Class 12   Time: 3 hrs.
23-9-2023   MID TERM EXAMINATION - **INFORMATICS PRACTICE**   Max. Marks : 70

This question paper contains five sections, Section A to E.
1. All questions are compulsory.
2. Section A has 18 questions carrying 01 mark each.
3. Section B has 07 Very Short Answer type questions carrying 02 marks each.
4. Section C has 05 Short Answer type questions carrying 03 marks each.
5. Section D has 03 Long Answer type questions carrying 05 marks each.
6. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q34 against part iii only and one in Q35 against part B only.

1. Which of the following is a type of cybercrime?
   i.   Stealing of money from a purse
   ii.   Hitting or beating someone
   iii.   Making damage to furniture in classroom
   iv.   Stealing of user name and password and misusing others Email

2. What is not an example of e-waste?
   i.   Unused Mobile   ii.   Unused old Keyboard
   iii.   Unused old computers   iv.   Empty cola cans

3. Find the output of the following SQL command:
   select mid('Informatics Practices', 9);

4. If a column "Mark" in student table contains the following data

Mark
22
NULL
21
23

   Predict the output of the following command:
   SELECT AVG (MARK) FROM student;
   i. 22   ii. 16.5
   iii. NULL   iv. 66

5. 'F' in FOSS stands for:
   i. Force   ii. Free
   iii. Fibre   iv. First

6. Which SQL statement is used to display all the data from product table in the decreasing order of price?
   i.   SELECT * FROM PRODUCT;
   ii.   SELECT * FROM PRODUCT ORDER BY PRICE;
   iii.   SELECT * FROM PRODUCT ORDER BY PRICE DESC;
   iv.   SELECT * FROM PRODUCT ORDER BY DESC;

7. The number of rows in a relation in SQL is known as
   i. cardinality   ii. degree
   iii. tuple   iv. attribute

8. Which among the following is a DDL command in SQL?
   i. SELECT   ii. INSERT
   iii. ALTER   iv. UPDATE

9. To display last three rows of a series object 'S', you may write:
    i. S.head()   ii. S.tail(3)
    iii. S.head(3)   iv. S.tail()

10. Which of the following can be used to specify the data while creating a DataFrame?
    i. Series   ii. List of Dictionaries
    iii. Structured ndarray   iv. All of these

11. Write the output of the following SQL command:
    SELECT ROUND(199.2936, 1);

12. Removal of parts containing the valuable items in E waste management is?
    i. Refurbishment and reuse   ii. Dismantling
    iii. Recycling   iv. None of these

13. ------------------is the trail of data we leave behind when we visit any website (or use any online application or portal) to fill-in data or perform any transaction.
    i. Offline phishing   ii. Offline footprint
    iii. Digital footprint   iv. Digital phishing

14. The _____ attribute of a dataframe object returns the row labels of a dataframe.
    i.   index
    ii.   columns
    iii. rows
    iv. column

15. The trim( ) function in MySQL is an example of _____
    i.   Math function
    ii.   Text function
    iii. Date function
    iv. Aggregate function

16. A _____ is a type of intellectual property consisting of a symbol, word, or words legally registered or   established by use as representing a company or product.

17. Assertion (A):- DataFrame has both a row and column index.
    Reasoning (R): - A DataFrame is a two-dimensional Labelled data structure like a table of MySQL

18. ASSERTION(A): The shape attribute returns the number of rows and number of columns available in data frame.
    REASONING(R): The shape attribute return the values in form of list.

Section B

19. Write an overview of Indian IT Act
        or
    What can be done to reduce the risk of identity theft? Write any two ways.

20. With SQL, how can you return the number of not null values in the Project field of Students table
    i. SELECT COUNT(Project) FROM STUDENTS;
    ii. SELECT COLUMNS(Project) FROM STUDENTS;
    iii. SELECT COLUMNS(*) FROM STUDENTS;
    iv. SELECT COUNT(*) FROM STUDENTS:
    Write a short explanation of your answer query.

21. What is the difference between the group by and order by clause when used along with the select statement? Explain with an example.

22. Write a program in Python Pandas to create a series which stores marks of 5 subjects of a student in class 10B of your school.

    Assume that student is studying class X and have 75,78,82,82,86 marks

23. Give any 2 solutions to manage the E-Waste in the country.
                            OR
    List any two health hazards related to excessive use of technology

24. What will be the output of the following code:
        >>>import pandas as pd
        >>>rollno=[1,2,3,4,5,6]
        >>>marks=[23,86,74,11,98,75]
        >>>s=pd.Series(marks,index =rollno)
        >>>print(s[s>75])

25. Carefully observe the following code:
        import pandas as pd
        data = {'a': 10, 'b': 20},{'a': 6, 'b': 32, 'c': 22}
        df1=pd.DataFrame(data)
        print(df1)
        Answer the following:
    i. List the index of the DataFrame df1
    ii. List the column names of DataFrame df1.

Section C

26. Consider two objects s and t. s is a list whereas t is a Series. Both have values 20, 40, 90, 110. What will be the output of the following two statements considering that the above objects have been created already
            a. print (s*2)   b. print(t*2)
    Justify your answer.

27. Consider the Table "Infant" shown below.

Table: Infant

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 %.
    Write SQLcommands to:
    i   To displays the number of items that have more than 10% as discount.
    ii To display the highest unit price of items.
    iii To display the names of items that has 'Baby' anywhere in their item names.

28. Write a Python code to create a DataFrame with appropriate column headings from the list given below:
    [[21101, 'MANJUSH', 58], [21102, 'AKSHAY', 60], [21103, 'ANN', 76], [21104, 'NITHYA', 48]]

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

OR

Describe measures to recycle your e-waste

30. Predict the output of the following queries:
    i.   SELECT INSTR ('Very good', 'good');
    ii.   SELECT MID('Quadratically',5,6);
    iii. SELECT RIGHT ('Command', 3);

OR

Explain the following SQL functions using suitable examples.
   i. INSTR()
   ii. MID()
   iii. RIGHT()

Section D

31. Write the SQL functions which will perform the following operations:
    i) To display the current date.
    ii) To display the substring "earn" from the whole string 'LearningIsFun'.
    iii) To round the number 76.384 up to 2 place after decimal point.
    iv) To find the position of first occurrence of 'R' in string 'INFORMATION FORM'
    v) To find out the result of 9^3.

OR

Consider a table Order with the following data:

Table: Order

OrderId	OrderDate	SalesPerson	OrderAmount
O101	2015-09-12	Ravi Kumar	34000
O102	2015-08-15	Rashmi Arora	50000
O103	2015-11-01	Ravi Kumar	55000
O104	2015-12-09	Manjeet Singh	60000
O105	2015-11-10	Rashmi Arora	50000

Write SQL queries using SQL functions to perform the following operations:
i) To count the number of orders booked by Salespersons with names starting with 'R'.
ii) Display the position of occurrence of the string "an" in SalesPerson names.
iii) Display the four characters from SalesPerson name starting from second
iv) To find the average of order amount.
v) Display the month name for the Order date.

32. Write suitable SQL query for the following:
    i.   Display 7 characters extracted from 7th left character onwards from the string 'INDIA SHINING'.
    ii. Display the position of occurrence of string 'COME' in the string 'WELCOME WORLD'
    iii. Round off the value 23.78 to one decimal place.
    iv. Display the remainder of 100 divided by 9.
    v.   Remove all the expected leading and trailing spaces from a column userid of the table 'USERS'.

OR

Explain the following SQL functions using suitable examples.
   i. UCASE()   ii. TRIM()
   iii. MID()   iv. DAYNAME()
   v. POWER()

33. In a Database High sports there are two tables students and sports with the instances given below:

Table: STUDENTS

ADMNO	NAME	CLASS	SEC	RNO	ADDRESS	PHONE
1211	MEENA	12A	D	4	A-26	3245678
1212	VANI	10A	D	1	B-25	5456789
1213	MEENA	12B	A	1	NULL	NULL
1214	KARISH	10B	B	3	AB-234	4567890

Table: SPORTS

ADMNO	GAME	COACHNAME	GRADE
1215	CRICKET	MR. RAVI	A
1213	VOLLEYBALL	MR. AMANDEEP	B
1211	VOLLEYBALL	MR. GOVERDHAN	A
1212	BASKETBALL	MR. TEWARI	B

   i. Write command to display name and game of those student whose address is available in students table.

   ii. Write command to delete a column phone from the table student.

   iii. Write command to display name of those students who are studying in class XII and their corresponding coach names.

   iv. Write command to display name and grade of those student whose address in not available.

   v. Write query to count the number of students who play VOLLEYBALL.

Section E

34. Shreya, a database administrator has designed a database for a clothing shop.

   Help her by writing answers of the following questions based on the given

Table: CLOTH

CCODE	CNAME	SIZE	COLOR	PRICE	DOP
C001	JEANS	XL	BLUE	990	2022-01-21
C002	T SHIRT	M	RED	599	2021-12-12
C003	TROUSER	M	GREY	399	2021-11-10
C004	SAREE	FREE	GREEN	1299	2019-11-12
C005	KURTI	L	WHITE	399	2021-12-07

.

   i. Write a query to display cloth names in lower case.

   ii. Write a query to display the lowest price of the cloths.

   iii. Write a query to count total number of cloths purchased of medium size.

<div align="center">OR (Option for part iii only)</div>

   Write a query to count year wise total number of cloths purchased.

35. Mr. Som, a data analyst has designed the DataFrame df that contains data about Computer Olympiad with 'CO1', 'CO2', 'CO3', 'CO4', 'CO5' as indexes shown below. Answer the following questions:

	School	Tot_students	Topper	First_Runnerup
CO1	PPS	40	32	8
CO2	JPS	30	18	12
CO3	GPS	20	18	2
CO4	MPS	18	10	8
CO5	BPS	28	20	8

a) Predict the output of the following python statement:

        i. df.shape   ii. df.size

b) Write Python statement to display row and columns names, also right command to print the transpose of the dataframe.

<div align="center">OR (Option for part B only)</div>

    Write Output of following statements:

        i. df.empty   ii. df.index

<div align="center">-x-x-x-x-x-x-x-x-</div>