

MODEL EXAMINATION 2020-'21
INFORMATICS PRACTICES - 065

Time :3 Hrs
Max.Marks : 70

CLASS: XII

General Instructions:

- i. All questions are compulsory.
- ii. Answer the questions after carefully reading the text.

1. Given the lists L=[1,3,6,82,5,7,11,92] , write the output of print(L[2:5]) 1
 2. Suppose a tuple T is declared as T = (10, 12, 43, 39), which of the following is incorrect? 1
 - a) print(T[1])
 - b) T[2] = -29
 - c) print(max(T))
 - d) print(len(T))
 3. Write a statement in Python to declare a dictionary whose keys are 1, 2, 3 and values are Monday, Tuesday and Wednesday respectively. 1
 4. Identify the correct statement(s) to drop a column from table: 1
 - a. DELETE COLUMN COLUMN_NAME
 - b. DROP COLUMN COLUMN_NAME
 - c. ALTER TABLE TABLE_NAME DROP COLUMN COLUMN_NAME
 - d. ALTER TABLE TABLE_NAME DROP COLUMN_NAME
 5. Name the protocol that is used to send emails. 1
 6. Your friend Ranjana complains that somebody has created a fake profile on Facebook and defaming her character with abusive comments and pictures. Identify the type of cybercrime for these situations. 1
 7. In SQL, what is the use of IS NULL operator? 1
 8. Name The transmission media best suitable for connecting to hilly areas. 1
 9. If the following code is executed, what will be the output of the following code? 1

```
name="ComputerSciencewithPython"
print(name[3:10])
```
 10. 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
 11. By default df.head() will display _____rows from the top. 1
-

12. Write output:
- a. Select Substring("mysql application",3,3); 1
 - b. Select instr("mysql application","p"); 1
 - c. Select round(7756.452,1); 1
 - d. Select round(59999.99,-2); 1
 - e. Select right("mysql application",3); 1
13. Differentiate between Web server and web browser. Write any two popular web browsers. 2
14. Expand the following terms: 2
- a. SMTP b. VOIP c. LAN d. TCP/IP
15. Write SQL queries based on the table given:

ord_no	purch_amt	ord_date	customer_id	salesman_id
70001	150.5	2012-10-05	3005	5002
70009	270.65	2012-09-10	3001	5005
70002	65.26	2012-10-05	3002	5001
70004	110.5	2012-08-17	3009	5003
70007	948.5	2012-09-10	3005	5002
70005	2400.6	2012-07-27	3007	5001
70008	5760	2012-09-10	3002	5001

- a. Write a SQL statement to find the total purchase amount for all orders. 1
 - b. Write a query that counts the number of salesmen with their order date and ID registering orders for each day. 1
 - c. Write a SQL statement that counts all orders for a date October 5th, 2012. 1
 - d. Write a SQL statement to find the highest purchase amount with their ID, for only those salesmen whose ID is within the range 5003 and 5008. 1
 - e. Write a SQL statement to get the minimum purchase amount of all the orders made in the month August. 1
16. What is plagiarism? How can you avoid plagiarism while referring to someone else's creation? 2
17. Consider the data frame "exam" and write code for the following questions:

	name	score	attempts	qualify
a	Anastasia	12.5	1	yes
b	Dima	9.0	3	no
c	Katherine	16.5	2	yes
d	James	NaN	3	no
e	Emily	9.0	2	no
f	Michael	20.0	3	yes
g	Matthew	14.5	1	yes
h	Laura	NaN	1	no
i	Kevin	8.0	2	no
j	Jonas	19.0	1	yes

- a. Write a Pandas program to convert index of a given dataframe into a column. 1
- b. Write a Pandas program to get the first 3 rows of a given DataFrame. 1
- c. Write a Pandas program to select the 'name' and 'score' columns from the following DataFrame. 1
- d. Write a Pandas program to select the rows where the number of attempts in the examination is greater than 2. 1
- e. Write a Pandas program to select the rows where the score is missing. 1
- f. Write a Pandas program to delete the 'attempts' column from the DataFrame. 1
18. DataFrame is already created here. Write the answer for any four questions from (i)-(v) mentioned below.

```
import pandas as pd
data = {'name': ['James', 'Anna', 'Janet', 'Yogi', 'Robin', 'Amal', 'Mohan'],
        'city': ['Mexico City', 'Toronto', 'Prague', 'Shanghai', 'Manchester',
        'Cairo', 'Osaka'], 'age': [41, 28, 33, 34, 38, 31, 37],
        'score': [88.0, 79.0, 81.0, 80.0, 68.0, 61.0, 84.0]}
row_labels = [101, 102, 103, 104, 105, 106, 107]
df = pd.DataFrame(data=data, index=row_labels)
print(df)
```

- a. Display the city of all the students. 1
- (i) print(df['city'])
- (ii) print(df.city)
- (iii) print(df.iloc[:,1])
- (iv) print(df.iloc[:,0])

Choose the correct answer

- a. Both (i) and (ii)
- b. (i),(i),and (ii)
- c. Only (iv)
- d. All of the above

b. Display the details of the students 104 to 107

1

- i. `print(df.loc[104:107])`
- ii. `print(df.iloc[3:])`
- iii. `print(df.iloc[104:107])`
- iv. `print(df.loc[3:])`

Choose the correct statement

- a. Only (iii)
- b. Both (i) and (iii)
- c. Both(iii) and (iv)
- d. Only (iv)

c. Display the city in which Robin lives.

1

- (i) `print(df.city[105])`
- (ii) `print(df.iloc['Robin'])`
- (iii) `print(df.iloc[4,1:2])`
- (iv) `print(df.city['Robin'])`

Choose the correct statement

- a. (i),(iii),(iv)
- b. Both (i) and (iii)
- c. Both(ii) and (iii)
- d. All of the above

19. Ms. Samtha has many electronic gadgets which are not usable due to outdated hardware and software.

Help her to find any two best ways to dispose the used electronic gadgets.

2

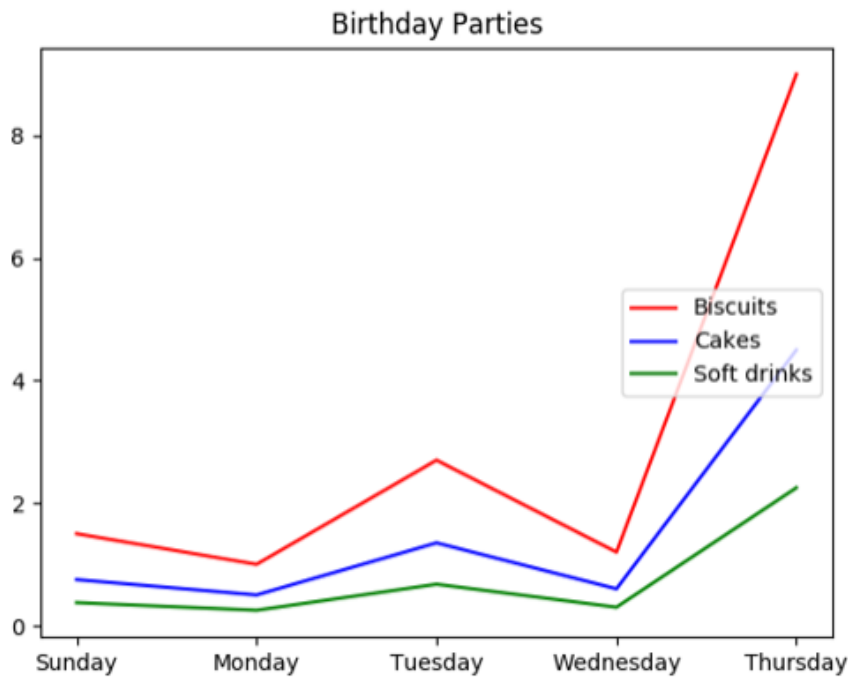
20. Hitesh wants to display the last four rows of the DataFrame df and has written the following code :

2

```
>>df.tail()
```

But last 5 rows are being displayed. Identify the error and rewrite the correct code so that last 4 rows get displayed.

21. Shewani has recently started working in MySQL. Help her in understanding the difference between the following: 3
- i. Where and having clause
 - ii. count(column_name) and count(*)
 - iii. single row functions and multiple row functions.
22. Write a code to plot the sale of different items in birthday parties as shown in the figure given below: 3



23. What do you understand by Net Etiquettes? Explain any two such etiquettes. 3
24. On the basis of following table answer the given questions: 3

Table: sports

no	class	name	game1	grade1	game2	grade2
10	7	Sameer	Cricket	B	swimming	A
11	8	Sujit	Tennis	A	Skating	C
12	7	Kamal	Swimming	B	Football	B
13	7	Veena	Tennis	C	Tennis	A
14	9	Archana	Basketball	A	NULL	A
15	10	Arpit	cricket	A	athletics	C

- a. Display the names of the students who have grade ‘A’ in either game1 or game2 or both.
- b. What will be the output of the following query?

```
SELECT MAX(grade2) FROM sports;
```
- c. Write the SQL query to delete the row from the table where there is no value for game2

25. Write a program to draw line charts for the following with suitable label in the X-axis, Y-axis 3
 and a title. Show the unemployment rate from 1930 to 2020

Year = [1930,1940,1950,1960,1970,1980,1990,2000,2010,2020]

Unemployment_Rate = [9.8, 12, 8, 7.2, 6.9, 7, 6.5, 6.2, 5.5, 9.3]

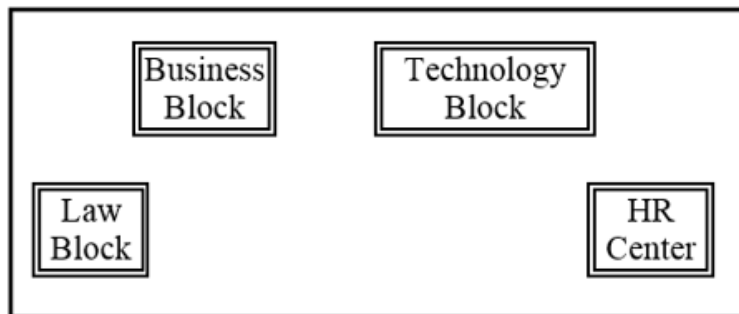
26. Create a data frame with dictionary with keys as “DATA1” and “DATA2”. 5

Their values are [12,-55,67,78,nan,-44] and [56,-78,89,-90,nan,87] respectively.

Replace all negative values with zero and all nan with 999. Display the resultant DataFrame.

Remove the first row and display the new DataFrame.

27. MyPace University is setting up its academic blocks at Naya Raipur and is planning to set up a 5
 network. The University has 3 academic blocks and one Human Resource Center as shown in the diagram below:



Center to Center distances between various blocks/center is as follows:

Law Block to business Block	40m
Law block to Technology Block	80m
Law Block to HR center	105m
Business Block to technology Block	30m
Business Block to HR Center	35m
Technology block to HR center	15m

Number of computers in each of the blocks/Center is as follows:

Law Block	15
Technology Block	40
HR center	115
Business Block	25

- Suggest the most suitable place (i.e., Block/Center) to install the server of this University with a suitable reason.
- Suggest an ideal layout for connecting these blocks/centers for a wired connectivity.
- Which device will you suggest to be placed/installed in each of these blocks/centers to efficiently connect all the computers within these blocks/centers.
- Suggest the placement of a Repeater in the network with justification.
- The university is planning to connect its admission office in Delhi, which is more than 1250km from university. Which type of network out of LAN, MAN, or WAN will be formed? Justify your answer.

28. Write SQL commands for the following queries (i) to (v) based on the relation Teacher given below:

5

Table : Teacher						
T_ID	Name	Age	Department	Date_of_join	Salary	Gender
1	Jugal	34	Computer Sc	10/01/2017	12000	M
2	Sharmila	31	History	24/03/2008	20000	F
3	Sandeep	32	Mathematics	12/12/2016	30000	M
4	Sangeeta	35	History	01/07/2015	40000	F
5	Rakesh	42	Mathematics	05/09/2007	25000	M
6	Shyam	50	History	27/06/2008	30000	M
7	Shiv Om	44	Computer Sc	25/02/2017	21000	M
8	Shalakra	33	Mathematics	31/07/2018	20000	F

- Display the name of the weekday for the date of join of teachers.
- Display the position of occurrence of the string "al" in teacher names.
- To list the names of all teachers with their date of joining in ascending order.
- Display the five characters from Teacher name starting from third character.
- To display name, bonus for each teacher where bonus is 10% of salary.