CLASS XII   SAMPLE PAPER - 3
INFORMATICS PRACTICES (065)

Max marks-70   Duration-3 Hrs

General Instructions:
1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 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 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each. One internal choice is given in Q35 against part c only.
8. All programming questions are to be answered using Python Language only

	PART -A	
1	If different branches of a hospital in different state capitals are connected together, which type of network it forms? (a) LAN (b) MAN (c) WAN (d) None of the above	1
2	Stealing someone's intellectual work and representing it as another person's work is known as _____. a. Phishing b. Spamming c. plagiarism d. hacking	1
3	A free software provides (a) Freedom to run the program for any purpose (b) Freedom to study and adapt its needs (c) Freedom to redistribute and improve the program (d) All the above options are correct	1
4	There is a TABLE called EMPLOYEE as shown below. EMPLOYEE | EMPNAME	SALARY
---	---
ARUNAN	5000
SAMUEL	NULL
MADHAV	6000 | What may the possible output after the following query is executed? SELECT AVG(SALRY) FROM EMPLOYEE; (a) 5500 (b) 3666.667 (c) 5000	1

	(d) NULL	
5	Select the proper output for the following query from the options: **select right(substr('Innovative ideas',2,7),3);** (a) vati (b) ati (c) itav (d) ita	1
6	URL stands for (a) Universal Resource Locator (b) Uniform Resource Locator (c) Universal Range Limit (d) None of the above	1
7	Consider the STOCK table. 	INAME	PRICE	QTY
CRAYONS	20.00	50
GRAPH BOOK	25.00	40
PENCIL SET	90.00	20	 Find the output of the following SQL query **SELECT** PRICE*QTY **FROM** STOCK **WHERE** QTY < 40; (a) 1000.00 (b) 1200.00 (c) 1800.00 (d) None of the above	1
8	Which among the following is a scalar function? i. ROUND() ii. SUM() iii. COUNT() iv. AVG()	1
9	Consider the following table **Cosmetics**. | C_ID	NAME	PRICE	QTY
---	---	---	---
C11	Sun Cream	670	10
C12	Hair Shampoo	125	15
C23	Face Cream	180	25
C56	Sun Cream	590	10
C87	Gel Wax	1000	15
C45	Face Cream	482	20 | What will be the output after the execution of the given query? SELECT COUNT (DISTINCT NAME) FROM **Cosmetics** ; (a) 5 (b) 6 (c) 4 (d) 2	1

10	Consider the below given series, named Batsman, which command will be used to print 6 as output?
	
	        a WD Parnell
	        b David Warner
	        c RG Sharma
	        d KL Rahul
	        e Baber Azam
	        f Ross Taylor
	       dtype: object
		1

	a. Batsman .index b. Batsman .length c. Batsman .values d. ==Batsman .size==	

11	Identify the function used for reading data from a csv file.
	     a) read.csv()
	     b) ==read_csv()==
	     c) read_data()
	     d) csv_read()
		1

12	When a DataFrame is created from List of Dictionaries, then dictionary keys will become _____
	     (i) ==Column labels==
	     (ii) Row labels
	     (iii) Both of the above
	     (iv) None of the above
		1

13	An online activity that enables us to publish website or web application on the internet (a) Web server (b) Web Browser (c)==Web Hosting== (d) None	1

14	Identify the SQL function which returns output as a group of characters.
	     (a) NOW()
	     (b) ==MONTHNAME()==
	     (c) MONTH()
	     (d) WEEKNAME()
		1

15	Violating the intellectual property rights of a copyright holder is known as
	     a) Encryption
	     b) Digital footprint
	     c) Offline phishing
	     d) ==Copyright infringement==
		1

16	Which of the following activity is an example for Active digital footprint? a) Surfing internet b) Apps and websites that use geolocation to pinpoint your location	1

	c) <mark>Agreeing to install cookies on your devices when prompted by the browser</mark> d) None of the above	

	Q17 and 18 are 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) :** Incognito browsing opens up a version of the browser that will track your activity **Reasoning(R) :** Incognito browsing is useful when entering sensitive data <mark>Ans)</mark> iv	1
18	**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. <mark>Answer i</mark>	1
	PART-B	
19	Explain the terms Static and dynamic Web pages. <table><tr><td><mark>**Static webpage**</mark></td><td><mark>**Dynamic webpage**</mark></td></tr><tr><td><mark>Static webpage content is constant in all time</mark></td><td><mark>The page content changes according to the user.</mark></td></tr><tr><td><mark>Loading time is less</mark></td><td><mark>Loading time is more</mark></td></tr><tr><td><mark>No database is used</mark></td><td><mark>A database is used in the server side</mark></td></tr><tr><td><mark>Content changes rarely</mark></td><td><mark>Content changes frequently</mark></td></tr></table> Give 1 mark each OR What are cookies? <mark>cookies are small files which are stored on a user's computer and contains information like which Web pages visited in the past, logging details Password etc. They are designed to hold a small amount of data specific to a particular client and website and can be accessed by the web server or the client computer</mark> For proper definition give 2mark	2
20	Shyam created following table Hotel in a database: **Table : Hotel** 	EMPID	Category	Salary	 |---|---|---| 	E101	MANAGER	60000	 	E102	EXECUTIVE	65000	 	E103	CLERK	40000	 	E104	MANAGER	62000	 	E105	EXECUTIVE	50000	 	E106	CLERK	35000	 	E107	MANAGER	61000	 	E108	CLERK	36000	 He now wants to count number of staffs under each category where the number of staffs is more than 2. He has executed the following query: **Select category, sum(salary) from hotel where count(*)>2 group by category;**	2

	But he got an error. Identify the error(s) and rewrite the query. Also underline the correction(s) done. Select category , count(*) from hotel <u>group by category having count(*)>2;</u> For correct query , give 2 mark	
21	Write the difference in usage of where and having keywords. WHERE is used to put a condition on individual row of a table whereas HAVING is used to put condition on individual group formed by GROUP BY clause in a SELECT statement. Give 1 mark each	2
22	Write a program to create a series object using dictionary, having 3 movie names as data with index labels 2000,2010 and 2020. import pandas as pd s = pd.Series(['1983','salute','kurup'],index=[2000 , 2010 ,2020]) print(s) For correct answer , give 2 mark	2
23	What is E -Waste? List any two E-Waste management techniques? Various forms of electric and electronic equipment which no longer satisfy their original purpose are termed as Ewaste. This includes Desktop, Laptop, Projectors, Mobiles,etc **MANAGEMENT:** Sell back, gift/donate, reuse the parts giveaway to a certified e-waste recycler For correct definition- 1 mark , give ½ mark each for each E-Waste management technique OR List any one Positive impact and negative impact of usage of technology. There are positive as well as negative impact on health due to the use of these technologies. ● **POSITIVE IMPACT** ▪ Various health apps and gadgets are available to monitor and alert ▪ Online medical records can be maintained ● **NEGATIVE IMPACT** ▪ One may come across various health issues like eye strain, muscle problems, sleep issues,etc ▪ Anti social behaviour, isolation, emotional issues, etc. Give 1 mark each	2
24	What will be the output of the following code: import pandas as pd list1=[2,4,6,8] list2=['gh','mn','pq','st'] school=pd.Series(list1,index=list2) print (school*2) print (school[1:3]) gh 4 mn 8 pq 12 st 16	2

	dtype: int64 mn 4 pq 6 dtype: int64 Give 1 mark each	
25	Carefully observe the following code: import pandas as pd D1={'S1': 'India', 'S2': 'Russia', 'S3': 'World'} D2={'School': 'EOIS', 'Place': 'Moscow'} data={1:D1,2:D2} df=pd.DataFrame(data) print(df) Answer the following i. List the index of the DataFrame df → S1,S2,S3,School, Place ii. List the column names of DataFrame df. →1,2 Give 1 mark each	2
	SECTION -C	
26	Write outputs for SQL queries (i) to (iii) which are based on the given **PASSENGER** table	3

pid	Pname	Age	Place	DateofJourney	Amount	Sex
201	Amith	22	Delhi	2022-10-07	2000	M
202	Jeena	38	Mumbai	2022-15-09	1500	F
203	Abilash	54	Chennai	2022-05-22	750	M
204	Asok	43	Chennai	2022-05-05	750	M
205	Nithya	28	Delhi	2022-08-14	2000	F
206	Devan	58	Mumbai	2022-07-21	1500	M

1.SELECT INSTR(PLACE, 'E') FROM PASSENGER WHERE DATEOFJOURNEY
        ='2022-07-21';   →2

2. SELECT LENGTH(PNAME) FROM PASSENGER WHERE
        MONTH(DateofJourney)=8;   → 6
**3. SELECT LEFT(PNAME,2) FROM PASSENGER WHERE SEX= 'F' AND
    AMOUNT<=1500;   → JE**

Give 1 mark each

| 27 | Write a Python code to create a DataFrame Toppers with appropriate column headings from the list given below:
        [[501,'Aromal','Commerce'],[502,'Greeshma','Science'],[503," Preeti",'Humanities'],
[504,' Rupin ','Arts']]

import pandas as pd
Data= [[501,'Aromal','Commerce'],[502,'Greeshma','Science'],[503,"Preeti",'Humanities'],
[504,' Rupin ','Arts']]
Toppers=pd.DataFrame(data,columns=['Rno','Name', 'Stream']) | 3 |

	1 mark for each correct python statement Reduce ½ if dataframe name Toppers is not used	
28	Consider the given DataFrame 'Market': 		Name	S_Price
0	Apple	220
1	Banana	45

2	Orange	160	
			
			Write suitable Python statements for the following:
			
			i. Add a new item named 'Guava' having price 175.
			     Market.loc['3']=['Guava',175]
			ii. Add a column called Margin with the following data: [80,13,50,30].
			     Market['Margin']= [80,13,50,30].
			
			iii. Remove the column Margin.
			     Market=Market.drop('Margin',axis=1)
			
			Give 1 mark each
				3

29	Mr. Manoj who is a business man by profession faced following situations. Identify the type of crime for each situation/incident happened to him? (i) He was constantly receiving abusive emails (ii) He clicked on an unknown link received as a result his personal sensitive information was acquired by someone (iii) His laptop was controlled by somebody in an unauthorised way (i) Cyber Bullying (ii) Phishing (iii) Hacking Give 1 mark each OR What do you understand by Cyber crime? List any two cyber crimes? How cyber crimes are handled in our country? Any criminal or illegal activity through an electric channel or through any computer network is considered as cyber crime. Eg: Cyber harassment and stalking, distribution of child pornography,types of spoofing, credit card fraud etc Cyber crimes are handled with Indian IT act. Give 1 mark each	3
30	A relation 'VAHAN' is given below : 	VNO	TYPE	COMAPNY	YEAR	PRICE	QTY
---	---	---	---	---	---
V1	WAGONAR	MARUTI	2009	325000	35
V2	JEEP	MAHINDRA	2005	1600000	10
V3	MIRAGE	MITSUBISHI	2009	500000	15
V4	RAV4	TOYOTA	2012	5500000	10		3

V5	ALTO LXI	MARUTI	2012	310000	45
V6	FTO	MITSUBISHI	2022	850000	8
V7	_LANCER	MITSUBISHI	2021	733000	9
V8	GLANZA	TOYOTA	2022	659000	12

Write suitable SQL queries for the following:
    i.   Display year wise highest price
    ii.   Display company wise lowest price
    iii.   Display sum of quantities available and number of cars available year wise.

    i.   Select max(price),year from VAHAN group by year;
    ii.   Select company , min(price) from VAHAN group by company;
    iii.   Select sum(qty) , count(*) , year from VAHAN group by year;
Give 1 mark each

OR
Discuss the significance of Order by clause in detail with the help of suitable example

Order by arranges tuples in ascending or descending order based on a column
1 mark for correct significance
2 marks for correct example

SECTION E

33	Write suitable SQL query for the following:	5

33   Write suitable SQL query for the following:
    i.   Display 7 characters extracted from 22nd left character onwards from the string 'Experience is a hard teacher'.
         select mid('Experience is a hard teacher',22,7);
    ii.   Display the position of occurrence of string ' HIDE ' in the string 'HIDE AND SEEK'.
         select instr('hide and seek','hide');
    iii.   Round off the value 45.1876 to two place.
         select round(45.1876,2);
    iv.   Display the remainder of 77 divided by 4.
         select mod(77,4);
    v.   Remove all the expected leading and trailing spaces from a column student_name of the table ' result '.
         select trim(student_name) from result;
Give 1 mark each

        OR
 Explain the following SQL functions using suitable examples

    i.   LCASE() - **Returns the argument <str> in lowercase.**

         Select lcase('HELLO'); returns hello

    ii.   LTRIM() - **removes spaces from the left side of the string <str>**

         Select ltrim('   Apple') ; returns Apple

    iii.   SUBSTR()- Returns <n> characters starting from the mth character of the string
         select mid('Experience is a hard teacher',22,7);

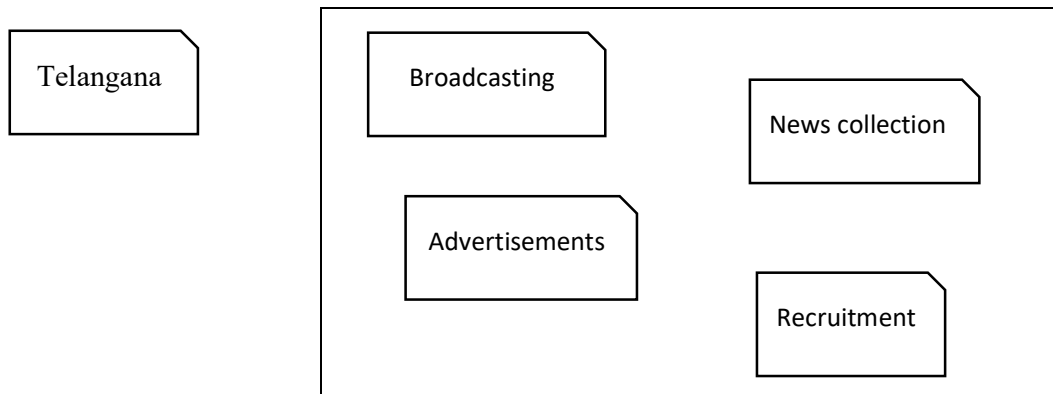|		

	iv. NOW()- **Returns the current date and time in 'YYYY-MM-DD HH:MM:SS' select now();**
	
	v. MONTHNAME()- **It returns the month name from the specified date.**
	
	       SELECT MONTHNAME("2003-11-28");
	       Output: November
	Give 1 mark each	

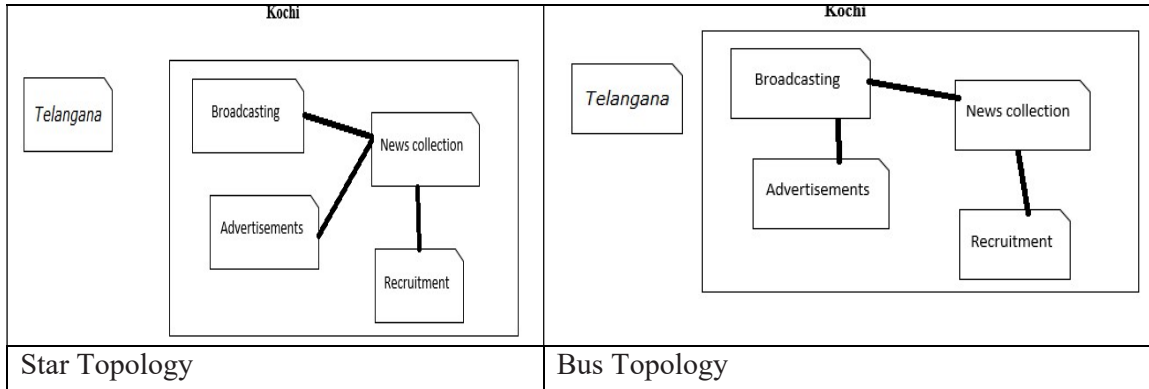| 34 | ABC Radio services is an international organization with their head office at Telangana They are planning to set up its new center at Kochi for its office and broadcasting activities. It has 4 blocks of buildings as shown in the diagram below.

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. | 5 |

Kochi

Telangana   Broadcasting   News collection   Advertisements   Recruitment

Center to Center distance between various blocks.

Broadcasting to News collection	60 m
News collection to Advertisements	125 m
Advertisements to Recruitment	175 m
Broadcasting to Recruitment	250 m
News collection to Recruitment	100 m
Broadcasting to Advertisements	75 m

Number of Computers in each wing

Broadcasting	50
News collection	250
Advertisements	50
Recruitment	100

i. Suggest the most appropriate location of the server inside the Kochi campus (out of the four buildings) to get the best connectivity for maximum number of computers. Justify your answer. <mark>News Collection</mark>

ii. Suggest and draw cable layout to efficiently connect various buildings within the Kochi campus for a wired connectivity.
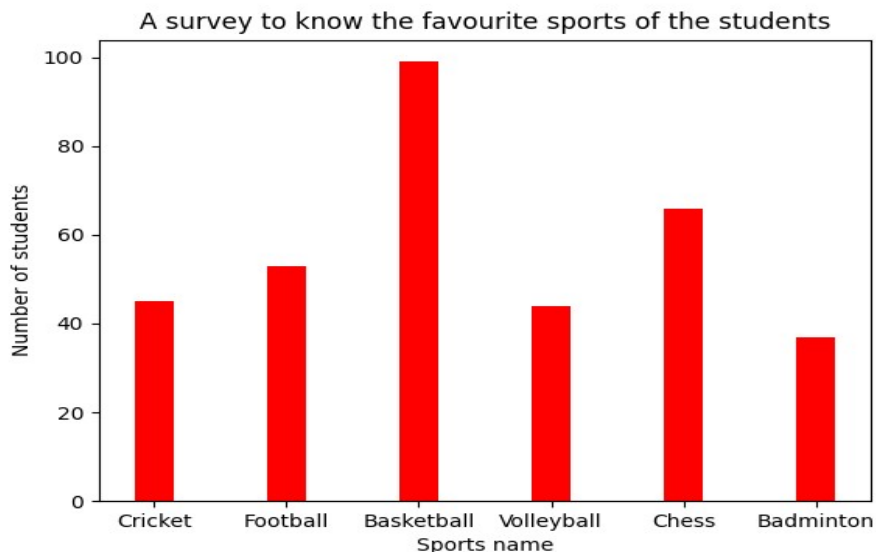
Star Topology	Bus Topology

iii. Which networking device will you suggest to be procured by the company to interconnect all the computers of various buildings of MUMBAI campus? **Hub/Switch**

iv. Company is planning to get its website designed which will allow listeners to see daily news details after registering themselves on its server. Out of the static or dynamic, which type of website will you suggest? <mark>dynamic</mark>

v. Which of the following will you suggest to establish the online face to face communication between the people in the ADMIN office of Telangana campus and Kochi office?

a) Cable TV   b) Email   c) <mark>Video conferencing</mark>   d) Text chat

Give 1 mark each

35	**Write Python code to plot following bar chart**	5

Also give suitable python statement to save this chart.

<mark>import matplotlib.pyplot as plt
Sports=["Cricket","Football","Basketball","Volleyball","Chess","Badminton"]
Number=[45,53,99,44,66,37]

plt.bar(Sports, Number,color='Red')</mark>

OR

Write a python program to plot a line chart based on the given data to depicts the annual gross profit (in lakhs of Rs) of a company for a period of 5 years.

Year = [2017,2018,2019,2022,2021]
Gross =[17,15.5,11.4,12.1,14.9]

```
import matplotlib.pyplot as plt

Year = [2017,2018,2019,2022,2021]
Gross =[17,15.5,11.4,12.1,14.9]
plt.plot(Year,Gross)
plt.show()
```

SECTION D

31 Reela, a database administrator has designed a database for a watch shop. Help her by writing answers of the following questions based on the given table: Watches   1+1+2

TABLE: WATCHES

Watchid	Watch_Name	Price	Type	Qty_Store
W001	High Time	10000	Unisex	100
W002	Life Time	15000	Ladies	150
W003	Wave	20000	Gents	200
W004	High Fashion	7000	Unisex	250
W004	Golden Time	25000	Gents	100
W005	Lady bird	8500	Ladies	150

i.   Write a query to display the highest price from the table watches
ii.   Write a query to display watch names in upper case.
iii.   Write a query to display total number of watches under each type.
        OR (Option for part iii only)
    Write a query to display sum of price of watches under each type where quantity available is more than 100.

32	Mr. Roshan, a data analyst has designed the DataFrame df that contains data about sales made by 4 salesmans in two half yearlys as shown below. Answer the following questions:	1+1+2

	First	Second
Salesman1	23000	18000
Salesman2	11000	15000
Salesman3	60000	40000
Salesman4	35000	12000

A. Predict the output of the following python statement:
      i. df.shape   → (4, 2)
      ii. df[1:3]

```
                 First   Second
     Salesman2  11000   15000
     Salesman3  60000   40000
```

1 mark for each correct query

B. Write Python statement to display the data of Second half yearly column of indexes
    Salesman1 to Salesman3

    print(df.loc['Salesman1': 'Salesman3', 'Second'])
         OR (Option for part iii only)
Write Python statement to compute and display the sum of data of First column and Second column of the above given DataFrame.

print(df.First+df.Second)

2 mark for correct query