

RASHTRIYA MILITARY SCHOOL, BENGALURU

PRACTICE PAPER-5

Class: XII

SUBJECT: INFORMATICS PRACTICES (065)

TIME: 03:00 HRS.

MM: 70

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 Q34 & Q35 against part (iii) only.
8. All programming questions are to be answered using Python Language only.

SECTION – A		
1.	Which of the following covers a geographical area like a city or town? (a) LAN (b) MAN (c) WAN (d) PAN	1
2.	State TRUE or FALSE against the following statement - “Cyber-laws are incorporated for punishing all criminals only.”	1
3.	GPL stands for _____ (a) General Public License (b) GNU General Private License (c) GNU General Public License (d) GNU Public License	1
4.	Which of the following is not an aggregate function of MySQL? (a) AVG() (b) SUM() (c) ADD() (c) MIN()	1
5.	If column “per” contains the data set (97.5, 56.2, 75.6, 56.2, 75.6), what will be the output after the execution of the given query? SELECT AVG(DISTINCT Fees) FROM student; (a) 76.43 (b) 76.34 (C) 67.43 (d) 67.34	1
6.	Which of the following is an example of e-waste? (a) empty soda can (b) Old cloths (c) an old computer (d) a ripened banana	1
7.	Which SQL statement do we use to find out the total number of records present in the table SALES? (a) SELECT * FROM SALES; (b) SELECT COUNT (*) FROM SALES; (c) SELECT FIND (*) FROM SALES; (d) SELECT SUM () FROM SALES;	1
8.	Which clause is used with “aggregate functions”? (a) GROUP BY (b) SELECT (c) WHERE (d) Both (a) and (b)	1
9.	Which one of the following functions is used to find the smallest value from the given data in MySQL? (a) MINIMUM() (b) MIN() (c) SHORT() (d) SMALL()	1
10.	To create an empty Series object, you can use: (a) pd.Series(empty) (b) pd.Series() (c) pd.Series(np.NaN) (d) all of these	1
11.	To display last five rows of a Series object S, you may write - (a) tail() (b) tail(5) (c) None of a and b (d) a and b both	1

12.	Which of the following can be used to specify the data while creating a DataFrame? (a) Dictionaries (b) Series (c) ndarrays (d) All of the above	1										
13.	Online textual talk is called _____? (a) Video Conference (b) Chat (c) Text Phone (c) Telephony	1										
14.	Stealing someone else’s intellectual work and representing it as own, is called _____. (a) Intellectual steal (b) Plagiarism (c) Pluckism (d) Pickism	1										
15.	Write output of the following MySQL command - SELECT SUBSTRING(“Informatics Practices”,6,9); (a) matics Pr (b) atics Pra (c) matics Pra (d) None	1										
16.	What is meant by the term ‘cyber crime’? (a) Any crime that uses computer to jeopardise of attempt to jeopaardise national security (b) The use of computer network to commit financial or identity fraud (c) The theft of digital information (d) Any crime that involves computer and networks	1										
Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is True but R is False (d) A is false but R is True												
17.	Assertion(A): Digital footprint 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. Reason(R): While online, all of us need to be aware of how to conduct ourselves, how best to relate with others and what ethics, morals and values to maintain.	1										
18.	Assertion (A) : Pandas is an open source Python library which offers high performance, easy-to-use data structures and data analysis tools. Reason (R) : Professionals and developers are using the pandas library in data science and machine learning.	1										
SECTION – B												
19.	Explain the terms Web Site and Web Server. OR Mention any four networking goals.	2										
20.	Mr. Vinay wanted to display average salary of each Category. He encountered an error while entered the following SQL query. Identify error(s) and Rewrite the correct SQL statement. SELECT Category, Salary FROM Hotel GROUP BY Category;	2										
21.	Distinguish between Single Row and Aggregate functions of MySQL. Write one example of each.	2										
22.	Write a program in to create a series ‘Emp’ using a dictionary having Employee name as key and salary as value with following data - <table><tr><td>Employee Name</td><td>Salary</td></tr><tr><td>Ashok</td><td>10000</td></tr><tr><td>Ravi</td><td>7500</td></tr><tr><td>Dinesh</td><td>12500</td></tr><tr><td>Akram</td><td>8000</td></tr></table>	Employee Name	Salary	Ashok	10000	Ravi	7500	Dinesh	12500	Akram	8000	2
Employee Name	Salary											
Ashok	10000											
Ravi	7500											
Dinesh	12500											
Akram	8000											
23.	List any four health hazards related to excessive use of Technology. OR List any four benefits of e-waste management.	2										
24.	What will be the output of the following code: import pandas as pd	2										

	<pre>M=[15,-10,56,39,-90,15] p=pd.Series(M) print(p[0]) print(p[[0,3,4]])</pre>																															
25.	<p>Carefully observe the following code:</p> <pre>import pandas as pd Y1={'Qtr1':500,'Qtr2':600,'Qtr3':120,'Qtr4': 1800} Y2={'A' :130,'B':160,'C':150} totSales={1:Y1,2:Y2} df=pd.DataFrame(totSales) print(df)</pre> <p>Answer the following:</p> <p>i. List the index of the DataFrame df</p> <p>ii. List the column names of DataFrame df.</p>	2																														
SECTION – C																																
26.	<p>Write outputs for SQL queries (i) to (iii) which are based on the given table EMPLOYEE:</p> <p style="text-align: center;">TABLE: EMPLOYEE</p> <table><tr><th>EMPNO</th><th>NAME</th><th>DOJ</th><th>SALARY</th><th>CITY</th></tr><tr><td>5001</td><td>SUMIT SINGH</td><td>2012-05-24</td><td>55000</td><td>JAIPUR</td></tr><tr><td>5002</td><td>ASHOK SHARMA</td><td>2015-10-25</td><td>65000</td><td>DELHI</td></tr><tr><td>5003</td><td>VIJAY SINGH</td><td>2009-09-09</td><td>85000</td><td>JAIPUR</td></tr><tr><td>5004</td><td>RAKESH VERMA</td><td>2020-12-21</td><td>60000</td><td>AGRA</td></tr><tr><td>5006</td><td>RAMESH KUMAR</td><td>2011-01-22</td><td>72000</td><td>DELHI</td></tr></table> <p>i. SELECT LENGTH(NAME) FROM EMPLOYEE WHERE SALARY>75000;</p> <p>ii. SELECT NAME FROM EMPLOYEE WHERE MONTH(DOJ)=12;</p> <p>iii. SELECT MOD(SALARY, DAY(DOJ)) FROM EMPLOYEE WHERE CITY= 'JAIPUR';</p>	EMPNO	NAME	DOJ	SALARY	CITY	5001	SUMIT SINGH	2012-05-24	55000	JAIPUR	5002	ASHOK SHARMA	2015-10-25	65000	DELHI	5003	VIJAY SINGH	2009-09-09	85000	JAIPUR	5004	RAKESH VERMA	2020-12-21	60000	AGRA	5006	RAMESH KUMAR	2011-01-22	72000	DELHI	3
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27.	<p>Write a Python code to create a DataFrame with appropriate column headings from the list given below:</p> <pre>[[‘P101’, ‘COMPUTER’,50000],[‘P222’, ‘TABLE’,5000],[P201’, ‘MOUSE’,1000]]</pre>	3																														
28.	<p>Consider the given DataFrame ‘Student’:</p> <table><tr><th></th><th>Name</th><th>Percent</th></tr><tr><td>0</td><td>Naina</td><td>75.5</td></tr><tr><td>1</td><td>Rehana</td><td>82.6</td></tr><tr><td>2</td><td>Karina</td><td>62.8</td></tr><tr><td>3</td><td>Sandeep</td><td>55.4</td></tr></table> <p>Write suitable Python statements for the following:</p> <p>i. Add a column called grade with the following data: [‘B1’, ‘A2’, ‘C2’, ‘D1’].</p> <p>ii. Add a new Student named ‘Krishna’ having Percent 80.5.</p> <p>iii. Remove the column grade.</p>		Name	Percent	0	Naina	75.5	1	Rehana	82.6	2	Karina	62.8	3	Sandeep	55.4	3															
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29.	<p>Namita has recently shifted to new city and new school. She does not know many people in her new city and school. But all of a student, someone is posting negative, demeaning comments on her social networking profile, school site’s forum etc. She is also getting repeated mails from unknown people. Every time she goes online, she finds someone chasing her online..</p> <p>i. What is this happening to Namita?</p> <p>ii. What immediate action should she take to handle it?</p>	3																														

	<p>iii. Is there any law in India to handle such issues? Discuss briefly.</p> <p>OR</p> <p>What do you mean by Cyber Crime? Name any two cyber-crimes? Also give two points by means of which we can prevent from cyber crime.</p>																																				
30.	<p>Based on table VEHICLE given here, write suitable SQL queries for the following:</p> <table><tr><td>V_no</td><td>Type</td><td>Company</td><td>Price</td><td>Qty</td></tr><tr><td>AW125</td><td>Wagon</td><td>Maruti</td><td>250000</td><td>25</td></tr><tr><td>J0083</td><td>Jeep</td><td>Mahindra</td><td>4000000</td><td>15</td></tr><tr><td>S9090</td><td>SUV</td><td>Mitsubishi</td><td>2500000</td><td>18</td></tr><tr><td>M0892</td><td>Mini van</td><td>Datsun</td><td>1500000</td><td>26</td></tr><tr><td>W9760</td><td>SUV</td><td>Maruti</td><td>2500000</td><td>18</td></tr><tr><td>R2409</td><td>Mini van</td><td>Mahindra</td><td>350000</td><td>15</td></tr></table> <p>a. Display the average price of each type of vehicle having quantity more than 20. b. Count the type of vehicles manufactured by each company. c. Display the total price of each types of vehicles.</p> <p>OR</p> <p>Discuss the significance of Group by clause in detail with the help of suitable example.</p>	V_no	Type	Company	Price	Qty	AW125	Wagon	Maruti	250000	25	J0083	Jeep	Mahindra	4000000	15	S9090	SUV	Mitsubishi	2500000	18	M0892	Mini van	Datsun	1500000	26	W9760	SUV	Maruti	2500000	18	R2409	Mini van	Mahindra	350000	15	3
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SECTION – D																																					
31.	<p>Write suitable SQL query for the following:</p> <p>i. Display 7 characters extracted from 7th left character onwards from the string ‘INFORMATICS PRACTICES’. ii. Display the position of occurrence of string ‘COME’ in the string ‘WELCOME WORLD’. iii. Round off the value 2334.78 to one decimal place. iv. Display the remainder of 200 divided by 7. v. Remove all the expected leading and trailing spaces from a column userid of the table ‘USERS’.</p> <p>OR</p> <p>Explain the following SQL functions using suitable examples.</p> <p>i. UCASE() ii. TRIM() iii. MID() iv. DAYNAME() v. POWER()</p>	5																																			
32.	<p>Granuda Consultants are setting up a secured network for their office campus atFaridabad for their day to day office and web-based activities. They are planning to haveconnectivity between 3 building and the head office situated in Kolkata. Answer the questions (i) to (iv) after going through the building positions in the campus and other details, which are given below:</p> <div><div>FARIDABAD Campus</div><div><div>Building "RAVI"</div><div>Building "JAMUNA"</div><div>Building "GANGA"</div></div></div> <p>Distances between various buildings:</p>	5																																			

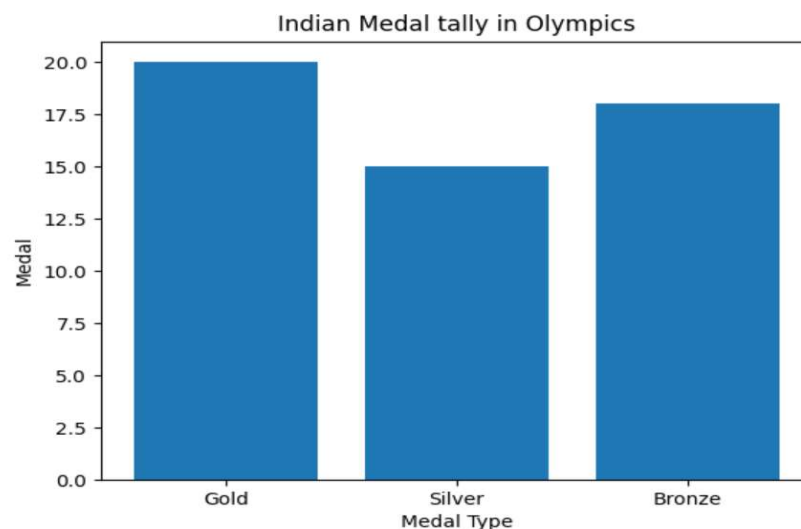
Building "RAVI" to Building "JAMUNA"	120 m
Building "RAVI" to Building "GANGA"	50 m
Building "GANGA" to Building "JAMUNA"	65 m
Faridabad Campus to Head Office	1460 km

Number of Computers:

Building "RAVI"	25
Building "JAMUNA"	150
Building "GANGA"	51
Head Office	10

- Suggest the most suitable place (i.e., block) to house the server of this organization. Also give a reason to justify your suggested location.
- Suggest a cable layout of connections between the buildings inside the campus.
- Suggest the placement of the following devices with justification:
 - o Repeater
 - o Switch/hub
- The organization is planning to provide a high-speed link with its head office situated in the KOLKATA using a wired connection. Which of the following cable will be most suitable for this job?
 - o Optical Fibre
 - o Co-axial Cable
 - o Ethernet Cable
- Which of the following will you suggest to establish the online face to face communication between the people in the ADMIN office of Faridabad campus and Kolkata head office?
 - Cable TV
 - Email
 - Video conferencing
 - Text chat

Write Python code to plot a bar chart for India's medal tally as shown below:



Also give suitable python statement to save this chart.

OR

Write a python program to plot a bar chart based on the given data to depict the changing weekly average temperature in Guwahati for five weeks.

Week=[1,2,3,4,5]

temp=[25,29.27.30,33]

SECTION – E

Neha creates a table FURNITURE with a set of records to maintain the records of furniture purchased by her. She has entered the 7 records in the table. Help her to find the answers of following questions:-

TABLE : FURNITURE

FID	NAME	DATEOFPURCHASE	COST	DISCOUNT
B001	Double Bed	03-Jan-2018	45000	10
T010	Dining Table	10-Mar-2020	51000	12
B004	Single Bed	19-Jul-2021	22000	10
C003	Long Back Chair 6	30-Dec-2020	12000	10
T006	Console Table	17-Nov-2019	15000	12
B006	Bunk Bed	01-Jan-2021	28000	13

- Write a query to display Furniture name in upper case.
- Write a query to display the highest cost of the furnitures.
- Write a query to count total number of furnitures having discount more than 10.

OR (Option for part iii only)

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

Mr. Sharma, a data analyst has designed the df that contains data about Cyber Olympiad details with 'Cyb1', 'Cyb2', 'Cyb3', 'Cyb4', 'Cyb5' as indexes shown below. Answer the following questions:

	School	Total_students	Topper	Runnerup
Cyb1	KVS	50	46	4
Cyb2	NVS	45	35	10
Cyb3	DPS	30	20	10
Cyb4	MPS	25	18	7
Cyb5	GPS	37	28	9
Cyb6	BPS	33	25	8

A. Predict the output of the following -

- df.shape
- df.[2:4]

B. Write python statement to display the data of the topper column of index Cyb2 to Cyb5.

OR

Write Python statement to compute and display the difference of data of Total_students column and Runnerup column of the above given DataFrame.

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