RASHTRIYA MILITARY SCHOOL, BENGALURU
PRACTICE PAPER-1

Class : XII **Time Allowed : 03:00 Hours**
Subject : (065) Informatics Practices **Maximum Marks : 70**

General instructions:

- *This question paper contains five sections, Section A to E.*
- *All questions are compulsory.*
- *Section A has 18 questions carrying 01 mark each.*
- *Section B has 07 Very Short Answer type questions carrying 02 marks each.*
- *Section C has 05 Short Answer type questions carrying 03 marks each.*
- *Section D has 03 Long Answer type questions carrying 05 marks each.*
- *Section E has 02 questions carrying 04 marks each. One internal choice is given in Q35 against part C only.*
- *All programming questions are to be answered using Python Language only.*

Section – A		
Q01.	URLs are of two types: (A) Absolute & Relative (B) Static & Dynamic (C) Absolute and Dynamic (D) None of the above	(1)
Q02.	Which of the following is not done by cyber criminals? (A) Unauthorized account access (B) Mass attack using Trojans as botnets (C) Email spoofing and spamming (D) Report vulnerability in any system	(1)
Q03.	An organization purchase new computers every year and dumps the old one into the local dumping yard. Write the name of the most appropriate category of waste that the organization is creating every year, out of the following options: (A) Business waste (B) Commercial waste (C) E-waste (D) Green waste	(1)
Q04.	Which type of values will be returned by SQL while executing the following statement? Select length("LENGTH") ; (A) Numeric value (B) Text value (C) Null value (D) Float value	(1)

Q05.	If column "salary" contains the data set (45000, 5000, 55000, 45000, 55000), what will be the output after the execution of the given query? SELECT AVG (DISTINCT salary) FROM employee; (A) 38500 (B) 40000 (C) 41000 (D) 35000	(1)
Q06.	'V' in 'VISA' stands for: (A) Virtual (B) VISA (C) Vital (D) None of these	(1)
Q07.	The correct SQL from below to find the temperature in increasing order of all cities. (A) SELECT city FROM weather order by temperature ; (B) SELECT city, temperature FROM weather ; (C) SELECT city, temperature FROM weather ORDER BY temperature ; (D) SELECT city, temperature FROM weather ORDER BY city ;	(1)
Q08.	Which one of the following is not an aggregate function? (A) Min (B) Sum (C) With (D) Avg	(1)
Q09.	Where and Having clauses can be used interchangeably in SELECT queries? (A) True (B) False (C) Only in views (D) With order by	(1)
Q10.	Given a Pandas series called HEAD, the command which will display the first 3 rows is_____. (A) print(HEAD.head(3)) (B) print(HEAD.Heads(3)) (C) print(HEAD.heads(3)) (D) print(head.HEAD(3))	(1)
Q11.	In order to draw charts in Python, which of the following statement will be used: (A) import pyplot.matplotlib as pl (B) import matplotlib.pyplot as plt (C) Import matplotlib.pyplot as plt (D) import pyplot from matplotlib as plt	(1)
Q12.	We can create dataframe from: (A) Series (B) Numpy arrays (C) List of Dictionaries (D) All of the above	
Q13.	Which amongst the following is an example of a browser? (A) Mandriva (B) GIMP (C) Epic (D) Azure	(1)

Q14.	In SQL, this function returns the time at which the function executes: (A) SYSDATE (B) NOW (C) CURRENT (D) TIME	(1)
Q15.	_____are the attempts by individuals to obtain confidential information from you through an original looking site and URL. (A) Pharming attack (B) Plagiarism (C) Spamming (D) Phishing scams	(1)
Q16.	Chaaya sets up her own company to sell her own range of clothes on Instagram. What type of intellectual property can she use to show that the clothes are made by his company. (A) Patents (B) Copyright (C) Trademark (D) Design	(1)
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (A) Both A and R are true and R is the correct explanation for A (B) Both A and R are true and R is not the correct explanation for A (C) A is True but R is False (D) A is false but R is True	
Q17.	**Assertion (A)**: Each website has a unique address called URL. **Reasoning (R)**: It is Unified Resource Locator and a correct example is http://mypage.htm/google.com	(1)
Q18.	**Assertion (A)**: DataFrame has both a row and column index. **Reasoning (R)**: .loc() is a label based data selecting method to select a specific row(s) or column(s) which we want to select.	(1)
	Section – B	
Q19.	Explain the terms Web Page and Web Site. OR Compare and contrast – STAR and BUS topologies	(2)
Q20.	Neelam, a database administrator needs to display Class wise total number of students of 'XI' and 'XII' house. She is encountering an error while executing the following query: SELECT CLASS, COUNT (*) FROM STUDENT ORDER BY CLASS HAVING CLASS='XI' OR CLASS= 'XII'; Help her in identifying the reason of the error and write the correct query by suggesting the possible correction (s).	(2)

Q21.	What is the purpose of GROUP BY clause in SQL? Explain with the help of suitable example.	(2)
Q22.	Write a program to create a series object using a dictionary that stores the number of Kendriya Vidyalayas in each city of cities of your state. Note: Assume some cities like AGRA, JHANSI, MATHURA, NOIDA having 4, 3, 5, 4 KVs respectively and pandas library has been imported as mypandas.	(2)
Q23.	Mention any four net etiquettes. OR List any four benefits of e-waste management.	(2)

Q24.	What will be the output of the following code:
	>>> import pandas as pd
	>>> mydata=pd.Series([‘rajesh’, ‘amit’, ‘tarun’, ‘Radhika’])
	>>> print(mydata < ‘rajesh’)
		(2)

Q25.	Carefully observe the following code: **>>> import pandas as pd** **>>> xiic = {‘amit’:34, ‘kajal’:27, ‘ramesh’:37}** **>>> xiid = {‘kajal’:34, ‘lalta’:33, ‘prakash’:38}** **>>> result = {‘PT1’:xiic, ‘PT2’:xiid}** **>>> df = pd.DataFrame(result)** **>>> print(df)** Answer the following: i) List the index of the dataframe df ii) Find the output of the following code : print(df.loc[‘kajal’:’ramesh’])	(2)

Section – C

Q26. Write outputs for SQL queries (i) to (iii) which are based on the given table GAME (3)

GID	NAME	DATEOFGAME	UNDER	WINNER
1	JUDO	2022-10-17	17	RAMESH
2	BADMINTON	2022-5-18	14	KIRTI
3	JUDO	2022-8-18	19	KAMAL
4	TAEKWONDO	2021-7-20	14	SADIQ
5	CHESS	2021-5-6	17	ALANKAR

i) Select name, under, winner from GAME where month(dateofgame)>7;

ii) Select lcase(mid(winner,2,3)) from GAME where NAME like "%O";

iii) Select mod(under, month(dateofgame)) from GAME where NAME="JUDO";

Q27. Write a Python code to create a DataFrame with appropriate column headings from the list given below: (3)

[[1001,'IND-AUS','2022-10-17'], [1002,'IND-PAK','2022-10-23'], [1003,'IND-SA' , '2022-10-30], [1004,'IND-NZ','2022-11-18']]

Q28. Consider the given DataFrame 'Items': (3)

	Name	Price	Quantity
0	CPU	7750	15
1	Watch	475	50
2	Key Board	225	25
3	Mouse	150	20

Write suitable Python statements for the following:

i) Add a column called Sale_Price which is 10% decreased value of Price

ii) Add a new item named "Printer" having price 8000 and Quantity as 10.

iii) Remove the column Quantity

Q29. What do you mean by "Digital Footprints"? Explain the different types of digital footprints with example? (3)

OR

What do you mean by Intellectual Property Right? Give some names of common type of IP with example.

Q30. Based on table STOCK given here, write suitable SQL queries for the following: (3)

STOCKID	NAME	COMPANY	TYPE	DOPURCHASE	Quantity
1	Photoshop	Adobe	SW	5-Oct-2022	1
2	Windows 10	Microsoft	SW	15-Apr-2021	5
3	Mother Board	ASUS	HW	8-Sep-2022	5
4	Office 2007	Microsoft	SW	8-Jul-2022	2
5	Hard Disk	Seagate	HW	6-Feb-2021	10
6	Azure	Microsoft	SW	17-Jul-2022	6
7	CD ROM	Seagate	HW	31-Jul-2021	5
8	Reader	Adobe	SW	28-Aug-2022	2

i) Display company wise highest Quantity available

ii) Display year wise lowest Quantity available

iii) Display total number of Software and Hardware type stock

OR

Explain the difference between **WHERE CLAUSE** and **HAVING CLAUSE** in detail with the help of suitable example.

Section – D

Q31. Write suitable SQL query for the following: (5)

i) Display 4 characters extracted from 3rd character onwards from string 'IMPOSSIBLE'.

ii) Display the position of occurrence of string 'GO' in the string "LET's GO to GOA".

iii) Round off the value 257.75 to nearest ten rupees.

iv) Display the remainder of 18 divided by 5.

v) Remove all the leading and trailing spaces from a column passwd of the table 'USER'.

OR

Explain the following SQL functions using suitable examples.

i) MONTHNAME()

ii) SUBSTRING()

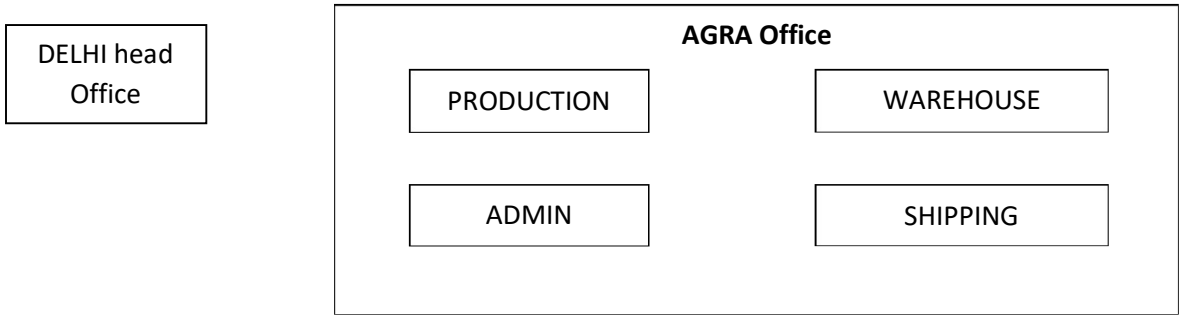
iii) LTRIM()

iv) ROUND()

v) RIGHT()

Q32. Agra Shoes Pvt. Limited is an international shoe maker organization. It is planning to set up its India Office at Agra with its head office in Delhi. The Agra office campus has four main buildings - ADMIN, PRODUCTION, WAREHOUSE and SHIPPING. (5)

You as a network expert have to suggest the best network related solutions for their problems raised in (i) to (v), keeping in mind the distances between the buildings and other given parameters.



Shortest distances between various buildings:

ADMIN to WAREHOUSE	50 Mtr
ADMIN to PRODUCTION	85 Mtr
ADMIN to SHIPPING	45 Mtr
WAREHOUSE to PRODUCTION	50 Mtr
WAREHOUSE to SHIPPING	45 Mtr
PRODUCTION to SHIPPING	40 Mtr
DELHI head office to AGRA Office	240 Km

Number of computers installed at various buildings are as follows:

ADMIN	120
WAREHOUSE	60
PRODUCTION	35
SHIPPING	18
Delhi Head Office	12

i) Suggest the most appropriate location of the server inside the AGRA Office (out of the four buildings) to get the best connectivity for maximum number of computers. Justify your answer.

ii) Suggest and draw cable layout to efficiently connect various buildings within the AGRA Office for a wired connectivity.

iii) Which networking device will you suggest to be procured by the company to interconnect all the computers of various buildings of AGRA Office?

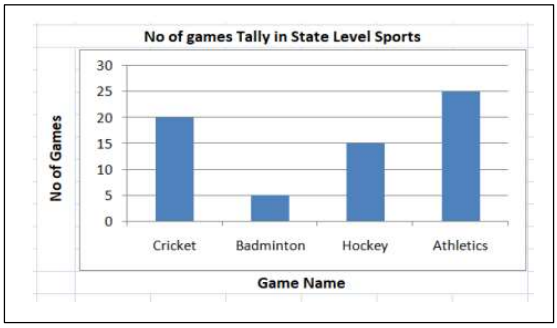
iv) Company is planning to get its website designed which will allow shopkeepers to see their products, shipping details themselves on its server. Out of the static or dynamic,

which type of website will you suggest?

v) Which of the following will you suggest to establish the online face to face communication between the people in the ADMIN office of AGRA and Delhi head office?

A) Cable TV B) Email (C) Video conferencing (D) Text chat

Q33. Write Python code to plot a bar chart for No of Games Tally in State Level Sports shown below: (5)



Also give suitable python statement to save this chart.

OR

Write a python program to plot a line chart based on the given data to depict the changing weekly average temperature in Jhansi for four weeks.

Week=[1, 2, 3, 4]

Avg_week_temp=[30, 26, 28,24]

Section – E

Q34. Harsh, a movie information collector has designed a database for Indian movies. Help him by writing answers of the following questions based on the given table **MOVIE**: (1+ 1+ 2)

movieID	Name	Rating	Production	Collection	DORelease
201	Nadiya Ke Par	A+	Rajshree	400	15-Aug-1989
202	Hum Aapke Hain Kaun	A+	Dharma	1500	4-May-1992
203	Veer Zara	A	Yashraj	1100	25-Oct-2004
204	Chandni	A+	Yashraj	2000	8-Nov-1989
205	Om Shanti Om	A	Red Chillies	2007	14-Nov-2007

i) Write a query to display movie name and production – both in upper case

ii) Write a query to display all details of movies released in year 1989

iii) Write a query to count production wise total number of movies

OR (Option for part iii only)

	Write a query to count rating wise total number of movies	
Q35.	Mr. Summit, a data analyst has designed the DataFrame df that contains data about Computer infrastructure with 'S01', 'S02', 'S03', 'S04', 'S05, 'S06' as indexes shown below. Answer the following questions:	(2+ 2)

	school	computers	non-working	working
S01	MPS	80	10	70
S02	SFC	88	12	76
S03	JPS	25	4	21
S04	APS	45	6	39
S05	RLPS	90	15	75
S06	DPS	60	6	54

i) Predict the output of the following python statement:

A) df.shape

B) df[2:4]

ii) Write Python statement to display the data of working column of indexes S03 to S05.

OR (Option for part ii only)

Write Python statement to compute and display the difference of data of computers column and working column of the above given DataFrame.

0-O-o- End of Paper –o-O-