CLASS XII
SAMPLE PAPER
INFORMATICS PRACTICES

Total Time: 2 Hr   **Total Marks:-70**

General Instructions:

1. This question paper contains two parts A and B. Each part is compulsory.

2. Part-A has 2 sections:

     a. Section – I is multiple choice question. Total 15 Questions.

     b. Section -II is short answer type questions, to be answered in one word or one line. Total 8 questions.

     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. Total 10 questions.

     b. Section-II is long answer questions of 3 marks each in which two questions have internal options. Total 4 questions

     c. Section-III is very long answer questions of 5 marks each in which one question has question has internal option. Total 3 questions.

Part-A
Section-I
(Questions from 1 to 15) Each carries one mark.

(1)   The generally recognized term for the government protection afforded to intellectual property(Written and electronic) is called_____

     (a) Computer Security law

     (b) Aggregate information

     (c) Copyright law

     (d) Data security standards

(2)   What is meant by the term 'cyber crime'?

     (a) Any crime that uses computers to jeopardise or attempt to jeopardise national security

     (b) The use of computer networks to commit financial or identity fraud

(c) The theft of digital information

(d) Any crime that involves computer and network

(3) Gaining unauthorized access to a network or computer or digital files with malicious intentions, is called _____

(a) Cracking

(b) Hacking

(c) Banging

(d) Phishing

(4) Which of these is not a part of URL?

(a) IP address

(b) Port Number

(c) Domain Name

(d) None of these

(5) Which of the following is not a valid function that can be used with dataframes ?

(a) count()

(b) sum()

(c) length()

(d) mid()

(6) A_____ is a summarization tool for discrete or continuous data?

(a) quartile

(b) histogram

(c) mean

(d) median

(7) Which of the following plotting functions does not plot multiple data series?

(a) plot()

(b) bar()

(c) pie()

(d) barh()

(8) To change the 5th column's value at 3rd row as 35 in dataframe DF, you can write _____

(a) DF[4,6]=35

(b) DF[3,5]=35

(c) DF.iat[4,6]=35

(d) DF.iat[3,5]=35

(9) If a Dataframe is created using a 2D dictionary, then the indexes/row labels are formed from _____

   (a) dictionary's values

   (b) inner dictionary keys

   (c) outer dictionary's keys

   (d) none of these

(10) With SQL, how can you return the number of not null records in the Project field of "Students" table?

   (a) SELECT COUNT(PROJECT) FROM STUDENTS;

   (b) SELECT COUNT(DISTINCT PROJECTS) FROM STUDENTS;

   (c) SELECT COUNT(*) FROM STUDENTS;

   (d) SELECT COUNT(NULL) FROM STUDENTS;

(11) Aggregate functions can be used in the select list or the _____ clause of a select statement. They cannot be used in a _____ clause.

   (a) Where, having

   (b) Having, where

   (c) Group by, Having

   (d) Group by, where

(12) Which of the following function is used to display today's system date?

   (a) Curdate()

   (b) Sysdate()

   (c) Now()

   (d) Date()

(13) Which of the following is correct Statement to rename the column sex to gender in a table employee?

   (a) ALTER TABLE EMPLOYEE RENAME SEX TO GENDER VARCHAR(20);

   (b) ALTER TABLE EMPLOYEE MODIFY SEX , GENDER VARCHAR(20);

   (c) ALTER TABLE EMPLOYEE CHANGE SEX GENDER VARCHAR(20);

   (d) ALTER TABLE EMPLOYEE SEX TO GENDER VARCHAR(20);

(1)   Which of the following statement is correct to remove the records of employee's from EMP table whose department is not known?

ROLL	NAME	Gender	DOB	LIBID	STIPEND(ANNUAL)	City
1	Hiral Soni	F	2001-06-09	102	3000	Rajkot
2	Mahir Patel	M	2012-05-02	105	4000	Mehsana
3	Kabir Singh	M	2010-07-08	103	Null	Ahmedabad
4	Krisha Patel	F	2007-03-10	109	1200	Mehsana
5	Raman Singh	M	Null	110	Null	Rajkot
6	Ridham Patel	M	2015-08-01	101	8000	Surat
7	Shivam Soni	M	2004-04-16	111	5000	Ahmedabad

(a) DELETE * FROM EMP WHERE DEPARTMENT=NULL;

(b) DELETE ALL FROM EMP WHERE DEPARTMENT=NULL;

(c) DELETE FROM EMP WHERE DEPARTMENT=NULL;

(d) DELETE FROM EMP WHERE DEPARTMENT IS NULL;

(2)   Which of the following operator in MySQL is used to display records of specific pattern?

(a) Between

(b) In

(c) Like

(d) All

Part-A
Section-II(Questions from 16 to 23)

Very short answer type question, each carries one mark

(3)   How Free Software is different from Open Source Software?   1

(4)   Write query in MySQL to display output like given below: 1

Name
Hiral Soni
Mahir Patel
Krisha Patel
Raman Singh

Consider the table STUDENT given below:

(5)   Which of the following query will display the average Stipend received by students from   1
each city?

   (a) SELECT CITY,AVG(STIPEND) FROM STUDENT ORDER BY CITY;

   (b) SELECT CITY,AVERAGE(STIPEND) ORDER BY CITY FROM STUDENT;

   (c) SELECT CITY,AVG(STIPEND) FROM STUDENT GROUP BY CITY;

   (d) SELECT CITY,AVG(STIPEND) FROM STUDENT GROUP BY CITY;

(6)   Write query to display detail of eldest student?   1

(7)   Write query to display different number of cities?   1

   Or

What will be an output of following query?

   SELECT AVG(STIPEND) FROM STUDENT;

(21)   Which argument must be provided to create wedges out of a pie chart?   1

(22)   What is following statement doing?   1

   Df1.drop(df1.columns[0],axis=1)

(23)   What will be the output of the following program?   1

   import pandas as pd

   roll=[5,6,7]

   s1=pd.Series(roll)

   obj1=pd.Series(data=s1*2)

   print(obj1)

Section B
Section-I(Questions from 24 to 33)
Short answer type and each question of 2 marks each

   (24)   Compare and contrast Proprietary software and Open Source software?   2

   (25)   Define Cyber Bullying and Cyber Stalking?   2

   (26)   Expand the following: 2

   (i)   OSI

   (ii)   FSF

   (iii)   GPL

   (iv)   GNU

   (27)   Define any four types of topologies? Draw a rough diagram also.   2

(28)   What is the difference between: 2

        (i)   A website and webpage,

        (ii)   Static and dynamic web page

(29)   How group by is different from order by clause in MySQL?   2

Or

What is the difference between where clause and having clause in MySQL?

(30)   Consider the following SQL string: "Preoccupied":   2

Write commands to display:

a. "occupied"

b. "cup"

OR

Considering the same string "Preoccupied"

Write SQL commands to display:

a. the position of the substring 'cup' in the string "Preoccupied"

b. the first 4 letters of the string

(31)   Write a program in Python Pandas to create the series as given below: 2

        A   500

        B   800

        C   900

        D   100

(32)   How would you delete rows and columns from a dataframe?   2

(33)   Write the sample code to export data of a dataframe df2 to a CSV file teachers.csv   2

Stored in d drive inside the folder school.

Or

What is an use of plot() and barh() in Python?

Part B
Section-II(Questions from 34 to 37)
Long answer type and each question of 3 marks each

(34)   Consider the series S and S2 given below. Write output for (i) to (iii)?   3

Stationary=['pencils', 'notebooks', 'scales', 'erasers']

S=pd.Series([20,33,52,10], index=Stationary)

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S2=pd.Series([17,13,31,32], index=Stationary)

(i) print(S+S2)

(ii) print(S.index)

print(S.values)

(iii) print(S[0:2])

(35) Given two DataFrames D1 and D2 as shown below: 3

print(D1)			print(D2)		
	name	value		name	value
0	p	1.0	0	p	1.0
1	q	2.0	1	q	NaN
2	r	NaN	2	r	3.0
			3	s	4.0

What will be the output for the following:

(i) print(D1+D2)

(ii) pd.concat([D1,D2])

(iii) Write equivalent function for the operation D2-D1 on the two DataFrame D1 andD2.

(36) Mr. Rath, a database administrator in "**Aakash Sports Institute**" Has created the following table named "GYM" for the upcoming training schedule: 3

Table: GYM

ICODE	INAME	PRICE	BRANDNAME
G101	Power Fit Exerciser	20000	Power Gymea
G102	Aquafit Hand Grip	18000	Reliable
G103	Cycle Bike	NULL	Ecobike
G104	NULL	30000	Coscore
G105	Message Belt	5000	Message Expert
G106	Cross-trainer	13000	GTC Fitness

Help him in writing SQL query/command for the following purpose:

(i) To add a column duration with suitable data type.

(ii) To display list of free Gym.

(iii) To change the BRANDNAME to "FIT TREND INDIA" of the item whose icode as "G104".

(37) Consider the table GYM given above: 3

 (i) (a) SELECT COUNT(*) FROM GYM;

   (b) SELECT COUNT(INAME) FROM GYM;

Ms. Jinal when executed the above two queries output returned like 6 and 5. She is confused that what is the total number of actual rows in the table. Suggest her the reason of it.

(ii) Ms. Anjali wants to remove the records from the above table GYM whose INAME is not known. For this she executed the following query.

DELETE FROM GYM WHERE INAME= "NULL";

But she gets error in query. Help her by correcting and re-writing the query.

(iv) Write the command to increase the price of all items of GYM table by 2%.

Part B
Section-III(Questions from 38 to 40)
Very long answer type and each question of 5 marks each

(38) Write the program in Python to create a dataframe Student by accepting values like 5

   roll, name and marks in 5 subjects (accounts, bs, eco, eng, ip)

(a) Add a column total with total of marks in different subject.

(b) Display the first 3 records of the dataframe student

(39) Consider the table SPORTS given below. Write commands in MySQL for (i) to (v) 5

SPORTS

SrNo	PName	Class	Game	Grade	Fees
1	Rahul	12	Cricket	A	53000
2	Sugandha	10	Football	B	88000
3	Saumil	11	Cricket	NULL	NULL
4	Pradip	10	Football	B	23000
5	Amit	11	Carrom	A	75000
6	Vivek	12	Tennis	C	11000

 i. To display the PName of Players whose game is Cricket or Tennis.

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ii. To display PName and Game together for all players.

iii. To display the PNAME, Game and sum of FEES of all players as per their Game.

iv. To sort the detail of Sports table as per fees.

v. Write output for the following query:

    (a)   Select count(*) from Sports where Grade is not NULL;

    (b)   Select mod(250,3)+100;

(40)   Ravya Industries has set up its new center at Kaka Nagar for its office and web based   5
activities. The company compound has 4 buildings as shown in the diagram below:
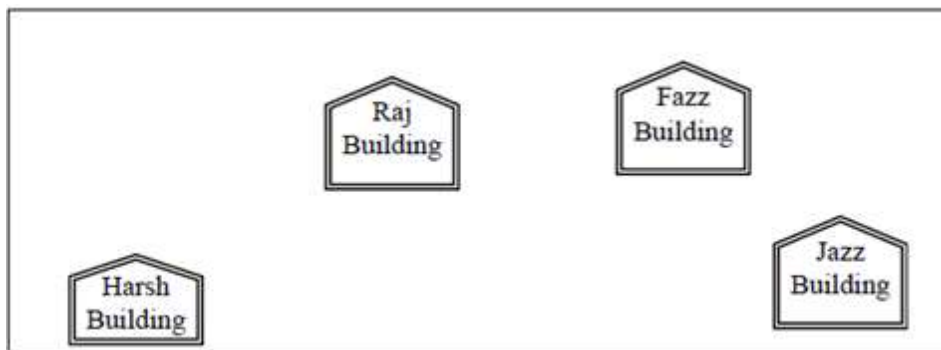
Center to center distances between various buildings is as follows:

Harsh Building to Raj Building	50 m
Raz Building to Fazz Building	60 m
Fazz Building to Jazz Building	25 m
Jazz Building to Harsh Building	170 m
Harsh Building to Fazz Building	125 m
Raj Building to Jazz Building	90 m

Number of Computers in each of the buildings is follows:

Harsh Building	15
Raj Building	150
Fazz Building	15
Jazz Bulding	25

(i) Suggest a cable layout of connections between the buildings.

(ii) Suggest the most suitable place (i.e. building) to house the server of this organisation with a suitable reason.

(iii) Suggest the placement of the following devices with justification:

    (a) Internet Connecting Device/Modem

    (b) Switch

(iv) The organisation is planning to link its sale counter situated in various parts of the same city,

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which type of network out of LAN, MAN or WAN will be formed? Justify your answer.

(v) Mention an economic technology to provide internet accessibility to all buildings.

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