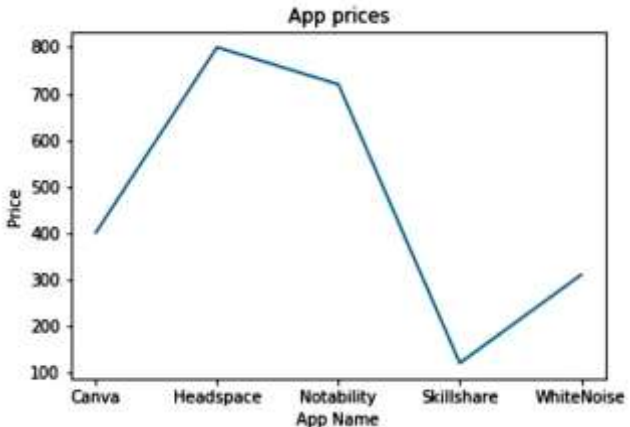| Class: XII Time: 3 Hrs.	JINDAL VIDYA MANDIR, SALAV. Pre Board II Examination [2023-24] Subject: Informatics Practices (065)	MM: 70

General instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 02 questions carrying 04 marks each.
7. Section E has 03 questions carrying 05 marks each.
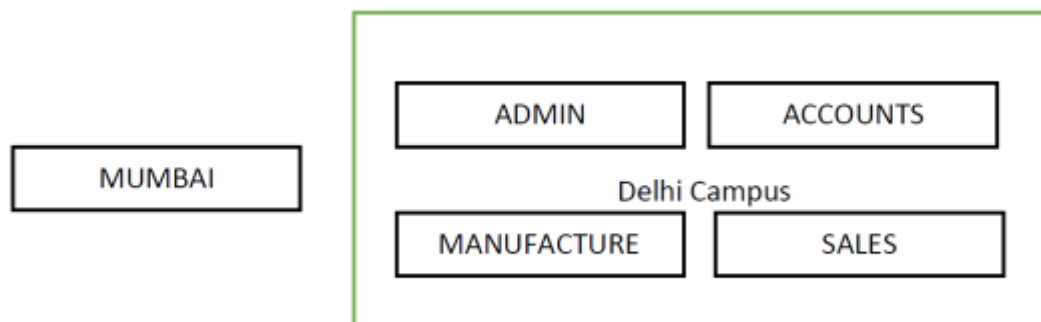8. All programming questions are to be answered using Python Language only.

	Section A	*Marks*
1	What is the term used when the main server sends mail to another mail server? a. VoIP b. SMTP c. POP3 d. MIME	1
2	Stealing someone's intellectual work and representing it as your own is known as ____. a. Hacking b. Plagiarism c. Copyright d. Patent	1
3	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. a. cyber troll b. cyber stalker c. Spyware d. Hacker	1
4	Write the output : `Select ROUND(753.589,-2);` a. 753.58 b. 800 c. 754 d. 700	1
5	If on '2019-05-26', it was Sunday, what will be the output of following SQL command? select nameofday('2019-05-27'); a. Error b. 5 c. Monday d. Sunday	1
6	The ____ clause of SELECT query allows us to select only those rows in the result that satisfy a specified condition. a. FROM b. WHERE c. ORDER BY d. GROUP BY	1
7	Which of the SQL statements is correct? a. SELECT Username AND Password FROM Users; b. SELECT Username, Password FROM Users; c. SELECT Username, Password WHERE Username = 'user1'; d. None of these	1
8	Which of the following function returns the date value in 'YYYY-MM-DD' from system date? a. date() b. now() c. sysdate() d. curdate()	1
9	Which of the following function returns the value of a number raised to the power of another number? a. Round( ) b. Power( ) c. Pwr( ) d. Both b. and c.	1

10	How many elements will be there in the series named 'S1'?
	`>>> S1 = pd.Series(range(5))`
	`>>> print(S1)`
	a. 5 b. 4 c. 6 d. None of the above
		1

11	The command to display last 3 rows from series named 'week' is ____.
	`a. print(week.tail(3))` `b. print(week.Tail(3))`
	`c. print(week.Tails(3))` `d. print(week.tails(3))`
		1

12	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]`	1

	c. df.iloc[6:10, 3:6] d. df.iloc[6:9, 3:5]	
13	Which document view given an appearance as in web browser? a. Draft view b.Outline view c. Web layout view d. Full screen reading	1
14	Which of the following function is used to FIND the largest value from the given data in MYSQL? a. MAX() b. MAXIMUM() c. LARGEST() d. BIG()	1
15	Which type of right is related to logo work? a. Copyright b. Trademark c. Trade secret d. Patent	1
16	Which of the following is a type of cyber security? a. Cloud Security b. Network Security c. Application Security d. All of the above	1
Q17 and 18 is ASSERTION AND REASONING based questions. Mark the correct choice as: i. Both A and R are true and R is the correct explanation for A ii. Both A and R are true and R is not the correct explanation for A iii. A is True but R is False iv. A is false but R is True	
17	**Assertion (A):** Social media are websites or applications that enable their users to participate in social networking but they cannot create and share content with others in the community. **Reason (R):** We should not waste precious time in responding to unnecessary emails or comments unless they have some relevance for us.	1
18	**Assertion (A):** Data visualization refers to the graphical representation of information and data using visual elements like charts, graphs and maps etc. **Reason (R):** To install matplotlib library we can use the command - pip install matplotlib.	1
Section B
19	Expand the following terms related to Computer Networks: a. EDGE b. URL c. TCP/IP d. VoIP **OR** Define Computer Network. What do you mean by autonomous computers?	2
20	Sanchita is a database administrator needs to display Block wise total number of records of 2 and 3 Block Apartments. She is encountering an error while executing the following query: Select block, count (*) from apartments group by block where block=2 or 3; Help her in identifying the reason of the error and write the correct query by suggesting the possible correction (s).	2
21	What is a website? How is it different from a webpage? **OR** Differentiate between star and bus topology.	2
22	Write a program to create a series from a given Tuple data, d1= (100, 'Vivek', 96.3, 'A').	2
23	What do you understand by Net Etiquettes? Explain any two such etiquettes. **OR** According to a survey, one of the major Asian countries generates approximately about 2 million tons of electronic waste per year. Only 1.5 % of the total e-waste gets recycled. Suggest a method to manage e-waste.	2

24	Write output for the code:
	`import pandas as pd`
	`s = pd.Series([10,20,30,40,50],index=['a','b','c','d','e'])`
	`print(s[0]) #or print(s.iloc[0])`
	`print(s['a':'c']) #or print(s.loc['a':'c'])`
	`print(s[2]) #or print(s.iloc[s[2])`
	`print(s['a']) #or print(s.loc['a'])`
		2

25	Carefully observe the following code:	2

```
import pandas as pd
y1={'P1':5000,'P2':800,'P3':1200,'P4': 1800}
y2={'P':1300,'Q':1400,'R':1200}
total = {1:y1,2:y2}
df = pd.DataFrame(total)
print(df)
```

Answer the following:
i. List the index of the DataFrame.
ii. List the column names of DataFrame.

Section C

26	Write outputs for SQL queries (i) to (iii) which are based on the given table – **orders**	3

cno	cname	city	qty	dop
C01	MALHAR	MUMBAI	150	6/11/2022
C02	KETKI	PUNE	10	2/19/2022
C03	NAVIN	NASIK	100	12/4/2021
C04	NEHA	SATARA	50	10/10/2021
C05	JAYESH	SATARA	15	10/20/2021

```
i. select length(cname) from orders where qty > 100;
ii. select cname from orders where month(dop) = 3;
iii. select mod (qty, day(dop)) from orders where city= 'SATARA';
```

27	Write a Python code to create a DataFrame with appropriate column headings from the list given below:	3

```
[['T1','Govind','Math'],['T2','Rajan','Chem'],
['T3','Kiran','IP'],['T4','Dinesh','Phy']]
```

28	A dataframe **flights** stores data about passengers, Flights and Years. First few records of the DataFrame are shown below:	3

Sr_no	Year	Months	Dom	Intl
1	2022	January	900	380
2	2022	February	1000	550
3	2022	March	980	290
4	2022	April	1100	410

Perform the following operations on the DataFrame :
  i. Add both the domestic and international passengers and assign to column "Total_ pass"
  ii. Display the maximum passengers in domestic passengers and maximum passengers in international passengers of the Data Frame.
  iii. Display the Data Frame.

29	a. Posting negative, demeaning comments on her social networking profiles called _____	3
	b. Chasing and keep track of activities of a person online is called _____	
	c. IT act was introduce in year _____	

OR

What are the different ways in which authentication of a person can be performed?

30	Consider the table **products** with following data -	3

ItemCode	Item	DatePurchase	UnitPrice	Discount
101	Frock	2016-01-23	700	10
102	Cot	2015-09-23	5000	25
103	Soft Toy	2016-06-17	800	10
104	Baby Socks	2014-10-16	100	7
105	Baby Suit	2015-09-20	500	5

NOTE: Discount column stores discount in %.

	Write SQL commands to: a. To display the number of items that has more than 10% as discount. b. To display the highest unit price of items. c. To display the names of items that has 'Baby' anywhere in their item names.	5

Section D

31	Write suitable SQL query for the following:
	   i. Display 4 characters extracted from 3rd left character onwards from the string 'HelloWorld'.
	  ii. Display the position of occurrence of string 'pen' in the string 'oppenheimer'.
	 iii. Display the remainder of 100 divided by 9.
	 iv. Remove all the expected leading and trailing spaces from a column e_id of the table 'emp'.
		4

32	Mr. Ankit is working in an organization as data analyst. He uses Python Pandas. 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: ```\nimport pandas as _____ #Statement1\ndata = {"Year":[2010,2010,2012,2010,2012],\n"Month":["Jan","Mar","Jan","Dec","Dec"],"ps":[25,50,35,55,65]}\nDf = pd._____(data) #Statement2\nprint(df)\n``` i. Help him to fill the blank of statement1. ii. Help him to fill the blank of statement2. iii. He wants to print the number of passengers in "jan" **OR** Mr. Ankit wants to change the index of the Data Frame with ['Air India', 'Indigo', 'Spicejet', 'Jet', 'Emirates']. Write the correct statement to change the index.	4

Section E

33	Write a python program to plot a line chart based on the given data to depict the runs scored by India. overs=[10,20,30,40,50] runs=[0,25,50,75,100] Give suitable code to save the graph. **OR** Write a Python code to get the following bar graph. Give suitable code to save the graph.	5
34	Write suitable SQL queries for the following: i. To calculate the exponent for 2 rose to the power of 5. ii. To display current date and time. iii. To round off the value -34.4567 to 2 decimal place. iv. Convert the following string into uppercase 'hindustan ki kasam'. v. To display the length of the string 'jay jawan jay kisan'.	5
35	An international IT company is planning to set up its India campus at Delhi with its head office in Mumbai. The Delhi office campus has four main buildings- ADMIN, SALES, MANUFACTURE, and ACCOUNTS.	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 ACCOUNTS   80m
ADMIN TO SALES   190m
ADMIN TO MANUFACTURE   150m
ACCOUNTS TO SALES   95m
ACCOUNTS TO MANUFACTURE   50m
SALES TO MANUFACTURE   85m
MUMBAI Head Office to DELHI campus   2000 KM

Number of computers installed at various buildings are as follows:
ADMIN: 110;   ACCOUNTS: 75;   EXAMINATION: 40
RESULT:12;   DELHI HEAD OFFICE: 20

i.   Where should be server placed among four buildings at Delhi campus?
ii.   Which topology would you suggest for these blocks and why?
iii. Which networking device will you suggest for interconnecting all the computers of various buildings? And why?
iv.   Company is planning to get its website designed which will allow customers to see different types of IT Offers and Products, provide suggestion and can apply for featuring in advertisement. 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 delhi campus and Mumbai head office?
      a) Cable TV b) Email c) Video conferencing d) Text chat