Series ISWK P-III

Roll No:

Candidates must write the code on the title page of the answer book

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General Instructions:
1. This question paper contains two parts A and B. Each part is compulsory.
2. Both Part A and Part B have choices.
3. Part-A has 2 sections:
   a. Section – I is short answer questions, to be answered in one word or one line.
   b. Section – II has two case studies questions. Each case study has 4 case-based sub-parts. An examinee is to attempt any 4 out of the 5 subparts.
4. Part - B is Descriptive Paper.
5. Part- B has three sections
   a. Section-I is short answer questions of 2 marks each in which two questions have internal options.
   b. Section-II is long answer questions of 3 marks each in which two questions have internal options.
   c. Section-III is very long answer questions of 5 marks each in which one question has internal option.

INFORMATICS PRACTICES

Date: 10/04/2021   *Time: 3 hours*
Class: XII   *Max. Marks: 70*

	Part – A	
	Section – I Attempt any **15 questions** from questions 1 to 21	
1	State whether True or False : i. Theft of digital personal information in order to commit fraud, is called identity theft. ii. Stealing a painted wallpaper and selling it to a buyer is an act of Plagiarism.	1
2	A dataframe **city** is having indexes "Delhi", "Bombay", "Kolkata", "Madras" Write command that will change the index "Bombay" to "Mumbai" and "Madras" to "Chennai" .	1
3	Which of the following is a type of program that either pretended to have , or is described as having useful or desirable features but actually containing a damaging code. a. Viruses b. Worms c. Trojans d. Adware	1
4	Which of the following is not a valid plotting function of pyplot? a. bar( ) b. hist( ) c. histh( )	1

	d. barh( )	
5	Given the following Series P1 stores the marks scored by each section: P1 a 95 b 90 c 75 d 80 Write the command to display the sections that scored greater than 90 .	1
6	Write the name of function used to plot multiple graphs in two different views of the same window.	1
7	Rohan wants to print the row labels of the dataframe df. He should use the _____ attribute of a dataframe.	1
8.	Write the SQL command to delete all the data of the table 'activity' retaining only structure.	1
9	Sourabh is planning to purchase a device which could connect two separate networks in such a manner as if they were a single network. Which of the following device would you like to suggest him? a. Repeater b. Hub c. Bridge d. Switch	1
10	The cybercrime which is done with the use of technology to harass, threaten, embarrass, or target another person is known as _____ .	1
11	Which of the following is an aggregate/multiple row function? a) left( ) b) year( ) c) min( ) d) round( )	1
12	As soon as a .... enters your system, it immediately starts replicating itself with the sole goal of infecting as many networked systems and inadequately-protected computers as possible.	1
13	Write the name of the clause used with SELECT command to search for a specific pattern in the strings.	1
14	_____ is a protocol that allows to send / upload email message from local computer to an email server.	1
15	_____ is a networking device that converts Analog Signals into Digital Signals.	1
16	Write the output of the following code:	1

	import pandas as pd a=pd.Series([68,35,90,95]) b=pd.Series([45,77,93]) student={"English":a,"Hindi":b} df=pd.DataFrame(student) print(df)	
17	Malini has stolen a credit card. She used that credit card to purchase a laptop. What type of offence has she committed?	1
18	Write the SQL command that will display the current date and time.	1
19	Identify the transmission media that is suitable for transmission over hilly areas during data communication. a. Infrared b. Microwave c. Radio wave d. Laser wave	1
20	I can share hardware. I can share software. I facilitate you. Who am I ?	1
21	Name the primary law in India dealing with cybercrime and electronic commerce.	1

Section -II

Both the case study-based questions (22 & 23) are compulsory. Attempt any **four** sub parts from each question. Each sub question carries 1 mark .

22	Consider the following DataFrame df and answer any four questions from (i)- (v)	4

ID	Name	Age	Fav_Color	Points
T01	Rahul Anand	32	Blue	73
T02	Mohak Girdhar	25	Green	82
T03	Rajeev Tyagi	45	Orange	29
T04	Rohini Malik	30	Pink	39

  i. Write the command that will add a column "eligible" with default value as 'yes'.

 ii. Write the command to extract the complete row 'T03'.

    a. df.loc[: , 'ID']

    b. df.loc['T03' , 'Name']

    c. df.loc['T02','T03']

    d. df.loc['T03', :]

iii. For the above DataFrame , following statement is giving error.

   df[Age]=df[Points]*2/3   #Find and correct the error.

    a.   df[Age]=df['Points']*2/3

    b.   df['Age']=df['Points']*2/3

c. df['Age']=df[Points]*2/3

d. df['Age']=df['Points'*2/3]

iv. Which of the following command will display the datatypes of each column of the DataFrame?

a. print(df.type())

b. print(type(df))

c. print(df.dtype)

d. print(df.dtypes)

v. Which command will be used to drop a row from dataframe 'df' labeled as 'T04'?

a. Df.drop([T04])

b. df.drop()

c. df.drop('T04')

d. df.drop(T04,axis = 0)

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23 | Consider the table STAFF given below

Ecode	Name	Desig	PLevel	DOJ	DOB
11	Sivam	PRO	P001	13-09-2004	23-08-1981
12	Mark	Manager	P003	22-02-2010	12-07-1987
13	Vikram	Operator	P003	14-06-2009	14-10-1983
15	Yamuna	Sales	P002	21-08-2006	13-03-1984
18	Fidin	Clerk	P002	19-12-2005	09-06-1983

i. | State the command that will give the output as : | 1

Name
Sivam
Fidin
Vikram
Yamuna
Mark

a) Select Name from STAFF Order by DOJ;

b) Select Name from STAFF Order by DOB;

c) Select name from STAFF Order by DOJ DESC;

d) Select name from STAFF Order by DOB DESC;

ii.	What will be the output of the following command :- Select Name, Desig from STAFF WHERE PLevel NOT IN ('P001', 'P002');	1

a.

Name	Desig
Sivam	PRO
Yamuna	Sales
Fidin	Clerk

b.

Name	Desig
Mark	Manager
Vikram	Operator

c.

Name	Desig
Yamuna	Sales
Sivam	PRO
Fidin	Clerk

d.

Name	Desig
Vikram	Operator
Mark	Manager

iii.	The Staff Manager has given the following command to add a new row / record in the STAFF table, INSERT * INTO STAFF VALUES (19, 'Kishore', 'Operator', 'P003', 19-Jun-2008, 11-Jul-1984); But he is not getting the desired result. Help him by finding out the correct command from the followings:- a. INSERT INTO STAFF VALUES (19, 'Kishore', 'Operator', 'P003', 19-Jun-2008, 11-Jul-1984); b. INSERT ALL INTO STAFF VALUES (19, 'Kishore', 'Operator', 'P003', 19-Jun-2008, 11-Jul-1984); c. INSERT INTO STAFF VALUES (19, 'Kishore', 'Operator', 'P003', '19-Jun-2008', '11-Jul-1984');	1

	d. INSERT VALUES INTO STAFF (19, 'Kishore', 'Operator', 'P003', '19-Jun-2008', '11-Jul-1984');	

iv.	State the command to display the Name of Staff Members in Capital letters :-
	
	a. Select Capital (Name) from STAFF;
	b. Select uppercase(Name) from STAFF;
	c. Select Upper(Name) from STAFF;
	d. None of the above;
		1

v.	Ravi wants to know the number of employees in each PLevel. Help him to find out the right command.
	a. Select PLevel, Count(*) from STAFF Group by PLevel;
	b. Select Count(PLevel) from STAFF Group by PLevel;
	c. Select Count(Name), PLevel from STAFF Group by PLevel;
	d. Select PLevel, Sum(PLevel) from STAFF Group by PLevel;
		1

	Part – B	
	Section – I	
24	Given are two objects, a list object **lst1** and a Series object **A**, both are having similar values i.e. 2, 4, 6, 8,10. Mr. Singh is trying to run the following commands. Will these commands run successfully or not. If yes , write the output. Justify your answer. a. print(lst1**2) b. print(A**2)	2
25	Differentiate between Update and Alter command. **OR** What is the difference between Delete and Drop command?	2
26	Priya writes the following commands with respect to a table Book having fields, Bookno, bname, publisher, cost Command1 : Select sum(cost) from book; Gives output 1200 Command2 : Select avg(cost) from book; Gives output 300 What is the cardinality of the table, if cost column is having not null constraint. Write a SQL command to find out number of rows in the table.	2
27	Given a dataframe **Student** as shown below:	2

	Age	Marks
Himanshu	20	88
Riya	19	92
Govind	22	95
Shubham	21	70
Dorris	18	84

		Write statements to do the following: -	
		a. Add a row which contains the details of "Rajiv" whose age = 20 and mark = 85	
		b. To Make Age as the index.	
28		Name SQL Single Row functions for each of the following: i. A string function that returns a number ii. returns lowercase letters. iii. a date function that returns a string iv. returns weekday number. For example : 1 for Sunday, 2 for Monday, 3 for Tuesday.	2

29		Consider the following SQL string: "MODEL PAPER" Write commands to display:
		   a. PAPER
		   b. EL
		  OR Consider a number "num" with value 7153.35, Write the SQL command to:
		 a. To find the cube of the number "num".
		 b. Round the number to nearest tenth place.
			2

30		Consider the given data frame **sales** and perform the following operations.	2

	Name	Sales	Target
S1	Ritesh	345	750
S2	Devdathan	678	750
S3	Supriya	234	500
S4	Gautham	178	500
S5	Anjali	450	750

a) Write a statement to delete first two rows of the given data frame.
b) Write the above data frame into a csv file named 'Employee.csv'.

31	Expand the following terms related to Computer Networks: a. URL b. SMTP c. TCP d. FTP	2
32	Mr. Verma wants to know the difference between Static and Dynamic webpages. Help him with any two points.	2
33	Consider the following dataframe **ndf** as shown below:	2

	Col1	Col2	Col3	Res
T1	62.89	100.0	60.00	True
T2	94.73	100.0	59.22	True
T3	49.09	100.0	46.04	False
T4	38.48	85.4	58.60	False

What will be the output produced by following statements :-
 a. print(ndf.loc [: , 'Col3' : 'Res'])
 b. print(ndf.iloc [1:3 , 2:3])

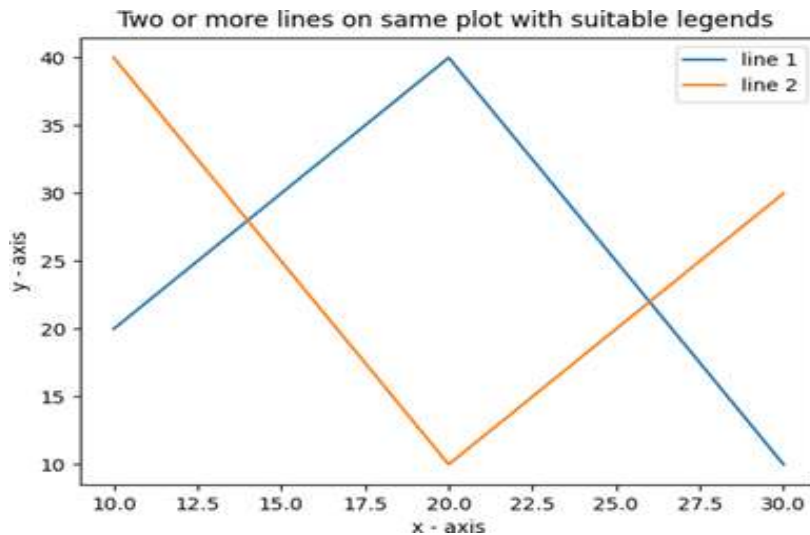|	Section II	
34	A dictionary Grade contains the following data. Grade ={'Name':['Karthick ', 'Abhey', 'Sharma', 'Priya '], 'Grade':['A','B','C','A]} Write statements for the following 1. Create a data frame called Sr. 2. Add a column Percentage with the following values 92,85,65,96 3. Write the statement to rename the column "Percentage" to "%" of the dataframe.	3
35	Differentiate between Licencing and copyrights of the software. **OR** What is Phishing and how to prevent it? Explain with suitable example.	3
36	Consider the following graph. Write the code to plot it. **OR** Create a bar graph of the following data with title and labels on X axis and Y axis.	3

Country	GDP_Per_Capita
USA	45000
Canada	42000
Germany	52000
UK	49000
France	47000

| 37 | A relation **Toys** is given below : | 3 |

T_no	Name	Company	Price	Qty
T001	Doll	Barbie	1200	10
T002	Car	Seedo_wheels	550	12
T003	MiniHouse	Barbie	1800	15
T004	Tiles	Seedo_wheels	450	20
T005	Ludo	Seedo_wheels	200	24

Write SQL commands to:

a. Display the average price of each type of company having quantity more than 15.

b. Count the type of toys manufactured by each company.

c. Display the name and total amount (price * qty) of all toys.

Section -III

| 38 | Write a program in Python Pandas to create the following DataFrame **Student** using the following data which is represented by three lists namely name, term1 and term2. | 5 |

	Name	Term1	Term2
0	Preeti	230	450
1	Asha	315	300
2	Renu	460	374
3	Vinay	354	410

Perform the following operations on the DataFrame :

1) Add marks of both the terms of a Students and assign to column "Total"

2) Display the rows whose Term1 marks is greater than 400.

3) Increase the term2 mark of Renu by 50.

| 39. | Consider the following table DRESS. | 5 |

DCode	DName	Price	MCode	launch_Date
10001	Formal Shirt	1250	M001	2008-12-12
10020	Frock	750	M004	2007-09-07
10007	Formal Pant	1450	M001	2008-03-09
10024	Denim Pant	1400	M003	2007-04-07
10090	T-Shirt	800	M002	2009-05-12

i. Create the above table with suitable datatypes.

Dcode should be the primary key and price should be more than 500 .

ii. Write SQL commands for the following statements.

a. To display details of all the dresses in the ascending order of their Price.

b. To print the average price of each mcode.

c. To display the Dress Name with their price increased by 15%.

d. To delete the rows having MCode as M002.

e. To display the details of all the dresses which have Launch_date in between 05-DEC-2007 and 20-JUN-2008 (inclusive of both the date).
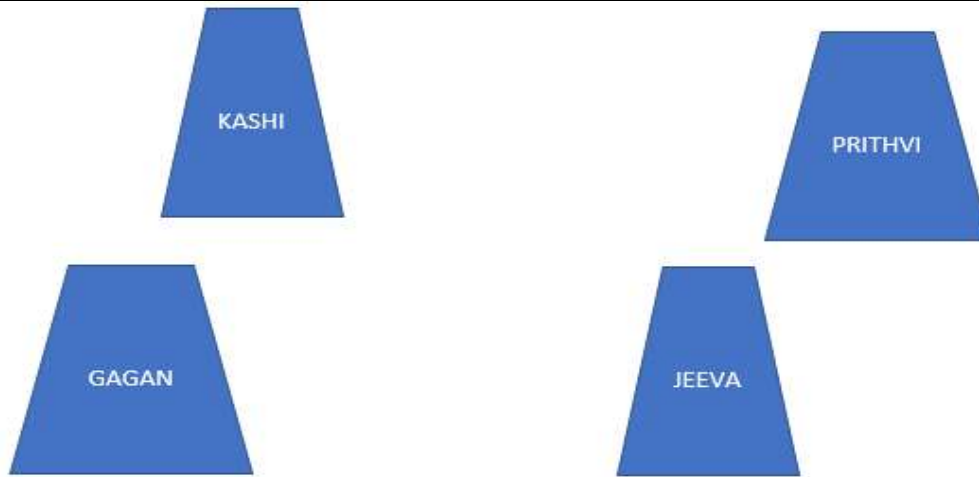
OR

Consider the following table DRESS.

DCode	DName	Price	MCode	launch_Date
10001	Formal Shirt	1250	M001	2008-12-12
10020	Frock	750	M004	2007-09-07
10007	Formal Pant	1450	M001	2008-03-09
10024	Denim Pant	1400	M003	2007-04-07
10090	T-Shirt	800	M002	2009-05-12

i. Create the above table with suitable datatypes.
   Dcode should be the primary key and price should be more than 500 .

ii. Write the SQL command which will perform the following operations based on the above table:
 i) To display the name of the month of launch date .
 ii) To display 4 letters from the second position of dname.

 iii) To display the position of the letter 'm'in dname.

 iv) To display the different mocde in the table.

 v) To combine the last 2 characters of dcode and the first 3 characters of dname.

| 40 | Jay Bharath systems Ltd has their campus in Kochi with 4 different buildings for their net based activities. Each building has its own network of computers with the specified number of computers. Answer the following questions from i) to v) based on the data given below: | 5 |

DISTANCE BETWEEN EACH BUILDING IS AS FOLLOWS

KASHI TO PRITHVI   - 125 m
KASHI TO GAGAN   - 25 m
KASHI TO JEEVA   - 75 m
GAGAN TO PRITHVI   - 135 m
GAGAN TO JEEVA   - 60 m
PRITHVI TO JEEVA   - 15 m

NO OF COMPUTERS IN EACH BUILDING

KASHI   -   100
GAGAN   -   35
PRITHVI   -   65
JEEVA   -   50

i)   Suggest the placement of server among the buildings. Justify .
ii)   Draw a suitable layout to connect these buildings within the campus.
iii) Which building(s) would you suggest placement of Switch and why?
iv)   Which device can help in having an internet connection for these buildings? why?
v)   There is a connection for these buildings with the headoffice located in Hyderabad
      which is more than 1000 kilometers away from Kochi. What type of network will
      be formed in that connection? Also suggest the suitable media used.

ALL THE BEST