

# RASHTRIYA MILITARY SCHOOL, BENGALURU

## PRACTICE PAPER-4

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

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 <table><tr><th>EMPNAME</th><th>SALARY</th></tr><tr><td>ARUNAN</td><td>5000</td></tr><tr><td>SAMUEL</td><td>NULL</td></tr><tr><td>MADHAV</td><td>6000</td></tr></table> What may the possible output after the following query is executed? SELECT AVG(SALRY) FROM EMPLOYEE; (a) 5500 (b) 3666.667 (c) 5000 (d) NULL	EMPNAME	SALARY	ARUNAN	5000	SAMUEL	NULL	MADHAV	6000	1
EMPNAME	SALARY									
ARUNAN	5000									
SAMUEL	NULL									
MADHAV	6000									

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

10	<p>Consider the below given series, named Batsman, which command will be used to print 6 as output?</p> <div style="text-align: center;"> <p>a    WD Parnell</p> <p>b    David Warner</p> <p>c    RG Sharma</p> <p>d    KL Rahul</p> <p>e    Baber Azam</p> <p>f    Ross Taylor</p> <p>dtype: object</p> </div> <p>a. Batsman .index b. Batsman .length c. Batsman .values d. Batsman .size</p>	1
11	<p>Identify the function used for reading data from a csv file.</p> <p>a) read.csv() b) read_csv() c) read_data() d) csv_read()</p>	1
12	<p>When a DataFrame is created from List of Dictionaries, then dictionary keys will become</p> <hr style="width: 10%; margin-left: 0;"/> <p>(i)    Column labels (ii)    Row labels (iii)    Both of the above (iv)    None of the above</p>	1
13	<p>An online activity that enables us to publish website or web application on the internet</p> <p>(a) Web server (b) Web Browser (c) Web Hosting (d) None</p>	1
14	<p>Identify the SQL function which returns output as a group of characters.</p> <p>(a) NOW() (b) MONTHNAME() (c) MONTH() (d) WEEKNAME()</p>	1
15	<p>Violating the intellectual property rights of a copyright holder is known as</p> <p>a) Encryption b) Digital footprint c) Offline phishing d) Copyright infringement</p>	1
16	<p>Which of the following activity is an example for Active digital footprint?</p> <p>a) Surfing internet b) Apps and websites that use geolocation to pinpoint your location c) Agreeing to install cookies on your devices when prompted by the browser d) None of the above</p>	1

	<p>Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as</p> <p>i. Both A and R are true and R is the correct explanation for A</p> <p>ii. Both A and R are true and R is not the correct explanation for A</p> <p>iii. A is True but R is False</p> <p>iv. A is false but R is True</p>																															
17	<p><b>Assertion(A)</b> : Incognito browsing opens up a version of the browser that will track your activity</p> <p><b>Reasoning(R)</b> : Incognito browsing is useful when entering sensitive data</p>	1																														
18	<p><b>Assertion (A):-</b> DataFrame has both a row and column index.</p> <p><b>Reasoning (R):</b> - A DataFrame is a two-dimensional labelled data structure like a table of MySQL.</p>	1																														
<b>PART-B</b>																																
19	<p>Explain the terms Static and dynamic Web pages.</p> <p>OR</p> <p>What are cookies?</p>	2																														
20	<p>Shyam created following table Hotel in a database:</p> <table border="1"> <thead> <tr> <th colspan="3">Table : Hotel</th></tr> <tr> <th>EMPID</th><th>Category</th><th>Salary</th></tr> </thead> <tbody> <tr> <td>E101</td><td>MANAGER</td><td>60000</td></tr> <tr> <td>E102</td><td>EXECUTIVE</td><td>65000</td></tr> <tr> <td>E103</td><td>CLERK</td><td>40000</td></tr> <tr> <td>E104</td><td>MANAGER</td><td>62000</td></tr> <tr> <td>E105</td><td>EXECUTIVE</td><td>50000</td></tr> <tr> <td>E106</td><td>CLERK</td><td>35000</td></tr> <tr> <td>E107</td><td>MANAGER</td><td>61000</td></tr> <tr> <td>E108</td><td>CLERK</td><td>36000</td></tr> </tbody> </table> <p>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:</p> <p><b>Select category, sum(salary) from hotel where count(*)&gt;2 group by category;</b></p> <p>But he got an error. Identify the error(s) and rewrite the query. Also underline the correction(s) done.</p>	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	2
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E105	EXECUTIVE	50000																														
E106	CLERK	35000																														
E107	MANAGER	61000																														
E108	CLERK	36000																														
21	Write the difference in usage of where and having keywords.	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.	2																														
23	<p>What is E -Waste? List any two E-Waste management techniques?</p> <p>OR</p> <p>List any one Positive impact and negative impact of usage of technology.</p>	2																														
24	What will be the output of the following code:	2																														

	<pre>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])</pre>																																																		
25	<p>Carefully observe the following code:</p> <pre>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)</pre> <p>Answer the following</p> <ul style="list-style-type: none"><li>i. List the index of the DataFrame df</li><li>ii. List the column names of DataFrame df</li></ul>	2																																																	
SECTION -C																																																			
26	<p>Write outputs for SQL queries (i) to (iii) which are based on the given <b>PASSENGER</b> table</p> <table><tr><th>pid</th><th>Pname</th><th>Age</th><th>Place</th><th>DateofJourney</th><th>Amount</th><th>Sex</th></tr><tr><td>201</td><td>Amith</td><td>22</td><td>Delhi</td><td>2022-10-07</td><td>2000</td><td>M</td></tr><tr><td>202</td><td>Jeena</td><td>38</td><td>Mumbai</td><td>2022-15-09</td><td>1500</td><td>F</td></tr><tr><td>203</td><td>Abilash</td><td>54</td><td>Chennai</td><td>2022-05-22</td><td>750</td><td>M</td></tr><tr><td>204</td><td>Asok</td><td>43</td><td>Chennai</td><td>2022-05-05</td><td>750</td><td>M</td></tr><tr><td>205</td><td>Nithya</td><td>28</td><td>Delhi</td><td>2022-08-14</td><td>2000</td><td>F</td></tr><tr><td>206</td><td>Devan</td><td>58</td><td>Mumbai</td><td>2022-07-21</td><td>1500</td><td>M</td></tr></table> <p>1. SELECT INSTR(PLACE, 'E') FROM PASSENGER WHERE DATEOFJOURNEY ='2022-07-21';</p> <p>2. SELECT LENGTH(PNAME) FROM PASSENGER WHERE MONTH( DateofJourney)=8;</p> <p>3. SELECT LEFT(PNAME,2) FROM PASSENGER WHERE SEX= 'F' AND AMOUNT&lt;=1500;</p>	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	3
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206	Devan	58	Mumbai	2022-07-21	1500	M																																													
27	<p>Write a Python code to create a DataFrame Toppers with appropriate column headings from the list given below:</p> <pre>[[501,'Aromal','Commerce'],[502,'Greeshma','Science'],[503," Preeti",'Humanities'],[504,' Rupin ','Arts']]</pre>	3																																																	
28	<p>Consider the given DataFrame 'Market':</p> <table><tr><th></th><th>Name</th><th>S_Price</th></tr><tr><td>0</td><td>Apple</td><td>220</td></tr><tr><td>1</td><td>Banana</td><td>45</td></tr><tr><td>2</td><td>Orange</td><td>160</td></tr></table>		Name	S_Price	0	Apple	220	1	Banana	45	2	Orange	160	3																																					
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2	Orange	160																																																	

	<p>Write suitable Python statements for the following:</p> <p>i. Add a new item named 'Guava' having price 175.</p> <p>ii. Add a column called Margin with the following data: [80,13,50,30].</p> <p>iii. Remove the column Margin.</p>																																																							
29	<p>Mr. Manoj who is a business man by profession faced following situations. Identify the type of crime for each situation/incident happened to him?</p> <p>(i) He was constantly receiving abusive emails</p> <p>(ii) He clicked on an unknown link received as a result his personal sensitive information was acquired by someone</p> <p>(iii) His laptop was controlled by somebody in an unauthorised way</p> <p>OR</p> <p>What do you understand by Cyber crime? List any two cyber crimes? How cyber crimes are handled in our country?</p>	3																																																						
30	<p>A relation 'VAHAN' is given below :</p> <table><tr><th>VNO</th><th>TYPE</th><th>COMAPNY</th><th>YEAR</th><th>PRICE</th><th>QTY</th></tr><tr><td>V1</td><td>WAGONAR</td><td>MARUTI</td><td>2009</td><td>325000</td><td>35</td></tr><tr><td>V2</td><td>JEEP</td><td>MAHINDRA</td><td>2005</td><td>1600000</td><td>10</td></tr><tr><td>V3</td><td>MIRAGE</td><td>MITSUBISHI</td><td>2009</td><td>500000</td><td>15</td></tr><tr><td>V4</td><td>RAV4</td><td>TOYOTA</td><td>2012</td><td>5500000</td><td>10</td></tr><tr><td>V5</td><td>ALTO LXI</td><td>MARUTI</td><td>2012</td><td>310000</td><td>45</td></tr><tr><td>V6</td><td>FTO</td><td>MITSUBISHI</td><td>2022</td><td>850000</td><td>8</td></tr><tr><td>V7</td><td>LANCER</td><td>MITSUBISHI</td><td>2021</td><td>733000</td><td>9</td></tr><tr><td>V8</td><td>GLANZA</td><td>TOYOTA</td><td>2022</td><td>659000</td><td>12</td></tr></table> <p>Write suitable SQL queries for the following:</p> <p>i. Display year wise highest price</p> <p>ii. Display company wise lowest price</p> <p>iii. Display sum of quantities available and number of cars available year wise.</p> <p>OR</p> <p>Discuss the significance of Order by clause in detail with the help of suitable example</p>	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	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	3
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SECTION D																																																								
31	<p>Write suitable SQL query for the following:</p> <p>i. Display 7 characters extracted from 22nd left character onwards from the string 'Experience is a hard teacher'.</p> <p>ii. Display the position of occurrence of string 'HIDE' in the string 'HIDE AND SEEK'.</p> <p>iii. Round off the value 45.1876 to two place.</p> <p>iv. Display the remainder of 77 divided by 4.</p> <p>v. Remove all the expected leading and trailing spaces from a column student_name of the table ' result '.</p>	5																																																						

	<div>OR</div> <div>Explain the following SQL functions using suitable examples</div> <div><div>i.</div><div>LCASE()</div></div> <div><div>ii.</div><div>LTRIM()</div></div> <div><div>iii.</div><div>SUBSTR()</div></div> <div><div>iv.</div><div>NOW()</div></div> <div><div>v.</div><div>MONTHNAME()</div></div> <td></td>																					
32	<div>ABC Radio services is an international organization with their head office at Telangana</div> <div>They are planning to set up its new centre at Kochi for its office and broadcasting activities. It has 4 blocks of buildings as shown in the diagram below.</div> <div>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.</div>	5																				
	<div><div>Kochi</div><div><div>Telangana</div><div><div><div>Broadcasting</div><div>Advertisements</div><div>News collection</div><div>Recruitment</div></div></div></div></div>																					
	<div>Center to Center distance between various blocks.</div> <table><tr><td>Broadcasting to News collection</td><td>60 m</td></tr><tr><td>News collection to Advertisements</td><td>125 m</td></tr><tr><td>Advertisements to Recruitment</td><td>175 m</td></tr><tr><td>Broadcasting to Recruitment</td><td>250 m</td></tr><tr><td>News collection to Recruitment</td><td>100 m</td></tr><tr><td>Broadcasting to Advertisements</td><td>75 m</td></tr></table> <div>Number of Computers in each wing</div> <table><tr><td>Broadcasting</td><td>50</td></tr><tr><td>News collection</td><td>250</td></tr><tr><td>Advertisements</td><td>50</td></tr><tr><td>Recruitment</td><td>100</td></tr></table>	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	Broadcasting	50	News collection	250	Advertisements	50	Recruitment	100	
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News collection	250																					
Advertisements	50																					
Recruitment	100																					





	<p>i. Write a query to display the highest price from the table watches</p> <p>ii. Write a query to display watch names in upper case.</p> <p>iii. Write a query to display total number of watches under each type.</p> <p><b>OR (Option for part iii only)</b></p> <p>Write a query to display sum of price of watches under each type where quantity available is more than 100.</p>																
35	<p>Mr. Roshan, a data analyst has designed the DataFrame df that contains data about sales made by 4 salesmans in two half yearly as shown below. Answer the following questions:</p> <table border="1"> <thead> <tr> <th></th><th>First</th><th>Second</th></tr> </thead> <tbody> <tr> <td><b>Salesman1</b></td><td><b>23000</b></td><td><b>18000</b></td></tr> <tr> <td><b>Salesman2</b></td><td><b>11000</b></td><td><b>15000</b></td></tr> <tr> <td><b>Salesman3</b></td><td><b>60000</b></td><td><b>40000</b></td></tr> <tr> <td><b>Salesman4</b></td><td><b>35000</b></td><td><b>12000</b></td></tr> </tbody> </table> <p>A. Predict the output of the following python statement:</p> <p>i. df.shape</p> <p>ii. df[1:3]</p> <p>B. Write Python statement to display the data of Second half yearly column of indexes Salesman1 to Salesman3</p> <p><b>OR (Option for part iii only)</b></p> <p>Write Python statement to compute and display the sum of data of First column and Second column of the above given DataFrame.</p>		First	Second	<b>Salesman1</b>	<b>23000</b>	<b>18000</b>	<b>Salesman2</b>	<b>11000</b>	<b>15000</b>	<b>Salesman3</b>	<b>60000</b>	<b>40000</b>	<b>Salesman4</b>	<b>35000</b>	<b>12000</b>	1+1+2
	First	Second															
<b>Salesman1</b>	<b>23000</b>	<b>18000</b>															
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