

10. *SELECT Stream, MAX(Agg)
FROM Employee
GROUP BY Stream;*

- 11 (i) *SELECT * FROM PARTICIPANTS WHERE CLASS IN(10,12);
OR
SELECT * FROM PARTICIPANTS WHERE CLASS = 10 OR CLASS=12;*
(ii) *SELECT SNAME, CLASS FROM PARTICIPANTS ORDER BY SNAME;*
(iii) *SELECT COUNT(*), CLASS FROM PARTICIPANTS GROUP BY CLASS;*

- 12 (i) *COUNT(DISTINCT CITITES)*

5
(ii) *MAX(PUR_DATE)*

2019-05-09
(iii)

<i>CNAME</i>	<i>QTY</i>	<i>PUR_DATE</i>
<i>SANYAM</i>	<i>10</i>	<i>2018-11-10</i>
<i>RAHUL</i>	<i>10</i>	<i>2018-10-12</i>
<i>MEHER</i>	<i>20</i>	<i>2019-05-09</i>

- 13 (i) *SELECT * FROM CUSTOMER WHERE CITITES NOT IN('DELHI',
'MUMBAI');*
(ii) *SELECT CNAME, CITITES FROM CUSTOMERS ORDER BY CNAME;*
(iii) *SELECT COUNT(*), CITIES FROM CUSTOMERS GROUP BY CITIES;*
(iv) *SELECT * FROM PURCHASES WHERE QTY>15;*

- 14 (i) *COUNT(DISTINCT ParticipantsNum)*

3
(ii)

<i>MAX(ScheduleDate)</i>	<i>MIN(ScheduleDate)</i>
<i>19-Mar-04</i>	<i>12-Dec-03</i>

(iii)

<i>Name</i>	<i>ActivityName</i>
<i>Ravubder</i>	<i>Discuss Throw</i>

(iv) *DISTINCT ParticipantsNum*

16
10
12

15. (i) $COUNT(DISTINCT Dcode)$

3

(ii) $QTY * UnitPrice$

4400

(iii) *Item* *Dname* (iv) $MIN(StockDate)$

Eraser Big *Clear Deals*

01-Jan-09

CASE STUDY BASED QUESTIONS

1. A library uses a database management system (DBMS) to store the details of the books that it stocks, its registered members and the book-loans that the library has made. These details are stored in a database using the following three relations.

Name of the Database : KV Library

- *Book* (*BookID* : Char(5), *Title* : Varchar(25), *Author* :Varchar(25), *Publisher* : Varchar(100))
- *Member*(*MemberID*:Char(5), *LastName*:Varchar(25), *FirstName*:Varchar(25), *Correspondence-Address* : Varchar(100), *Pincode* : Char(6), *DateofBirth* : Date, *EmailID* : Varchar(50))
- *Loan*(*MemberID*: Char(5), *BookID*:Char(5), *LastDate*:Date, *DueBackDate*:Date, *Returned* :Boolean)

Note : The Library does not stock more than one copy of the same book.

- (a) Identify the table that uses a composite primary key from the library database. 1
 (i) *Book Table* (ii) *Member Table* (iii) *Loan Table* (iv) all of these
- (b) I. Identify the possible alternate keys from relations **Book** and **Member**. 1
 (i) *Book* : *Title* (ii) *Books Author* (iii) *Member:EmailID* (iv) *Member:FirstName*’
 II. Can the **Loan** relation have an alternate key ? Why ? 1
- (c) Relations **Book** and **Member** have the following records : 1

Book

<i>BookID</i>	<i>Title</i>	<i>Author</i>	<i>Publisher</i>
B1103	-	-	-
B2902	-	-	-
B2950	-	-	-
B3100	-	-	-
B3275	-	-	-

Member

<i>BookID</i>	
B1103	
B2902	
B2950	
B3100	
B3275	

Write an example of the valid record for the loan relation. Write a query to insert a valid record in the **Loan** relation.

(d) Write a SQL query to retrieve the names and email addresses of the members who have not returned their books. 1

2 A library uses database management system(DBMS) to store the details of the books that it stocks, its registered members and the book-loan that the library has made. These details are stored in a database using the following three relations. Name of the Database : KV Library

- Book (BookID : Char(5), Title : Varchar(25), Author :Varchar(25), Publisher : Varchar(100))
- Member(MemberID:Char(5), LastName:Varchar(25), FirstName:Varchar(25), Correspondence-Address : Varchar(100), Pincode : Char(6), DateofBirth : Date, EmailID : Varchar(50))
- Loan(MemberID: Char(5), BookID:Char(5), LastDate:Date, DueBackDate:Date, Returned :Boolean)

Note : The Library does not stock more than one copy of the same book.

(a) Identify following types of keys from all the relations of the given database Foreign keys along with parent relations. 2

(b) Can a relation have multiple foreign keys? Give example. 1

(c) Can a foreign key be part of a primary key? Give example. 1

(d)Write a SQL query to retrieve the names and email addresses of the members belonging to KVS (they have email ids as _____@kvs.in) and who have not returned their books. 1

3. FurnFly is a furniture company selling furniture to customers of its store and operates as follows:

- The store does not keep the furniture in stock.
- The company places orders for the furniture required from its suppliers ONLY AFTER a customer places an order at the store.
- When the ordered furniture arrives at the store, the customer is informed via telephone or e-mail that it is ready for delivery.
- Customers often order more than one type of furniture on the same order, for example, a sofa, two puffy chairs and centre table.

Details of the furniture, customers and orders are to be stored in a relational database using the following four relations :

Database Name :FurnFly Furnishers

Furniture (FurnitureID : Char(7), FurnitureName : Varchar(50), Category : Varchar(25), Price : Float, SupplierName : Varchar(100))

CustomerOrder (OrderId : Number(8,0), CustomerID : Char(10), OrderDate:Date)

CustomerOrderLine :(OrderID : Number(8,0), FurnitureID: Char(7), Quantity: Number(4,0))

Customer :(CustomerID : Char(10), CustomerName:Varchar(100), EmailAddress : Varchar(30), TelephoneNumber: Number(15,0))

(a) Identify the relationships among tables. 1

(b) Identify the relation having composite primary key and its primary key. 1

(c) Write a SQL query to create table customerOrder. It should also define required primary key and foreign key(s) 1

- (d) A fault has been identified with the furnitureID number 6281. The manager needs to know how many orders need to be recalled. Write a SQL query for the same. 1
- (e) A customer with ID number 'C5104' wants to change his registered telephone number as 9988776655. Write a SQL query to achieve this. 1

4. Rachana Mittal runs a beauty parlor. She uses a database management system(DBMS) to store the information that she needs to manage her business. This information includes customer contact details, staff names, the treatments that the parlor offer (for example, 'Hair Massage') and appointment that customers have made for treatments. A separate appointment must be made for each treatment.

The details are stored in a database using the following four relations:

Customer: (CustomerID, FirstName, LastName, TelephoneNumber, EmailAddress)

Staff: (StaffID, FirstName, LastName, IsQualified)

Treatment: (TreatmentName, Price, TimeTaken, NeedsQualification)

Appointment : (CustomerID, TreatmentName, ApDate, ApTime)

- The **IsQualified** attribute for a member of staff stores one of the value True or False, to indicate if the member of staff is fully qualified or not.
- The **NeedsQualification** attribute for a treatment stores True or False to indicate if the treatment can only be given by a qualified member of staff.
- The **TimeTaken** attribute for a treatment is the number of minutes (a whole number) that the treatment takes.

- (a) Write a SQL statement to create the table staff. 1
- (b) Write a query to Insert a record in the table Staff with following data ; (2009, 'Sheril', 'Mark', 'True')

- (c) Which table's records can be deleted without affecting any other table? 1
- (i) Customer (ii) Staff (iii) Treatment (iv) Appointment

(d) Write a query to Modify table Appointment to add a new column **StaffID**, which should hold a legal StaffID value from the staff table.

- (e) Rachana wants to send e-mail advertisement to all the customers who had a 'RF Facial' treatment in 2020. To send the email, the customer's email address, firstname and lastname are needed. 1

Write a SQL query to retrieve the email address, firstname and lastname of each customer to whom email should be sent.

5. Consider the table STUDENT given below:

RollNo	Name	Class	DOB	Gender	City	Marks
1	Anand	XI	6/6/97	M	Agra	430
2	Chetan	XII	7/5/94	M	Mumbai	460
3	Geet	XI	6/5/97	F	Agra	470
4	Preeti	XII	8/8/95	F	Mumbai	492
5	Saniyal	XII	8/10/95	M	Delhi	360
6	Maakhiy	XI	12/12/94	F	Dubai	256
7	Neha	X	8/12/95	F	Moscow	324
8	Nishant	X	12/6/95	M	Moscow	429

- (a) State the command that will give output as:

<i>Name</i>
<i>Anand</i>
<i>Chetan</i>
<i>Geet</i>
<i>Preeti</i>

- (i) *Select Name from student where class= 'XI' and class='XII';*
- (ii) *Select Name from student where not class= 'XI' and class='XII';*
- (iii) *Select Name from student where city = 'Agra' or city = 'Mumbai';*
- (iv) *Select Name from student where city IN('Agra', 'Mumbai');*

Choose the correct option :

1

- (a) *Both (i) and (ii)*
 - (b) *Both (iii) and (iv)*
 - (c) *any of the option (i), (ii) and (iv)*
 - (d) *Only (iii)*
- (b) *What will be the output of the following command?*

Select * from student where gender= 'F' order by marks;

(i)

<i>RollNo</i>	<i>Name</i>	<i>Class</i>	<i>DOB</i>	<i>Gender</i>	<i>City</i>	<i>Marks</i>
<i>4</i>	<i>Preeti</i>	<i>XII</i>	<i>8/8/95</i>	<i>F</i>	<i>Mumbai</i>	<i>492</i>
<i>3</i>	<i>Geet</i>	<i>XI</i>	<i>6/5/97</i>	<i>F</i>	<i>Agra</i>	<i>470</i>
<i>7</i>	<i>Neha</i>	<i>X</i>	<i>8/12/95</i>	<i>F</i>	<i>Moscow</i>	<i>324</i>
<i>6</i>	<i>Maakhiy</i>	<i>XI</i>	<i>12/12/94</i>	<i>F</i>	<i>Dubai</i>	<i>256</i>

(ii)

<i>RollNo</i>	<i>Name</i>	<i>Class</i>	<i>DOB</i>	<i>Gender</i>	<i>City</i>	<i>Marks</i>
<i>6</i>	<i>Maakhiy</i>	<i>XI</i>	<i>12/12/94</i>	<i>F</i>	<i>Dubai</i>	<i>256</i>
<i>7</i>	<i>Neha</i>	<i>X</i>	<i>8/12/95</i>	<i>F</i>	<i>Moscow</i>	<i>324</i>
<i>3</i>	<i>Geet</i>	<i>XI</i>	<i>6/5/97</i>	<i>F</i>	<i>Agra</i>	<i>470</i>
<i>4</i>	<i>Preeti</i>	<i>XII</i>	<i>8/8/95</i>	<i>F</i>	<i>Mumbai</i>	<i>492</i>

(iii)

<i>Gender</i>	<i>Marks</i>
<i>F</i>	<i>256</i>
<i>F</i>	<i>324</i>
<i>F</i>	<i>470</i>
<i>F</i>	<i>492</i>

(iv)

<i>Gender</i>	<i>Marks</i>
<i>F</i>	<i>492</i>
<i>F</i>	<i>470</i>
<i>F</i>	<i>324</i>
<i>F</i>	<i>256</i>

- (iii) Prachi has given the following command to obtain the highest marks 1
SELECT max(Marks) from student where group by class;
 But she is not getting the desired result. Help her by writing the correct command.
- (a) Select max(Marks) from student where group by class;
 (b) Select class, max(Marks) from student group by Marks;
 (c) Select class, max(Marks) group by class from students;
 (d) Select class, max(Marks) from student group by class;
- (iv) State the command to display the average marks scored by students of each gender who 1
 are in class XI?
- (a) Select Gender, avg(Marks) from student where class= 'XI' group by gender;
 (b) Select Gender, avg(Marks) from student group by gender where class= 'XI';
 (c) Select Gender, avg(Marks) group by Gender from student having class= 'XI';
 (d) Select Gender, avg(Marks) from student group by Gender having class= 'XI';
- Choose the correct option:
- (a) Both (ii) and (iii)
 (b) Both (ii) and (iv)
 (c) Both (i) and (iii)
 (d) Only (iii)
- (v) Help Ritesh to write the command to display the name of the youngest student.
- (a) Select Name, min(DOB) from student;
 (b) Select Name, max(DOB) from student;
 (c) Select Name, min(DOB) from student group by Name;
 (d) Select Name, maximum(DOB) from student;

ANSWER

CASE STUDY BASED QUESTIONS

1. (a) (iii) **Loan Table**
 (b) **I. (i) Book : Title (ii) Member: EmailID**
II. No, the Loan relation cannot have alternate key as its primary key is a composite key having foreign key.
- (c) **INSERT INTO Loan Values('M1255', 'B3100', '02/02/2020', '09/02/2020', False)**
- (d) **Select FirstName, LastName, EmailID**
From Member, Loan
Where Member.MemberID=Loan.MemberID
AND Returned = 'False';
- 2 (a) **Foreign Keys in Relation Loan**
MemberID(Parent Table Member)
BookID (Parent Table Book)

(b) Yes, a relation can have multiple foreign keys, e.g., the loan relation given above has two foreign keys – MemberID and BookID

(c) Yes, a foreign key can be a part of composite primary key, e.g., the primary key of relation loan is : (MemberID, BookID, LoanDate), which contains two foreign keys : MemberID and BookID.

(d) *Select* FristName,LastName, EmailID
From Member, Loan
Where Member.MemberID=Loan.MemberID
AND EmailID LIKE “%kvs.in” *AND* Returned = ‘False’;

3. (a) *Table* *Related to table (Key)*

CustomerOrder → *Customer*(*CustomerID*)
CustomerOrderLine → *CustomerOrder*(*OrderID*)
CustomerOrderLine → *Furniture* (*FurnitureID*)

(b) *CustomerOrderLine*(*OrderID*, *FurnitureID*)

(c) *Create Table CustomerOrder*
(*OrderID*Number(8,0) *Not Null Primary Key*,
*CustomerID*char(ID) *REFERENCE Customer*(*CustomerID*),
OrderDate Date);

(d) *Select* count(*)
From *CustomerOrderLine*
Group by *FurnitureID*
Having *FurnitureID* = ‘6281’;

(e) *Update Customer*
Set *TelephoneNumber*=9988776655
Where *CustomerID*= ‘C5104’;

4. (a) *Create Table Staff*
(*StaffID* Number(4,0) *NOT NULL PRIMARY KEY*,
FirstName Varchar(20) *NOT NULL*,
*LastName*Varchar(20),
*ISQualified*Char(4) *Check (IsQualified* IN(‘True’, ‘False’));
(b) *INSERT INTO Staff* Values(2009, ‘Sheril’, ‘Mark’, ‘True’);

(c) (ii) *Staff* table’s records can be deleted without affecting any other table as of now, because this table is not linked with any other table yet.

(d) *Alter Table Appointment* Add *StaffID*Number(4,0) *NOT NULL Reference Staff*(*StaffID*);

*(e) Select EmailAddress, FirstName, LastName
From Customer C, Appointment A
Where C.CustomerID=A.CustomerID
AND TreatmentName= 'RF Facial';*

5. *(i) (b) Both (iii) and (iv)*

(ii) (b)

(iii) (d)

(iv) (b) Both (ii) and (iv)

(v) (b)

COMPUTER NETWORK

INTRODUCTION

1) Guided Media or wired communication channel:

The guided media refers to the different types of cables used in the network.

They are of Type

- a. Twisted Pair Cable
 - i. Shielded Twisted Pair (STP)
 - ii. Unshielded Twisted Pair (UTP)
- b. Coaxial Cables
- c. Optical Fibers

2) Unguided media or Wireless Communication Channel:

The unguided or wireless communication channels referred to a wireless connection to the network. There is no physical connection given through wires in this channel. The connection will be done through either sensors, antenna or any other component

- a. Microwave
- b. Radio Wave
- c. Satellite
- d. Infrared
- e. Laser
- f. Bluetooth

3) Modem:

A modem stands for MODulator/DEModulator. It works on the function process of Modulation and Demodulation

4) Ethernet Card:

It provides an interface between the computer and the network. It is also called as Network Interface Card.

5) WiFi Card :

The card enables a Wi-Fi connectivity for the computers. It is known as wireless NIC.

6) MAC Address:

A MAC address is a unique address that is assigned by the manufacturer of the NIC Card. It is a 6-byte address. Each byte in MAC address is separated by a colon. It looks like:

20:CY:01:58:4d:LK

7) NIC:

Network Interface Card is the physical card that can be used to connect the networking media with the system. It is also called as Ethernet card.

8) HUB:

A hub is a device which is used to connect more than one device in the network.

9) SWITCH:

Switch is a smart Hub

10) Repeater:

The repeater is a device that amplifies the network over geographical distance

11) GATEWAY :

It is a device which connects dissimilar networks. It expands the functionality of routers. It is not a device but a node or workstation or computer connected to the network

12) ROUTER:

A router is more powerful and intelligent than hub or switch. It has advanced capabilities as it can analyze the data and decide the data is packed and send it to the other network. It can handle huge packets. It can be wired or wireless, both. A wireless router can provides access to many devices like smartphones, and connected devices

13) PAN – Personal Area Network:

Personal Area Network refers to the network created by persons or individuals. Let's understand with this example. If you are sending files from your smartphone to another smartphone using Bluetooth or any other app is considered as Personal Area Network. Mostly people using their own devices like PDAs, Smartphones, Tablets etc. to share the data using Bluetooth or Wi-Fi.

14) LAN – Local Area Network

Local area networks are limited to one specific area and cover limited distance. A network that spreads up to a building, office, organization or institute is known as Local Area Network.

15) MAN – Metropolitan Area Network

This is an extended form of LAN. It can be spread over cities of one country. It can connect different cities of a country

16) Network Topologies:

Topologies are the types of network layout. It provides the interconnection to the network using cables and network devices

17) STAR Topology:

A central device (hub or switch) is required to connect all the devices with cables

18) BUS or linear Topology:

The bus or linear topology uses a single length cable to connect the devices

19) RING or circular topology:

The bus or linear topology uses a single length cable to connect the devices. This single length cable has a terminator at both the ends

20) TREE Topology :

The tree topology is similar to bus topology. In tree topology, the network shapes like a tree with different nodes connected together.

21) Mesh Topology :

Mesh topology offers excellent connectivity over long distances. In this, each node is connected to more than one device

22) Wireless Access Point:

It is wireless router used to connect wireless device to the network

23) Browser

It is the software to access internet based webpages in the computer

24) Cookies :

Cookies are plain text files which store the browsing-related information on user's computer. These enable you to save password for the website and all the customer setting for the website in the browser for later visits. You can enable or disable cookies from browser settings. You can either allow or block third-party cookies on your browser

25) .Plug-in or Add on or Extension :

A plug-in or add on or extension is software that adds additional functionality to your web browser. It adds a number of features to web browsers. For example, enable emoticons, reading pdfs, languages etc

MCQ

- 1) What is an standalone computer system
 - a. It is a computer system with internet connectivity
 - b. It is a server
 - c. It is a computer without any networking
 - d. None is correct
- 2) The main computer in any network is called as
 - a. Client
 - b. Server
 - c. Hub
 - d. Switch
- 3) What is the full form of NIC
 - a. Network Interchange Card
 - b. Net Interconnect Card
 - c. Network Interface Card
 - d. Network Interconnection Card
- 4) Which is called a smart HUB
 - a. HUB with high speed ports
 - b. Switch
 - c. Router
 - d. All of the Above
- 5) A network with all client computer and no server is called
 - a. Networking
 - b. Peer to Peer Computing
 - c. Client Server Computing
 - d. Any of them
- 6) The wireless access point in the networking is also
 - a. An wireless switch
 - b. An Wireless Security Point
 - c. An Address where all the wifi devices connect
 - d. All of the above
- 7) Generally which topology is used in the backbone of Internet
 - a. BUS
 - b. STAR
 - c. RING
 - d. Any of them
- 8) IP Stands for
 - a. Internet Protocol
 - b. Intranet Protocol
 - c. Internet Practice
 - d. Intranet Practice
- 9) Which of this is not a part of URL
 - a. IP Address
 - b. Port Number
 - c. Domain Name
 - d. None of these

- 10) What is the example of Instant Messenger
- Yahoo messenger
 - WhatsApp messenger
 - iMessenger
 - All of them
- 11) Which of the following is an browser
- Chrome
 - Whatsapp
 - Twitter
 - All of them
- 12) Repeaters work on the _____ layer
- Network Layer
 - Physical Layer
 - Application Layer
 - All of the Above
- 13) Which device is used to transfer Communication Signal to Long Directions
- Amplifier
 - Repeater
 - Router
 - All of the Above
- 14) Which topology in general uses less wire length compare to other
- Star Topology
 - Ring Topology
 - Bus Topology
 - All use same Length of Wire
- 15) The device with smartly controls the flow of data over the network by hopping is
- Router
 - Gateway
 - Switch
 - None of them
- 16) javascript is a _____ based language
- interpretor
 - compiler
 - None
- 17) Which one in a micro blogging software
- Twitter
 - Facebook
 - Whatsapp
 - All of them
- 18) Sending the email to any cc means
- Sending the mail with a carbon copy
 - Sending the mail without a carbon copy
 - Sending the email to all and hiding the address
 - All of the above
- 19) The backbone of internet is
- WAN Network
 - Fibre optical networks across long distances like intercontinental or intra continental
 - Wireless networks
 - All of them

- 20) Which is the physical address to identify the Machine uniquely in network
- IP Address
 - MAC Address
 - Computer Name
 - Your Used ID
- 21) Online textual talk is called
- Video Conference
 - Text Chat
 - Video Call
 - Audio Call
- 22) The First Page we generally view when we open the browser is called.
- Default page
 - First page
 - Home page
 - Landing Page
- 23) URL stands for
- Uniform Run Line
 - Uniform Resource Line
 - Uniform Resource Location
 - Uniform Resource Locator
- 24) Digital foot print is of ___ types
- 1
 - 2
 - 3
 - 4
- 25) What is noise in the voice channel
- Cable disturbance
 - Cable sort length
 - Loss of Signal Strength
 - Unwanted disturbance with the genuine signal
- 26) php language is used to create
- Dynamic Website
 - Static Website
 - Both the types of website
 - It is not a programming language
- 27) HTML language is used to create
- Accounting Program
 - Static Website
 - Both website and accounting program
 - It is not a programming language
- 28) Google is a
- Web service
 - Website
 - Program
 - All of it

- 29) When the signal from one wire bleeds into another wire , it is called as
- Radio waves
 - Infrared
 - Laser
 - None of them
- 30) Communication Media can be of _____ and _____ type
- Twisted pair , Shielded Twisted pair
 - Fiber optics , coaxial
 - Guided , Unguided
 - Wire , Laser
- 31) To prevent unauthorized access to and / or from the network, a system known as _____, can be implemented by hardware and / or software
- Antivirus
 - Firewall
 - Software
 - Hardware

1 MARKS QUESTION

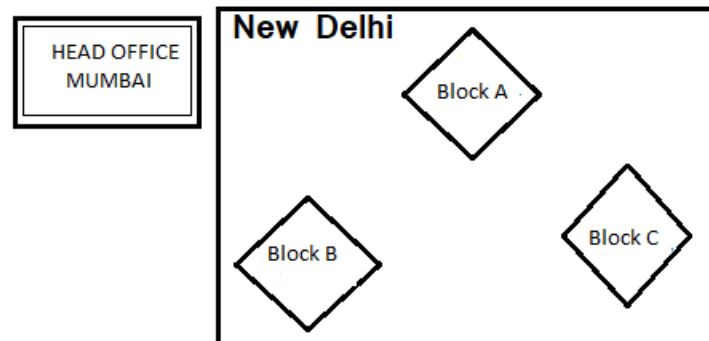
- 1) What is the need for a network.
- 2) Write the full form of following :
 - a. **NIC**
 - b. **ICT**
 - c. **PCB**
 - d. **DND**
 - e. **STP**
 - f. **UTP**
 - g. **CAT-6**
 - h. **CRT**
 - i. **TFT**
 - j. **LED**
- 3) Expand WAN and MAN
- 4) Expand LAN and PAN
- 5) What is a Node
- 6) Why in NIC needed in the computer?
- 7) What is the use of a Server
- 8) What is the Latency in Bluetooth Headsets
- 9) What is an Networking Topology
- 10) How internet is difference from LAN or Networks?
- 11) To protect the data in the network from unauthorized access what device is used?
- 12) What is the use of ISP in internet networks?
- 13) Define the use of IP address
- 14) Why STAR network is more efficient in network fault tolerance in place of BUS network.
- 15) Raju wants to save the password and other setting for the website he will use what to save it in the computer.
- 16) Ravi is setting the home page of his browser. He will use _____ of the browser to set the set home page.
- 17) What is the use of modem.
- 18) Text chatting software used in computer network used which technology to communicate?
- 19) What is the use of router?
- 20) Keeping Password and OTP in proper safty is called as _____
- 21) fttth network is fasted then STP cable network why is this correct
- 22) what do you mean by URL
- 23) What is an absolute URL
- 24) What is history in the browser ?
- 25) What is the use of HyperLink.

2 Marks Questions

- 1) What is the difference between STAR and BUS topologies?
- 2) www mean internet or not ? Explain with example ?
- 3) What is the deference between the http and Https: websites
- 4) What are Plug-in or Add on or Extension
- 5) Email is our phone uses which protocal
- 6) Which address is used to uniquely identify the machines in a network
- 7) What s VoIP? Where is it used ?
- 8) Which protocol is used to upload files to webservice for creating websites.
- 9) Please help Amit to understand the parts of Email Address
- 10) What is difference between a website and an webpage
- 11) What is a gateway and why is it used?
- 12) Router is needed for internet to work? Explain if true or false?
- 13) When can an HUB be used in place of Switch?
- 14) How website is not same as web portal?
- 15) What are the common services provided by any web portal?
- 16) Google.co.in is a static webpage . The statement is correct or wrong ? Help Raj to define the correct webpage type ?
- 17) What browser setting is needed to do when we access any site in public computer like cyber café?
- 18) What in a VPN software
- 19) Why we use a domain name address in place of IP address of the Server to access any web site?
- 20) Redirection or Popups in the website are to be checked carefully before forwarding? Why is this so important?

CASE BASED QUESTIONS (4 Marks)

- 1) KVS consultants are setting up a secured network for their office campus at Gurgaon. They are planning to have connectivity between 3 blocks and the head office at Mumbai. Answer the questions (a) to (d) after going through the block positions in the campus and other details, which are given below:



Distances between various buildings:

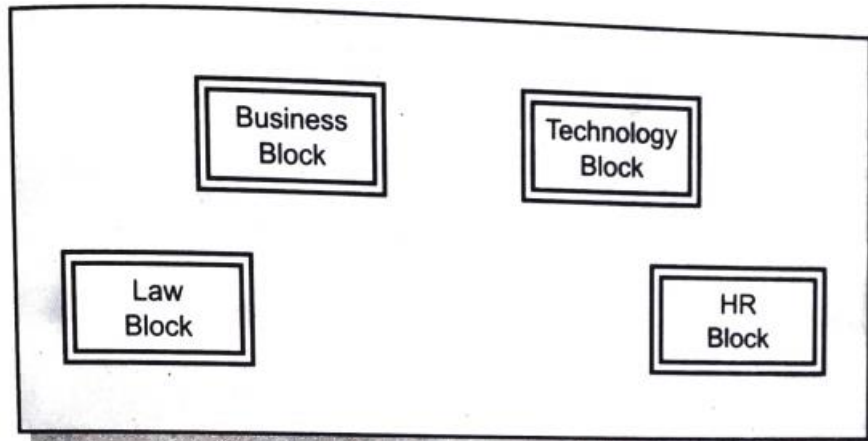
Block A to Block C	120m
Block A to Block B	55m
Block B to Block C	85m
New Delhi Campus to Head office	2060 Km

Number of computers:

Block A	32
Block B	150
Block C	45
Head office	10

- Suggest the most suitable place to house the server with justification.
- Suggest a connection medium to connect Gurgaon campus with head office.
- Suggest the placement of the following devices with justification:
 - Switch
 - Repeater
- The organization is planning to provide a high speed link with its head office situated in Mumbai using a wired connection. Which of the following cables will be most suitable for this job?
 - Optical Fibre
 - Co-axial Cable
 - Ethernet Cable

- 2) Sarguja University is setting up its new academic block in KP Gaon. The University has 3 new academic block and 1 human resource centre.



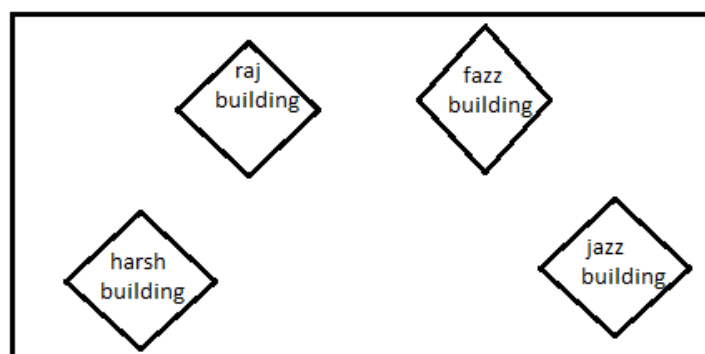
The distance between the blocks are given below

Law Block to business Block	40 m
Law block to Technology Block	80 m
Law Block to HR center	105 m
Business Block to technology Block	30 m
Business Block to HR center	35 m
Technology block to HR center	15 m

Number of computer in the blocks

Law Block	15
Technology Block	40
HR center	115
Business Block	25

- Where can we put the internet gateway server
 - Where can we put switch
 - Where we have to fix repeater
 - Where we can have Hub
- 3) Zetking industries has set up its new center at Ambikapurfor its office and web based activities. The company compound has 4 buildings as shown in the diagram below:



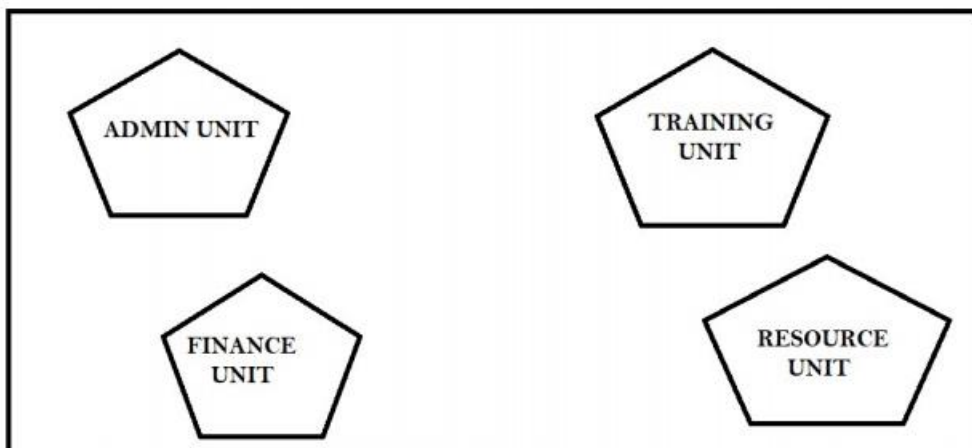
Center to center distances between various building is as follows:

- harsh building to raj building 50m
- raj building to fazz building 60m
- fazz building to jazz building 25m
- jazz building to harsh building 170m
- harsh building to fazz building 125m
- raj building to jazz building 90m

Number of computers in each of the buildings is as follows:

- harsh building 15
- raj building 150
- fazz building 15
- jazz building 25

- a. Suggest the most suitable place to house the server of this organization with a suitable reason.
 - b. Suggest the placement of the following devices with justification.
 - i)Internet connecting device
 - ii)switch
 - c. The organization is planning to link its sale counter situated in various parts of the same city, which type of network out of LAN, MAN or WAN will be formed? Justify your answer.
 - d. If there will be connection between all building using mesh topology, suggest where need to place repeater.
- 4) “KVS” is planning to setup its new campus at Raipur for its educational activities. The campus has four(04) UNITS as shown below:



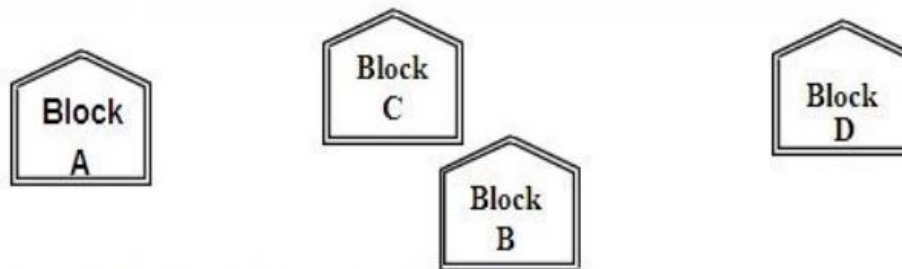
Distances between above UNITs are given here s under:

UNIT-1	UNIT-2	DISTANCE(In mtrs.)
ADMIN	TRAINING	65
ADMIN	RESOURCE	120
ADMIN	FINANCE	100
FINANCE	TRAINING	60
FINANCE	RESOURCE	40
TRAINING	RESOURCE	50

No. of Computers in various UNITs are:

UNIT	NO. OF COMPUTERS
ADMIN	150
FINANCE	25
TRAINING	90
RESOURCE	75

- Suggest an ideal cable layout for connecting the above UNITs
 - Suggest the most suitable place i.e. UNIT to install the server for KVS
 - Which network device is used to connect the computers in all UNITs
 - Suggest the placement of Repeater in the UNITs of above network.
- 5) Knowledge All Organization has set up its new center at Kolkata for its office and web based activities. It has 4 blocks of building as shown in the diagram below



Centre to centre distances between various blocks

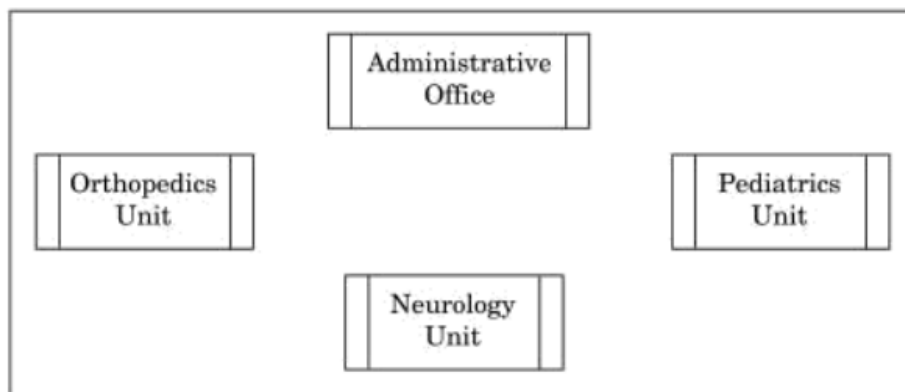
Block A to Block B	50 m
Block B to Block C	150 m
Block C to Block D	25 m
Block A to Block D	170 m
Block B to Block D	125 m
Block A to Block C	90 m

Number of Computers

Block A	25
Block B	50
Block C	125
Block D	10

- Suggest a layout of connections between the blocks
- Suggest the most suitable place (i.e. block) to house the server of this organization with a suitable reason
- Suggest the placement of the following devices with justification
 - Repeater
 - Hub / Switch

- d. The organization is planning to link its front office situated in the city in the hilly region where cable connection is not feasible, suggest an economic way to connect it with reasonably high speed
- 6) Ramji Training Educational Institute is setting up its centre in RAIPUR with four specialized departments for Orthopaedics, Neurology and Paediatrics along with an administrative office in separate buildings. The physical distances between these department buildings and the number of computers to be installed in these departments and administrative office are given as follows. Answer the queries as raised by them in (a) to (d)



Shortest distances between various locations in metres:

Administrative Office to Orthopedics Unit	55
Neurology Unit to Administrative Office	30
Orthopedics Unit to Neurology Unit	70
Pediatrics Unit to Neurology Unit	50
Pediatrics Unit to Administrative Office	40
Pediatrics Unit to Orthopedics Unit	110

Number of Computers installed at various locations are as follows :

Pediatrics Unit	40
Administrative Office	140
Neurology	50
Orthopedics Unit	80

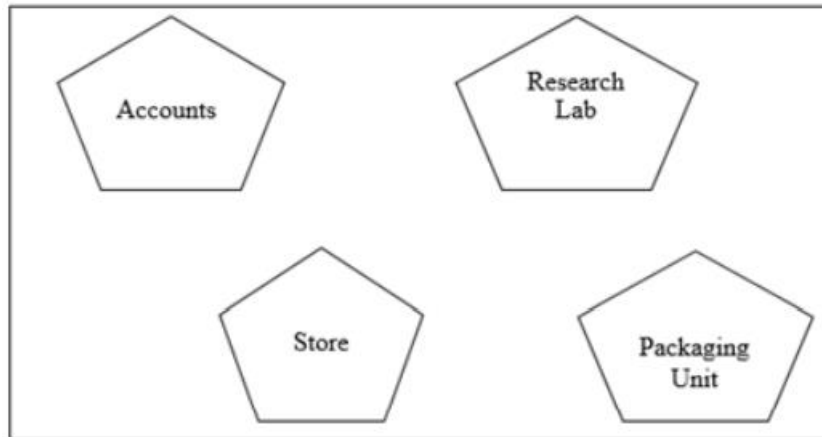
- a) Suggest the most suitable location to install the main server of this institution to get efficient connectivity.
- b) Suggest the best cable layout for effective network connectivity of the building having server with all the other buildings.
- c) Suggest the devices to be installed in each of these buildings for connecting computers installed within the building out of the following : Gateway, switch, Modem

d) Suggest the topology of the network and network cable for efficiently connecting each computer installed in each of the buildings out of the following :

Topologies: Bus Topology, Star Topology

Network Cable: Single Pair Telephone Cable, Coaxial Cable, Ethernet Cable.

7) RAJKUMARMedicos Centre has set up its new centre in Bilaspur. It has four buildings as shown in the diagram given below



Distances between various buildings are as follows:

Accounts to Research Lab	55 m
Accounts to Store	150 m
Store to Packaging Unit	160 m
Packaging Unit to Research Lab	60 m
Accounts to Packaging Unit	125 m
Store to Research Lab	180 m

Number of Computers

Accounts	25
Research Lab	100
Store	15
Packaging Unit	60

As a network expert, provide the best possible answer for the following queries:

- Suggest a cable layout of connections between the buildings
- Suggest the most suitable place (i.e. buildings) to house the server of this organization.
- Suggest the placement of the following device with justification
 - Repeater
 - Hub/Switch
- Suggest a system (hardware/software) to prevent unauthorized access to or from the network

ANSWER

1. C
2. B
3. C
4. B
5. B
6. D
7. A
8. A
9. A
10. A
11. A
12. B
13. B
14. C
15. A
16. A
17. A
18. A
19. B
20. B
21. B
22. C
23. D
24. B
25. D
26. C
27. B
28. A
29. C
30. C
31. B

1 MARKS QUESTIONS

1. Network is the interconnection between systems for resource sharing like printing and internet sharing.
2. FULL ABBRIBIATION
 - NIC**→Network Interface Card
 - ICT**→Information and Communication Technology
 - PCB**→Printer Circuit Board
 - DND**→Do Not Disturb Directory
 - STP**→Shielded Twisted Pair
 - UTP**→Un-Shielded Twisted Pair
 - CAT-6**→Category 6 Cables
 - CRT**→Cathod Ray Tube
 - TFT**→Thin Film Transistor
 - LED**→Light Emmited Diode
3. WAN – WIDE AREA NETWORK / MAN – METROPLITON AREA NETWORK
4. LAN- LOCAL AREA NETWORK / PAN – PERSONAL AREA NETWORK

5. Node is the client computer that is connected to a computer
6. NIC is the card that create an interface between the computer and the internet or network medium
7. Server is the Computer that serve as the main computer to serve information.
8. Bluetooth Headsets are used to get voice from the source but there is a delay in the voice and the video played
9. Networking Topology is physical layout of the networking connection to the computer
10. Internet is the network of networks and LAN is only a single network
11. Firewall is used to save the network from un-authorized access
12. It is the Internet Service Provider for the Clients
13. IP or Internet Protocol Address is the 32 Bit Address Logical Number to be given to any network for uniquely identifying the Computers
14. Because each node is connected directly to the main server and any fault is highly localised
15. He will us his cookies in the browser to save the password and details
16. Setting -> default page->home page address
17. Modem is used to connect Digital computer to Analog Line for Digital data Transfer
18. They use IM (Instance Messaging) for Text Chatting other then SMS
19. Router is used to connect all the different networks together. It also forwards and receives different data packets from different places
20. Password Security Ethics
21. Yes fttth is faster the STP because of fttth uses laser to transmit data
22. URL (Uniform Resource Locator) is the human understandable format for website address.
23. An absolute URL is the complete website address with protocal and landing page details also
24. History is the link to last visited websites in the browser
25. Hyperlink is link to another website or page from the current page

2 MARKS QUESTIONS

- 1) STAR Topology is topology in which the all the nodes are connected with central computer. But is Bus topology a single wire runs across the network and all the nodes are connected to the central bus
- 2) www is world wide web and it is the protocol to define the website or web address.e.g. <http://www.google.co.in>. This address defines that the website is in the internet.
- 3) http: is the normal Hyper Text Transfer Protocol but https: is the Secured Hyper Text Transfer Protocol.
- 4) The software that are installed with the browser for better performance and utility are called the Plug-in or Add On
- 5) Email in our phone uses POP3 protocol to access
- 6) The MAC address is used to uniquely identify the machine in a network
- 7) VoIP or Voice Over IP is a protocol used to transmit data
- 8) FTP or File Transfer Protocol is used to transfer files to the web server for creating web site
- 9) Email has used id and the domain name in its complete address kvs@kvs.gov.in where kvs is used id and kvs.gov.in is domain name
- 10) Website is the complete software and webpage is just one of the page from the website like www.ambikapur.kvs.ac.in is website and https://ambikapur.kvs.ac.in/admin/content?type=school_class_wise_enrolment_posi is a single web page
- 11) Gateway is the computer used to connect different networks to one network
- 12) Router is a dynamic device to connect different networks in real time. Internet cannot work without routers.
- 13) Hub is a device that broadcast all the signals so Hub is used in less computers with a limited speed or bandwidth requirements

- 14) Website is a single software and web portal is a combination of both online and offline services given by the webportal . like www.google.co.in is a website and www.ola.com is a web portal
- 15) The most common services provided by the web portal are web hosting and business website developments.
- 16) Google is a dynamic website. It connects us directly to the related websites what are searched.
- 17) We need to use incognito mode or public mode while accessing internet in the public place.
- 18) A VPN software is a software that hides the machine address from the network so that no one can trace the computer in the network
- 19) We use Domain name as it is more easy to remember that to remember the IP Address of the Website.
- 20) The popups or redirection can be a trap form the hackers to hack your computer so they needed to check carefully

CASE STUDY (4 MARKS)

1.
 - a. Block C because of the highest no of computer
 - b. VPN in Internet or Satellite communication can be use
 - c. Switch in Block A, B and C. repeater in Block C or Head Office
 - d. Optical Fiber
2. .
 - a. Internet Gateway in the HR Block
 - b. Switch in Technology Block and HR Block
 - c. Between Law Block and HR Block
 - d. In Law Block and Business Block
3. .
 - a. Raj Building because of Max Number of Computers
 - b. Both in Raj Building
 - c. MAN
 - d. Jazz Building
4. .
 - a. BUS Topology
 - b. ADMIN Unit as Max computer are in the Building
 - c. Bus / Switch
 - d. Between Admin and Finance Building

Sample Question Paper – 1(Term-2)
2021
Informatics Practices (065)
Class 12

Time: 02:00 Hrs

Marks: 35

Instructions:

1. There are 16 questions in the question booklet.
2. Each question is compulsory.
3. The Question paper is divided into four sections - Section A containing 05 questions each of 01 mark, Section B containing 05 questions each of 02 marks, Section C containing 04 questions each of 03 marks, Section D containing 02 questions each of 04 marks.
4. Options are available with the questions in Section D.

SECTION - A (01 MARK QUESTIONS)		
QNo.	Question	Marks
1	Write the output of the following command? <pre>select round(123.789, -2);</pre> <p>(a) 100 (b) 120</p> <p>(c) 123.78 (d) 123.80</p>	1
2	A website is a collection of <p>(a) Webpages (b) Webpages</p> <p>(c) Webservers (d) Hyperlinks</p>	1
3	Which of the following network devices is also known as intelligent hub? <p>(a) Router (b) Gateway</p> <p>(c) Repeater (d) Switch</p>	1
4	The protocols used to send and receive emails, respectively, are <p>(a) SMTP, MIME (b) SMTP, POP3</p> <p>(c) POP3, SMTP (d) POP3, MIME</p>	1
5	Which of the following SQL commands may output 24? <p>(a) <code>select day(now());</code></p> <p>(b) <code>select now();</code></p> <p>(c) <code>select dayname(now());</code></p> <p>(d) <code>select month(now());</code></p>	1
SECTION - B (02 MARK QUESTIONS)		
6	Consider the string "Class 12 CS". Write command to display: <p>(a) the position of string "CS" in the string "Class 12 CS".</p> <p>(b) Last six characters of the string "Class 12 CS".</p>	2
7	Explain the difference between where and having clauses in SQL with the help of a suitable example.	2

8	<p>Consider the below given Student table and answer the questions which follow:</p> <pre> +-----+-----+ roll marks +-----+-----+ 1 20 2 30 NULL 19 +-----+-----+ </pre> <p>(a) What will be the output of <code>select sum(roll)+count(roll)+sum(marks)+count(marks)</code> <code>from student;</code></p> <p>(b) Write command to update marks equal to 0 where roll number is NULL.</p>	2
9	<p>Given a decimal number 1905.675, write commands in SQL to</p> <p>(a) round it off to the number 2000.</p> <p>(b) round it off to 1 place after the decimal.</p>	2
10	<p>Anisha has been given the below given student table:</p> <pre> +-----+-----+-----+ roll marks class +-----+-----+-----+ 1 20 11 2 30 12 3 30 11 4 30 12 +-----+-----+-----+ </pre> <p>(a) How will she generate the following output using group by and having statements?</p> <pre> +-----+-----+ class sum(marks) +-----+-----+ 11 50 +-----+-----+ </pre> <p>(b) How will she update the student table to increase marks of all students by 10% and obtain the following output?</p> <pre> +-----+-----+-----+ roll marks class +-----+-----+-----+ 1 22 11 2 33 12 3 33 11 4 33 12 +-----+-----+-----+ </pre>	2
SECTION - C (03 MARK QUESTIONS)		

11	<p>A Salesman relation is given below:</p> <table border="1" data-bbox="256 152 1150 383"> <thead> <tr> <th>Scode</th> <th>Sname</th> <th>Address</th> <th>Dojoin</th> <th>Sales</th> <th>Area</th> </tr> </thead> <tbody> <tr> <td>100</td> <td>Amit</td> <td>Delhi</td> <td>2017/09/29</td> <td>5000.90</td> <td>East</td> </tr> <tr> <td>101</td> <td>Sushant</td> <td>Gurgaon</td> <td>2018/01/01</td> <td>7000.75</td> <td>East</td> </tr> <tr> <td>102</td> <td>Priya</td> <td>Noida</td> <td>2018/04/25</td> <td>3450.45</td> <td>West</td> </tr> <tr> <td>103</td> <td>Mohit</td> <td>Delhi</td> <td>2018/11/03</td> <td>6000.50</td> <td>North</td> </tr> <tr> <td>104</td> <td>Priyanshi</td> <td>Delhi</td> <td>2019/12/15</td> <td>8000.62</td> <td>North</td> </tr> </tbody> </table> <p>(a) Write SQL command to display the area-wise count of salesmen for those areas who have more than 1 salesman. (b) Write SQL command to find the total Sales. (c) Write SQL command to display the Sname and Dojoin of the salesman who has joined most recently.</p>	Scode	Sname	Address	Dojoin	Sales	Area	100	Amit	Delhi	2017/09/29	5000.90	East	101	Sushant	Gurgaon	2018/01/01	7000.75	East	102	Priya	Noida	2018/04/25	3450.45	West	103	Mohit	Delhi	2018/11/03	6000.50	North	104	Priyanshi	Delhi	2019/12/15	8000.62	North	3
Scode	Sname	Address	Dojoin	Sales	Area																																	
100	Amit	Delhi	2017/09/29	5000.90	East																																	
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102	Priya	Noida	2018/04/25	3450.45	West																																	
103	Mohit	Delhi	2018/11/03	6000.50	North																																	
104	Priyanshi	Delhi	2019/12/15	8000.62	North																																	
12	<p>How are aggregate functions different from other SQL functions? Ishita is trying to find the max sales out of all the sales corresponding to Salesmen having Delhi as address in the Salesman table given in Q11. Write two different SQL queries (using group by and without using group by) to perform this task.</p>	3																																				
13	<p>Predict the output of below given SQL queries</p> <ol style="list-style-type: none"> <code>select length(ltrim(" ABCD EFGH "));</code> <code>select length(trim(" ABCD EFGH "));</code> <code>select power(instr(lower('A@123'),'2'),instr(lower('A@123'),'3'));</code> 	3																																				
14	<p>Differentiate between the following</p> <ol style="list-style-type: none"> static and dynamic web page website and webpage 	3																																				
SECTION - D (04 MARK QUESTIONS)																																						
15	<p>Write the SQL commands which will perform the following operations?</p> <ol style="list-style-type: none"> To display the starting position of your last name (lname) from the whole name (name). To display dayname, month name and year from today's date. To display the remainder on dividing 3 raised to power 5 by 5. To display 'I am here' in lower as well as uppercase. <p style="text-align: center;">OR</p> <p>Consider the table Salesman with the given data</p> <table border="1" data-bbox="256 1458 1150 1688"> <thead> <tr> <th>Scode</th> <th>Sname</th> <th>Address</th> <th>Dojoin</th> <th>Sales</th> <th>Area</th> </tr> </thead> <tbody> <tr> <td>100</td> <td>Amit</td> <td>Delhi</td> <td>2017/09/29</td> <td>5000.90</td> <td>East</td> </tr> <tr> <td>101</td> <td>Sushant</td> <td>Gurgaon</td> <td>2018/01/01</td> <td>7000.75</td> <td>East</td> </tr> <tr> <td>102</td> <td>Priya</td> <td>Noida</td> <td>2018/04/25</td> <td>3450.45</td> <td>West</td> </tr> <tr> <td>103</td> <td>Mohit</td> <td>Delhi</td> <td>2018/11/03</td> <td>6000.50</td> <td>North</td> </tr> <tr> <td>104</td> <td>Priyanshi</td> <td>Delhi</td> <td>2019/12/15</td> <td>8000.62</td> <td>North</td> </tr> </tbody> </table> <p>Write SQL queries using function to perform the following operation:</p> <ol style="list-style-type: none"> Display Scode and Sales after rounding off the Sales to 1 decimal place. Display the dayname from Dojoin of Salesman. Display the position of occurrence of "a" in the Sname. Display three characters from Sname starting from the second character for those salesmen whose name ends with 't'. 	Scode	Sname	Address	Dojoin	Sales	Area	100	Amit	Delhi	2017/09/29	5000.90	East	101	Sushant	Gurgaon	2018/01/01	7000.75	East	102	Priya	Noida	2018/04/25	3450.45	West	103	Mohit	Delhi	2018/11/03	6000.50	North	104	Priyanshi	Delhi	2019/12/15	8000.62	North	4
Scode	Sname	Address	Dojoin	Sales	Area																																	
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103	Mohit	Delhi	2018/11/03	6000.50	North																																	
104	Priyanshi	Delhi	2019/12/15	8000.62	North																																	

Indian School, in Mumbai is starting up the network between its different wings. There are four Buildings named as SENIOR, JUNIOR, ADMIN and HOSTEL. The distance between various buildings is as follows:

ADMIN TO SENIOR	200m
ADMIN TO JUNIOR	150m
ADMIN TO HOSTEL	50m
SENIOR TO JUNIOR	250m
SENIOR TO HOSTEL	350m
JUNIOR TO HOSTEL	350m

The number of computers is as follow:

SENIOR	130
JUNIOR	80
ADMIN	160
HOSTEL	50

- Suggest the cable layout of connections between the buildings.
- Suggest the most suitable place (i.e., building) to house the server of this school, provide a suitable reason.
- Suggest the placement of the following devices with justification.
Repeater, Hub/Switch
- The organisation also has inquiry office in another city about 100 kms away in hilly region. Suggest the suitable transmission media to interconnect to school and inquiry office out of the following :
Fiber optic cable, Microwave, Radiowave

OR

Trine Tech Corporation (TTC) is a professional consultancy company. The company is planning to set up their new offices in India with its hub at Hyderabad. As a network adviser, you have to understand their requirements and suggest them the best available solutions. Their queries are mentioned as (a) to (d) below. TTC is having three blocks, namely Human Resource Block, Conference Block and Finance Block.

Distance between blocks:

Block (From)	Block (To)	Distance
Human Resource	Conference	110
Human Resource	Finance	40
Conference	Finance	80

Also, the number of computers to be installed in each block are:

Block	Computers
Human Resource	25
Finance	120
Conference	90

	<p>a. What will be the most appropriate block, where TTC should plan to install their server?</p> <p>b. Draw a block to cable layout to connect all the buildings in the most appropriate manner for efficient communication.</p> <p>c. What will be the best possible connectivity out of the following, you will suggest to connect the new setup of offices in Bangalore with its London based office: Satellite Link, Infrared, Ethernet Cable</p> <p>d. Which of the following device will be suggested by you to connect each computer in each of the buildings: Switch, Modem, Gateway</p>	
--	---	--

MARKING SCHEME (SET – 1)

1. a
2. b
3. d
4. b
5. a

6. `select instr("Class12 CS","CS");`
`select right("Class12 CS",6);`

7. A HAVING clause is like a WHERE clause, but applies only to groups as a whole (that is, to the rows in the result set representing groups), whereas the WHERE clause applies to individual rows. A query can contain both a WHERE clause and a HAVING clause. In that case: The WHERE clause is applied first to the individual rows in the tables or table-valued objects in the Diagram pane. Only the rows that meet the conditions in the WHERE clause are grouped. The HAVING clause is then applied to the rows in the result set. Only the groups that meet the HAVING conditions appear in the query output. You can apply a HAVING clause only to columns that also appear in the GROUP BY clause or in an aggregate function.

Any suitable example

8. 77
`update student set marks=0 where roll is null;`
9. `select round(1905.675,-3);`
`select round(1905.675,1);`
10. `select class,sum(marks) from myschool group by class having class=11;`
`update myschool set marks=marks+0.1*marks;`
11. `select Area, count(*) from Salesman group by Area having count(*)>1`
`Select sum(sales) from Salesman`
`Select Sname,max(Dojoin) from Salesman`
12. `Select address,max(Sales) from Salesman group by address having address="Delhi"`
`Select address,max(Sales) from Salesman where address="Delhi"`
13. 10
9
1024

14.

Static Webpage	Dynamic Webpage
In static web pages, Pages will remain same until someone changes it manually.	In dynamic web pages, Content of pages are different for different visitors.
Static Web Pages are simple in terms of complexity.	Dynamic web pages are complicated.
Static Web Page takes less time for loading than dynamic web page.	Dynamic web page takes more time for loading.

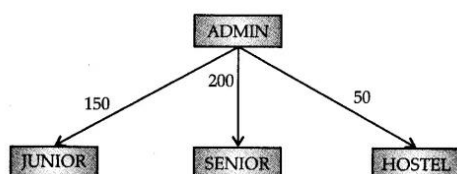
Website	Webpage
A website is a collection of webpages	A webpage is defined as a single document or a solitary page of any website. Every webpage is attached to a unique URL address used to render or access that particular page.
The website takes more time to develop than a webpage.	
The website URL does not include any extension.	The web page URL includes the extension. i.e., the path of the file.

15. `select instr(name,lname)`
`select dayname(now()),monthname(now()),year(now());`
`select mod(power(3,5),5);`
`select lcase('I am here'),ucase('I am here');`

OR

`Select scod, round(Sales,1) from Salesman`
`Select dayname(Dojoin) from Salesman`
`Select instr(Sname,"a") from Salesman`
`Select substr(Sname,2,3) from Salesman where name like "%t"`

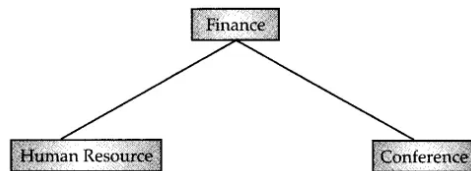
16.



Server can be placed in the ADMIN building as it has the maximum number of computers.
 Repeater can be placed between ADMIN and SENIOR building as the distance is more than 110 m.
 Also, hub/switch to be used in each building.
 Radiowaves can be used in hilly regions as they can travel through obstacles.

OR

Finance block because it has the maximum number of computers.



Satellite link
Switch

Sample Question Paper – 2 (Term-2)
2021
Informatics Practices (065)
Class 12

Time: 02:00 Hrs

Marks: 35

Instructions:

1. There are 16 questions in the question booklet.
2. Each question is compulsory.
3. The Question paper is divided into four sections - Section A containing 05 questions each of 01 mark, Section B containing 05 questions each of 02 marks, Section C containing 04 questions each of 03 marks, Section D containing 02 questions each of 04 marks.
4. Options are available with the questions in Section D.

SECTION - A (01 MARK QUESTIONS)

QNo.	Question	Marks
1	<p>Write the output of the following command?</p> <pre>select truncate(123.789,-2);</pre> <p>(a) 120 (b) 130</p> <p>(c) 123.78 (d) 100</p>	1
2	<p>Which of the following communication mediums will offer the highest bandwidth?</p> <p>(a) Optical Fibre (b) Shielded Twisted Pair</p> <p>(c) Unshielded Twisted Pair (d) Coaxial cable</p>	1
3	<p>For n devices in a network, what is the number of cable links required for a mesh topology?</p> <p>(a) n^2 (b) $n*(n-1)$</p> <p>(c) $(n-1)/2$ (d) $n*(n-1)/2$</p>	1
4	<p>Which of the following protocols is used in real time internet based communication?</p> <p>(a) VoIP (b) SMTP</p> <p>(c) POP3 (d) MIME</p>	1
5	<p>If on '1990-01-22', it was Monday, what will be the output of following SQL command?</p> <pre>select dayname('1990-01-22')+1;</pre> <p>(a) Error (b) 1 (c) 7 (d) Monday</p>	1
SECTION - B (02 MARK QUESTIONS)		
6	<p>Consider the string "PYTHON LANGUAGE". Write command to display:</p> <p>(a) the length of the string after trimming spaces from the beginning and end.</p> <p>(b) Position of string "LA" after trimming only beginning spaces from the string "PYTHON LANGUAGE".</p>	2

7	<p>Given a table Orders (oid, cuid, item), Radhika applies the following command to find cuid of those customers who have two or more than two orders.</p> <pre>select cuid,count(*) from orders where count(*)>=2;</pre> <p>However, the code gives an error. Explain the reason and write correct code to achieve the desired task.</p>	2
8	<p>Akash writes the following commands for a student table having attributes roll, name, age and class.</p> <p>Command1: select count(*) from student</p> <p>Command2: select count(age) from student.</p> <p>He gets the output 10 for the first command but gets an output 8 for the second command. Explain the reason behind this difference.</p>	2
9	<p>Given a number n, write commands in SQL to</p> <p>(a) compute cube of this number using SQL function.</p> <p>(b) compute remainder on division of n by another number m using SQL function.</p>	2
10	<p>Anita has been given the below given orders table:</p> <pre> +-----+-----+-----+ oid cuid item +-----+-----+-----+ 1001 101 Fan 1002 101 Pen 1003 102 Book 1004 103 Pencil 1005 104 Pen 1006 104 Fan +-----+-----+-----+ </pre> <p>(a) How will she generate the following output using group by and aggregate functions wherein the count of items for cuid are arranged in descending order?</p> <pre> +-----+-----+ cuid count(*) +-----+-----+ 101 2 104 2 102 1 103 1 +-----+-----+ </pre> <p>(b) How will she count the number of distinct items in the orders table?</p>	2
SECTION - C (03 MARK QUESTIONS)		

11	<p>A student relation is given below:</p> <table border="1" data-bbox="236 159 1150 465"> <thead> <tr> <th>RollNo</th> <th>Name</th> <th>Class</th> <th>DOB</th> <th>Gender</th> <th>City</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Anand</td> <td>XI</td> <td>6/6/97</td> <td>M</td> <td>Agra</td> <td>430</td> </tr> <tr> <td>2</td> <td>Chetan</td> <td>XII</td> <td>7/5/94</td> <td>M</td> <td>Mumbai</td> <td>460</td> </tr> <tr> <td>3</td> <td>Geet</td> <td>XI</td> <td>6/5/97</td> <td>F</td> <td>Agra</td> <td>470</td> </tr> <tr> <td>4</td> <td>Preeti</td> <td>XII</td> <td>8/8/95</td> <td>F</td> <td>Mumbai</td> <td>492</td> </tr> <tr> <td>5</td> <td>Saniyal</td> <td>XII</td> <td>8/10/95</td> <td>M</td> <td>Delhi</td> <td>360</td> </tr> <tr> <td>6</td> <td>Maakhiy</td> <td>XI</td> <td>12/12/94</td> <td>F</td> <td>Dubai</td> <td>256</td> </tr> <tr> <td>7</td> <td>Neha</td> <td>X</td> <td>8/12/95</td> <td>F</td> <td>Moscow</td> <td>324</td> </tr> </tbody> </table> <p>(a) Write SQL command to display the class-wise count of students for those classes who have more than 2 students. (b) Write an SQL command to find the average marks for class XI and class XII students. (c) Write an SQL command to display the name and DOB of the youngest student.</p>	RollNo	Name	Class	DOB	Gender	City	Marks	1	Anand	XI	6/6/97	M	Agra	430	2	Chetan	XII	7/5/94	M	Mumbai	460	3	Geet	XI	6/5/97	F	Agra	470	4	Preeti	XII	8/8/95	F	Mumbai	492	5	Saniyal	XII	8/10/95	M	Delhi	360	6	Maakhiy	XI	12/12/94	F	Dubai	256	7	Neha	X	8/12/95	F	Moscow	324	3
RollNo	Name	Class	DOB	Gender	City	Marks																																																				
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6	Maakhiy	XI	12/12/94	F	Dubai	256																																																				
7	Neha	X	8/12/95	F	Moscow	324																																																				
12	Give suitable examples to explain the role of % and _ characters for pattern matching in SQL.	3																																																								
13	<p>Predict the output of below given SQL queries</p> <p>a. <code>select power(instr('abcd412','1'),3);</code> b. <code>select substr(lower('ABC 123'),1,3)</code> c. <code>select power(instr(upper('A@123'),'1'),instr(upper('A@123'),'2'));</code></p>	3																																																								
14	<p>Differentiate between the following</p> <p>a. LAN and WAN b. SMTP and POP3</p>	3																																																								
SECTION - D (04 MARK QUESTIONS)																																																										
15	<p>Write the SQL commands which will perform the following operations?</p> <p>a. To display the position of space character in your name (myname). b. To display day, month and year from today's date. c. To compute 5 raised to the power remainder on dividing 15 by 4. d. To display the leftmost as well as the rightmost character of the string 'PYTHON'.</p> <p style="text-align: center;">OR</p> <p>Consider the table Salesman with the given data</p> <table border="1" data-bbox="256 1451 1150 1675"> <thead> <tr> <th>Scode</th> <th>Sname</th> <th>Address</th> <th>Dojoin</th> <th>Sales</th> <th>Area</th> </tr> </thead> <tbody> <tr> <td>100</td> <td>Amit</td> <td>Delhi</td> <td>2017/09/29</td> <td>5000.90</td> <td>East</td> </tr> <tr> <td>101</td> <td>Sushant</td> <td>Gurgaon</td> <td>2018/01/01</td> <td>7000.75</td> <td>East</td> </tr> <tr> <td>102</td> <td>Priya</td> <td>Noida</td> <td>2018/04/25</td> <td>3450.45</td> <td>West</td> </tr> <tr> <td>103</td> <td>Mohit</td> <td>Delhi</td> <td>2018/11/03</td> <td>6000.50</td> <td>North</td> </tr> <tr> <td>104</td> <td>Priyanshi</td> <td>Delhi</td> <td>2019/12/15</td> <td>8000.62</td> <td>North</td> </tr> </tbody> </table> <p>Write SQL queries using function to perform the following operation:</p> <p>a. Display maximum sales for each area. b. Display the month name from Dojoin of Salesman. c. Display those addresses which anywhere contain 'i'. d. Display two characters from Sname starting from the first character for those salesmen who belong to Delhi.</p>	Scode	Sname	Address	Dojoin	Sales	Area	100	Amit	Delhi	2017/09/29	5000.90	East	101	Sushant	Gurgaon	2018/01/01	7000.75	East	102	Priya	Noida	2018/04/25	3450.45	West	103	Mohit	Delhi	2018/11/03	6000.50	North	104	Priyanshi	Delhi	2019/12/15	8000.62	North	4																				
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16

ABC is an online corporate training provider company for IT related courses. The company is setting up their new campus in Kolkata. You as a network expert have to study the physical locations of various blocks and the number of computers to be installed. In the planning phase, provide the best possible answers for the queries (i) to (iv) raised by them.

4

Distance between blocks:

Block (From)	Block (To)	Distance
Administrative	Finance	60
Administrative	Faculty studio	120
Finance	Faculty studio	70

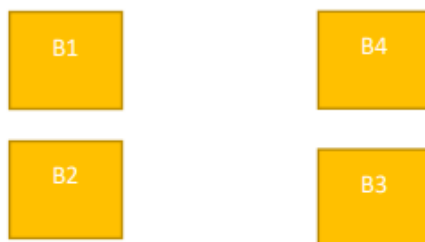
Also, the number of computers to be installed in each block are:

Block	Computers
Administrative	20
Finance	40
Faculty studio	120

- Suggest the most appropriate block, where ABC should plan to install the server.
- Suggest the most appropriate block to block cable layout to connect all three blocks for efficient communication.
- Which type of network out of the following is formed by connecting the computers of these three blocks? LAN, MAN, WAN
- Which wireless channel out of the following should be opted by ABC to connect to students from all over the world? Infrared, Microwave, Satellite.

OR

A company XYZ Enterprises has four blocks of buildings as shown:



Center to center distance between various blocks

B3 TO B1	40 M
B1 TO B2	50 M
B2 TO B4	15 M
B4 TO B3	150 M
B3 TO B2	115 M
B1 TO B4	90 M

Number of computers in each block :

B1	140
B2	20
B3	18
B4	30

Computers in each block are networked but blocks are not networked. The company has now decided to connect the blocks also

- Suggest the most appropriate topology for the connections between the blocks.
- The company wants internet accessibility in all the blocks. The suitable and cost-effective technology for that would be ____.
- Which device will you suggest for connecting all the computers within each of their blocks?
- The company is planning to link its head office situated in New Delhi with the offices in hilly areas. Suggest a way to connect it economically:

Marking Scheme (Set – 2)

- d
- a
- d
- a
- b
- ```
select length(trim(" PYTHON LANGUAGE "));
select instr(ltrim(" PYTHON LANGUAGE")," ");
```
- The code gives an error because aggregate functions can not be used with where clause. The correct code will be

```
select cuid,count(*) from orders group by cuid having count(*)>=2;
```
- The reason behind this difference is that the count function when applied to an attribute does not count NULL values. The age attribute must be containing two NULL values, hence the difference.
- ```
select power(n,3);
select mod(n,m);
```
- ```
select cuid,count(*) from orders group by cuid order by count(*) desc;
select count(distinct(item)) from orders;
```
- ```
select class, count(*) from student group by class having count(*)>2
select class,avg(Marks) from student where class='XI' or class='XII' group by class
select name, max(DOB) from student
```

12. % and _ are used for pattern matching in SQL. While % corresponds to 0 or more characters, _ corresponds to 1 character.

Consider the following customer table

custid	name	order
--------	------	-------

The query `select * from customer where name like '%a'` will match those tuples where name of the customer ends with 'a'.

The query `select * from customer where name like '___a'` will match those tuples where name of the customer is of the length three and the name ends with 'a'.

13. 216

abc

81

14. LAN vs WAN

LAN	WAN
Local Area Network	Wide Area Network
Geographical speed is less.	Geographical speed is more.
	WAN comprises several LANs.
Its design and maintenance is easy.	Its design and maintenance is difficult.

SMTP	POP3
Simple Mail Transfer Protocol	Post Office Protocol Version 3
Used to send emails	Used to receive emails
The port number of SMTP is 25.	The port number of POP3 is 110.
It is implied between sender mail server and receiver mail server.	It is implied between receiver and receiver mail server.

15. `select instr(myname, '')`

`select day(now()),month(now()),year(now());`

`select pow(5,mod(15,4));`

`select left('PYTHON',1),right('PYTHON',1);`

OR

`select area,max(sales) from Salesman group by area`

`select monthname(dojoin) from salesman`

`select(Address) from salesman where Address like '%i%'`

`select left(Sname,2) from Salesman where Address="Delhi"`

16.

Faculty studio

Star topology

LAN

Satellite Connection

OR

Star topology

Broadband

Switch/Hub

Radio waves

Sample Question Paper Set - 3 (Term 2)

Session 2021-22

Subject : Informatics Practices (065)

Class XII

Max Time: 02:00 Hours

Max Marks: 35

Instructions:

1. There are 16 questions in the question booklet.
2. Each question is compulsory.
3. The Question paper is divided into four sections - Section A containing 05 questions each of 01 mark, Section B containing 05 questions each of 02 marks, Section C containing 04 questions each of 03 marks, Section D containing 02 questions each of 04 marks.
Options are available with the questions in Section D.

Section A

1. Which of the following is not a text function: 1
 - a. TRIM()
 - b. TRUNCATE()
 - c. LEFT()
 - d. MID()
2. Which of the following is not a date function: 1
 - a. Month
 - b. Year
 - c. NOW
 - d. POW
3. Central computer which is powerfull than other computers is called as: 1
 - a. Client
 - b. Server
 - c. HUB
 - d. Switch
4. The device that can operate in place of a HUB is a : 1
 - a. Switch
 - b. Bridge
 - c. Router
 - d. Gateway
5. The combination of bus and star topology is called a: 1
 - a. Hybrid
 - b. Mesh
 - c. Tree
 - d. Ring

Section - B

6. Differentiate between Degree and Cardinality with example. 2

7. Consider the given table and answer the questions: 2

Table : STORE			
ItemNo	ItemName	Scode	Quantity
2005	Sharpener Classic	23	60
2003	Ball Pen 0.25	22	50
2002	Get Pen Premium	21	150
2006	Get Pen Classic	21	250
2001	Eraser Small	22	220
2004	Eraser Big	22	110
2009	Ball Pen 0.5	21	180

- a. Identify the attribute best suitable to be declared as a primary key,
b. Insert the following data into the attributes ItemNo, ItemName and SCode respectively in the given table STORE.
ItemNo = 2010, ItemName = "Note Book" and Scode = 25

8. Consider the given table and find the output of the given queries: 2

Table : Posting		
P_ID	Department	Place
1	History	Agra
2	Mathematics	Raipur
3	Computer Science	Delhi

- (i) SELECT Department, count(*) FROM Teacher GROUP BY Department;
(ii) SELECT Max(Date_of_Join), Min(Date_of_Join) FROM Teacher;

9. Write short note on Primary and Foreign key with example. 2

10. Differentiate between order by and group by clause with example. 2

Section C

11. Write short notes on the following constraints 3
- a. Unique
 - b. Distinct
 - c. Where clause

12. Consider the following table and answer the questions from i to iii 3

MobileMaster

M_Id	M_Company	M_Name	M_Price	M_Mf_Date
MB001	Samsung	Galaxy	4500	2013-02-12
MB003	Nokia	N1100	2250	2011-04-15
MB004	Micromax	Unite3	4500	2016-10-17
MB005	Sony	XperiaM	7500	2017-11-20
MB006	Oppo	SelfieEx	8500	2010-08-21

MobileStock

S_Id	M_Id	M_Qty	M_Supplier
S001	MB004	450	New Vision
S002	MB003	250	Praveen Gallery
S003	MB001	300	Classic Mobile Store
S004	MB006	150	A-one Mobiles
S005	MB003	150	The Mobile
S006	MB006	50	Mobile Centre

- (i) List the details of mobile whose name starts with „S“ or ends with „a“,
- (ii) Display the Mobile supplier & quantity of all mobiles except „MB003“,
- (iii) List showing the name of mobile company having price between 3000 & 5000,

13. Write the commands for the following: 3

- a. To remove the table named “Store” from the database.
- b. To add one more column to the table with column name abc, datatype varchar and size 10.
- c. To arrange the values of the table according to the abc column in ascending order in output.

14. What is website? Differentiate between static and dynamic pages. 3

Section D

15. Write the SQL functions which will perform the following operations: 4
- i) To display the name of the month of the current date .
 - ii) To remove spaces from the beginning and end of a string, “ Panorama “.
 - iii) To display the name of the day eg, Friday or Sunday from your date of birth, dob.
 - iv) To display the starting position of your first name(fname) from your whole name (name).

OR

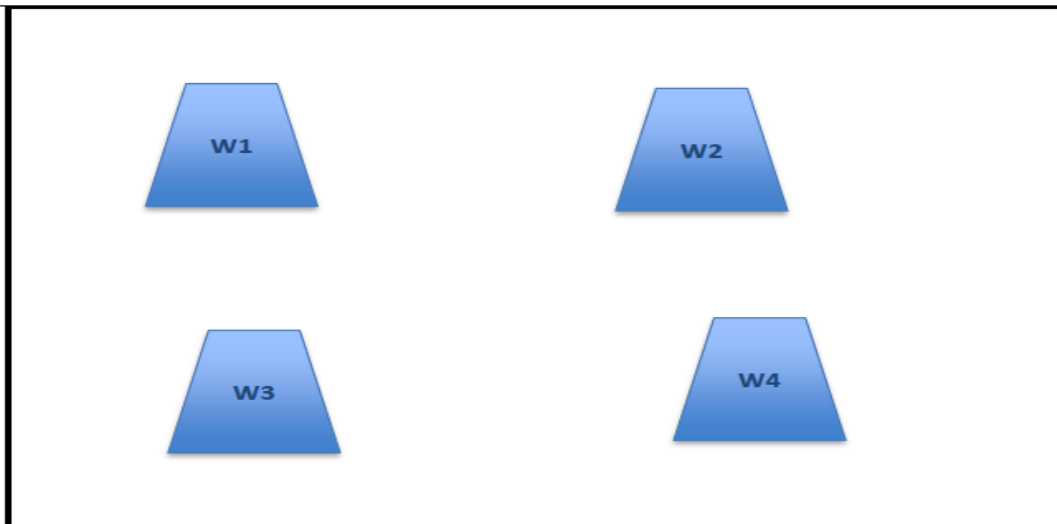
Consider a table SALESMAN with the following data:

SNO	SNAME	SALARY	BONUS	DATE OF JOIN
A01	Beena Mehta	30000	45.23	29-10-2019
A02	K. L. Sahay	50000	25.34	13-03-2018
B03	Nisha Thakkar	30000	35.00	18-03-2017
B04	Leela Yadav	80000	NULL	31-12-2018
C05	Gautam Gola	20000	NULL	23-01-1989
C06	Trapti Garg	70000	12.37	15-06-1987
D07	Neena Sharma	50000	27.89	18-03-1999

Write SQL queries using SQL functions to perform the following operations:

- a) Display salesman name and bonus after rounding off to zero decimal places.
- b) Display the position of occurrence of the string “ta” in salesman names.
- c) Display the four characters from salesman name starting from second character.
- d) Display the month name for the date of join of salesman

16. A company in Mega Enterprises has 4 wings of buildings as shown in the diagram 4



Center to center distances between various Buildings:

- W3 to W1 - 50m
- W1 to W2 - 60m
- W2 to W4 - 25m
- W4 to W3 - 170m
- W3 to W2 - 125m
- W1 to w4 - 90m

Number of computers in each of the wing:

W1 - 150

W2 - 15

W3 - 15

W4 - 25

Computers in each wing are networked but wings are not networked. The company has now decided to connect the wings also.

i. Suggest a most suitable cable layout for the above connections.

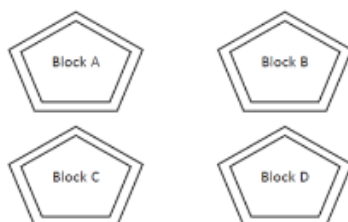
ii. Suggest the most appropriate topology of the connection between the wings.

iii. The company wants internet accessibility in all the wings. Suggest a suitable technology.

iv. Suggest the placement of the following devices with justification if the company wants minimized network traffic: a) Repeater b) Hub / switch

OR

The Virtual Connects organization has set up its new centre at Noida for its office and web-based activities. It has 4 blocks of buildings as shown in the diagram below:



Distance between the various blocks is as follows:

A to B	40 m
B to C	120 m
C to D	60 m
A to D	170 m
B to D	150 m
A to C	70 m

Number of computers:

Block A	25
Block B	50
Block C	125
Block D	10

(i) Suggest the most suitable place (the Block) to install the server of this organization with a suitable reason.

(ii) Which device will you suggest to be placed/installed in each of these blocks to efficiently connect all the computers within these blocks?

(iii) Suggest the placement of a Repeater in the network with justification.

(iv) The organization is planning to link its office to an office in the hilly areas. Suggest a way to connect it economically. Justify your answer.

MARKING SCHEME (SET – 3)

1. b
2. d
3. b
4. a
5. c
6. Degree: Number of columns in a table, Cardinality : Number of rows in a table. With suitable example.
7. a. ItemNo
b. INSERT INTO store (ItemNo,ItemName,Scode) VALUES(2010, "Note Book",25);

8. Answers:

i.

Department	Count(*)
History	3
Computer Sc	2
Mathematics	3

ii. Max - 31/07/2018 or 2018-07-31 Min- 05/09/2007 or 2007-09-05

9. Definition of Primary and Foreign key with example.
10. Difference between order by and group by clause with example.
11. Definition of all 3 clauses
12. (i) SELECT * FROM MobileMaster WHERE M_Name LIKE "S%";
(ii) SELECT M_Supplier, M_Qty FROM MobileStock WHERE M_Id<>"MB003";
(iii) SELECT M_Company FROM MobileMaster WHERE M_Price BETWEEN 3000 AND 5000;
13. (i) Drop table store;
(ii) Alter table store add column (abc varchar (10));
(iii) Select * from store order by abc;
14. Website: Collection of interrelated web pages
Static web page: Which has a fixed content and thus it gets delivered to user's browser exactly as created.
Dynamic Web page: Which displays different content every time it is loaded.
15. i) monthname(date(now()))
ii) trim(" Panaroma ")
iii) dayname(date(dob))
iv) instr(name, fname)

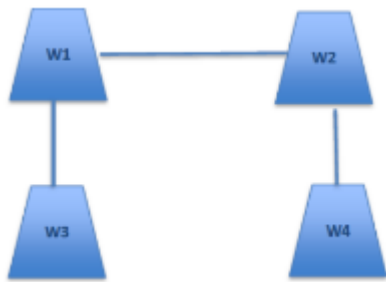
OR

- (i) Select sname, round(bonus,0) from Salesman;
- (ii) Select instr(Sname, "ta") from Salesman;
- iii) Select mid(Sname,2,4) from Salesman;

alternative answer

- iii) Select Substring(Sname,2,4) from Salesman;
- iv) Select monthname(DateofJoin) from Salesman;

16. Ans. Most suitable layout according to distance is



ii. Star Topology

iii Broadband

iv. a. Not required.

Repeaters may be skipped as per above layout (because distance is less than 100 m)

b. In every wing (switch)

OR

(i) The most suitable place to install the server is Block C as this place has maximum number of computers.

(ii) Switch

(iii) Repeater may be placed when the distance between 2 buildings is more than 70 metres, i.e.,

Block B to Block C

Block A to Block D

Block B to Block D

(iv) Radio waves, because these waves are easy to generate, can travel long distances and can penetrate mountains easily.