

COMMON PRE-BOARD EXAMINATION 2023-24

INFORMATICS PRACTICES (Code: 065)

CLASS : XII
Date: 30/01/2024

Max. Marks:70
Time: 3 hours

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 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 02 questions carrying 04 marks each.
7. Section E has 03 questions carrying 05 marks each.
8. All programming questions are to be answered using Python Language only.

QNo.	SECTION A	Mark
1.	Physical or logical arrangement of network refers to as _____. a. Routing b. Looping c. Topology d. Networking	1
2.	Which of the following is a type of cybercrime? a. Stealing of money from a purse b. Hitting or beating someone c. Making damage to furniture in classroom d. Stealing of user name and password and misusing others Email	1
3.	What is not an example of e-waste? a. Unused Mobile b. Unused old Keyboard c. Unused old computers d. Empty cola cans	1
4.	Find the output of the following SQL command: select mid ('Informatics Practices', -9); a. ics Practices b. Practices c. Informati d. scitamrofnI	1

5.	<p>If a column “Mark” in student table contains the following data:</p> <table border="1" data-bbox="435 212 574 422"> <tr><td>MARK</td></tr> <tr><td>22</td></tr> <tr><td>NULL</td></tr> <tr><td>21</td></tr> <tr><td>23</td></tr> </table> <p>Predict the output of the following command: SELECT AVG (MARK) FROM student;</p> <p>a. 22 b. 16.5 c. NULL d. 66</p>	MARK	22	NULL	21	23	1
MARK							
22							
NULL							
21							
23							
6.	<p>‘F’ in FOSS stands for:</p> <p>a. Force b. Free c. Fibre d. First</p>	1					
7.	<p>Which SQL statement is used to display all the data from product table in the decreasing order of price?</p> <p>a. SELECT * FROM PRODUCT; b. SELECT * FROM PRODUCT ORDER BY PRICE; c. SELECT * FROM PRODUCT ORDER BY PRICE DESC; d. SELECT * FROM PRODUCT ORDER BY DESC;</p>	1					
8.	<p>The number of rows in a relation in SQL is known as</p> <p>a. cardinality b. degree c. tuple d. attribute</p>	1					
9.	<p>Which among the following is a DDL command in SQL?</p> <p>a. SELECT b. INSERT c. ALTER d. UPDATE</p>	1					
10.	<p>To display last three rows of a series object ‘S’, you may write:</p> <p>a. S.Head() b. S.tail(3) c. S.Head(3) d. S.tail()</p>	1					
11.	<p>Which of the following statement will import matplotlib.pyplot library?</p> <p>a. Import pyplot as pd b. import matplotlib as py c. import matplotlib.pyplot as plt d. All of these</p>	1					

12.	Which of the following can be used to specify the data while creating a DataFrame? a. Series b. List of Dictionaries c. Structured ndarray d. All of these	1
13.	_____ protocol allows us to have voice call (telephone service) over the Internet. a. HTTP b. VOIP c. SMTP d. TELNET	1
14.	Write the output of the following SQL command: SELECT ROUND (199.2936, 1); a. 199 b. 199.294 c. 199.3 d. 199.2	1
15.	_____ is a service that allows to put a website or a web page on the Internet. a. Web Server b. Web Browser c. Web Hosting d. Domain Name System	1
16.	-----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. a. Offline phishing b. Offline footprint c. Digital footprint d. Digital phishing	1
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): - The Internet is a collection of interconnected computer networks linked by transmission medium such as copper wires, fiber-optic cables, wireless connections etc Reasoning (R):- World wide web is a collection of interconnected documents.	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.	1
SECTION B		
19.	Distinguish between LAN and WAN. OR Explain the function of the following network devices:	2

	a. Modem b. Firewall	
20.	Give the output of following program: import pandas as pd s=pd.Series([10,20,30,40,50],index=['a','b','c','d','e']) print(s[0]) print(s['a':'c']) print(s[2]) print(s['a'])	2
21.	(a) Write the output of the following SQL query: SELECT POW(INSTR('My_Database','_'),2); (b) Is NULL and 0(zero) same? Justify your answer.	2
22.	Predict the output of the given Python code: a) import pandas as pd list1=[1,2,3] ser = pd.Series(list1*2) print(ser) print(ser**3) b) import pandas as pd S1=pd.Series(data=[10,70]) S2=S1+S1 print(S2) print(S2*3)	2
23.	Write down different steps of E waste Disposal. OR What is the difference between Copyright and Licenses ?	2
24.	What will be the output of the following code? >>>import pandas as pd >>>A=pd.Series(data=[12,20,5,50]) >>>print(A>10) >>>print(A[A>10])	2
25.	Consider the following SQL string "ROCK PAPER SCISSORS" . Write the SQL commands to display: 1. First four letters from left side of the string 2. Last 4 letters from right side of the string OR a. To find the position of PAPER in the string b. To find the total number of characters in the string.	2

SECTION C																														
26.	<p>Consider the table SPORTS given below:</p> <table border="1"> <thead> <tr> <th>SCode</th> <th>SportName</th> <th>Noofplayers</th> <th>Coachname</th> </tr> </thead> <tbody> <tr> <td>S001</td> <td>Cricket</td> <td>21</td> <td>Rahul Dravid</td> </tr> <tr> <td>S002</td> <td>Football</td> <td>25</td> <td>Roshan Lal</td> </tr> <tr> <td>S003</td> <td>Hockey</td> <td>40</td> <td>Sardar Singh</td> </tr> <tr> <td>S004</td> <td>Cricket</td> <td>19</td> <td>Chetan Sharma</td> </tr> <tr> <td>S005</td> <td>Archery</td> <td>12</td> <td>Limbaram</td> </tr> <tr> <td>S006</td> <td>Shooting</td> <td>17</td> <td>Deepika Kumari</td> </tr> </tbody> </table> <p>Write SQL commands to:</p> <ol style="list-style-type: none"> Display the total number of players in each sport. Display sports name where the total number of players is more than 25. Display the sportname and coachname in the descending order of the number of players <p style="text-align: center;">OR</p> <p>Write the output of the following SQL statements.</p> <ol style="list-style-type: none"> SELECT SPORTNAME , AVG(NOOFPLAYERS) AS "AVERAGE" FROM SPORTS GROUP BY SPORTNAME; SELECT LEFT(SPORTNAME,4), RIGHT(COACHNAME,3) FROM SPORTS WHERE NOOFPLAYERS>20; SELECT COUNT(DISTINCT SPORTNAME) FROM SPORTS; 	SCode	SportName	Noofplayers	Coachname	S001	Cricket	21	Rahul Dravid	S002	Football	25	Roshan Lal	S003	Hockey	40	Sardar Singh	S004	Cricket	19	Chetan Sharma	S005	Archery	12	Limbaram	S006	Shooting	17	Deepika Kumari	3
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27.	<p>Write a Python code to create a dataframe 'stock' with the dictionary given below: Item={"ItemNo":[10,11,12,13,14,15],"Price":[200,500,800,700,500,900]}</p> <p>Add appropriate row labels.</p>	3																												
28.	<p>Write MySQL statements for the following:</p> <ol style="list-style-type: none"> To create a database named SCHOOL. To create a table named SUBJECTS based on the following specification <table border="1"> <thead> <tr> <th>Column Name</th> <th>Data type</th> <th>Constraints</th> </tr> </thead> <tbody> <tr> <td>Sub_No</td> <td>Integer</td> <td>Primary Key</td> </tr> <tr> <td>Sub_Name</td> <td>Varchar(25)</td> <td></td> </tr> <tr> <td>Sub_Teacher</td> <td>Varchar(30)</td> <td></td> </tr> <tr> <td>Sub_Classes</td> <td>Integer</td> <td></td> </tr> </tbody> </table> <ol style="list-style-type: none"> Delete the column Sub_Classes from the table SUBJECTS. 	Column Name	Data type	Constraints	Sub_No	Integer	Primary Key	Sub_Name	Varchar(25)		Sub_Teacher	Varchar(30)		Sub_Classes	Integer		3													
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29.	<p>What is IT Act 2000? What is its importance?</p> <p style="text-align: center;">OR</p> <p>What do you understand by plagiarism? Explain any two ways to avoid plagiarism.</p>	3																												

30.	<p>Consider the given DataFrame 'result':</p> <pre> Name Percentile 0 Rohit 95 1 Mohit 76 2 Raman 98 3 Aditya 47 </pre> <p>Write the suitable Python statements for the following :</p> <ol style="list-style-type: none"> Add a new column 'Grade' to the dataframe having values A,B,A,C . Add a new row where Name is 'Arti' with Percentile as 92 and Grade A Rename the column 'Percentile' to 'Percent'. 	3																																										
SECTION D																																												
31.	<p>Consider the given table Result: -</p> <table border="1" data-bbox="373 745 1250 1039"> <thead> <tr> <th>Rollno</th> <th>Name</th> <th>Class</th> <th>DOB</th> <th>Gender</th> <th>City</th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Nanda</td> <td>X</td> <td>12-10-1998</td> <td>F</td> <td>Delhi</td> <td>56</td> </tr> <tr> <td>2</td> <td>Saurabh</td> <td>XI</td> <td>24-12-1994</td> <td>M</td> <td>Chennai</td> <td>45</td> </tr> <tr> <td>3</td> <td>Sanal</td> <td>XII</td> <td>15-08-2003</td> <td>M</td> <td>Delhi</td> <td>66</td> </tr> <tr> <td>4</td> <td>Rekha</td> <td>X</td> <td>11-09-2004</td> <td>F</td> <td>Mumbai</td> <td>81</td> </tr> <tr> <td>5</td> <td>Neha</td> <td>XII</td> <td>05-06-2006</td> <td>F</td> <td>Chennai</td> <td>77</td> </tr> </tbody> </table> <p>Write SQL commands to:</p> <ol style="list-style-type: none"> Display the minimum and maximum marks obtained by female students Display the name and city of students who are born in October Display the average mark obtained by students of each city. Display the class wise total of marks obtained by students. 	Rollno	Name	Class	DOB	Gender	City	Marks	1	Nanda	X	12-10-1998	F	Delhi	56	2	Saurabh	XI	24-12-1994	M	Chennai	45	3	Sanal	XII	15-08-2003	M	Delhi	66	4	Rekha	X	11-09-2004	F	Mumbai	81	5	Neha	XII	05-06-2006	F	Chennai	77	4
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32.	<p>Consider the following DataFrame SPORTS</p> <pre> ID NAME GENDER SCORE SD1 1 ANN F 23 SD2 2 RAM M 19 SD3 3 SITA F 21 SD4 4 RAJ F 18 </pre> <ol style="list-style-type: none"> Write output of the following: <ol style="list-style-type: none"> <code>print(SPORTS.loc['SD2', 'NAME':'SCORE'])</code> <code>print(SPORTS[1:3])</code> Write command to display the name and score of SD1 to SD3. Write command to delete the column gender <p style="text-align: center;">OR (Option for part iii only)</p> <ol style="list-style-type: none"> Write python statement to delete the row with index SD3. 	2+ 1+ 1																																										
SECTION E																																												

33.

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Write the SQL queries which will perform the following operations :

- To convert email id “ ANIKA@GMAIL.com ” to lowercase after removing leading and trailing blank spaces.
- To display the current year i.e 2024
- To get the position of the first occurrence of sub-string “zia” in the string “Fouzia Ahmed”.
- To extract 3 characters starting at 2nd position from a given string “Maria John”.
- Display the remainder of 100 divided by 9.

OR

Observe the given tables carefully and do the following .

Table:-Employee

Eno	Ename	Job	Salary
1001	Adam	Doctor	150000.00
1002	Amaal	Engineer	165000.00
1003	Ali	Doctor	180000.00
1004	Simran	Manager	125000.00
1005	Rabil	Manager	185000.00

Table: Area

LNO	Location	ENo
1	Kolkata	1004
2	Mumbai	1002
3	Delhi	1003
4	Goa	1001

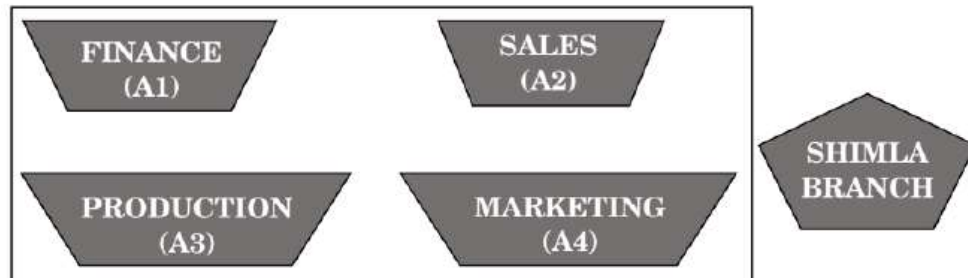
Write SQL statements for the following :

- List names of all employees with their salary in descending order:
- Display the name and location of Managers
- Display the job with only one employee.
- Delete the details of employees whose name ends with ‘l’.
- Increase the salary of all managers by 5 %.

34.

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ABC Private Ltd., Bangalore has different divisions, Finance (A1), Sales (A2), Production (A3) and Marketing (A4). The layout of the Bangalore branch is :



Distance between the branches are as follows :

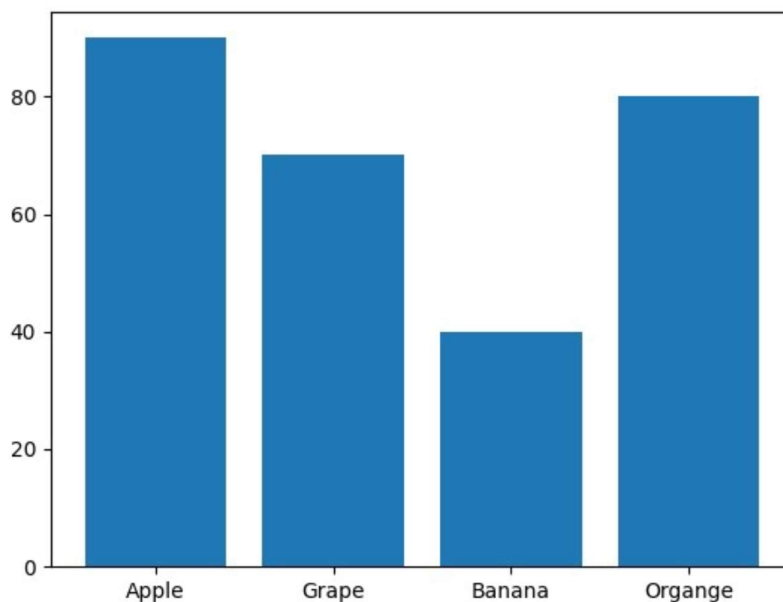
A3 to A1	25 m
A1 to A2	40 m
A2 to A4	25 m
A4 to A3	120 m
A3 to A2	990 m
A1 to A4	170 m

The number of computers in each branch is as follows :

A1	50
A2	40
A3	110
A4	60

- i. Suggest a cable layout of connections between the divisions.
- ii. Suggest the most suitable place (i.e. block) to house the server of this organization with a suitable reason.
- iii. Suggest the placement of the following devices with justification
 - (a) Repeater
 - (b) Hub/Switch
- iv. The organization is planning to link its front office situated in the city in a hilly region where cable connection is not feasible, suggest an economic way to connect it with reasonably high speed?
- v. The organization is planning to link its sale counter situated in various parts of the same city, which type of network out of LAN, MAN or WAN will be formed? Justify your answer.

35. Write Python code to plot a bar chart as shown below with suitable title and labels: 5



Also give suitable python statement to save this chart.

OR

Write a python program to plot a line chart based on the given data to depict the Monthly scoring rate of a batsman for four months and also assign suitable labels and title. Also give suitable statement to save the chart.

Month=[1,2,3,4]

Scoring rate=[140,132,148,164]