

# RASHTRIYA MILITARY SCHOOL, BENGALURU

## PRACTICE PAPER-3

CLASS – XII

INFORMATICS PRACTICES (065)

TIME ALLOWED: 03 HOURS

M.M.: 70

### 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 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

SECTION-A(1 MARKS)		
1	A computer network created by connecting the computers of your school's computer lab is an example of a. LAN b. MAN c. WAN d. PAN	1
2	The information /art/work that exists in digital form is called_____. a. e-work b. e-asset c. digital property d. e-property	1
3	Legal term to describe the right of creator of original creative or artistic work is called_____. a. Copyright b. Copyleft c. GPL d. Trademark	1
4	If column "salary" of table employee contains the data set (2000,500, 4300,2000, 500) , what will be the output after execution of the following query. <b>SELECT COUNT(DISTINCT SALARY) FROM EMPLOYEE ;</b> a. 5 b. 0 c. 3 d. 1	1
5	What will be the output of the following SQL command? <b>SELECT round(192.8562,-1);</b> a. 192.9 b. 192.8 c. 190 d. 193	1
6	_____is an attempt where a hacker tries to divert network traffic to bogus site. a. Phishing scams b. Spoofing c. Eavesdropping d. Pharming	1
7	Consider the string "Preboard Exam 2023". Which among the following SQL command will gives the last 4 characters of the string as output? (i). SELECT right("Preboard Exam 2023",4); (ii). SELECT left("Preboard Exam 2023",4); (iii). SELECT substr("Preboard Exam 2023",14,4); (iv). SELECT substr("Preboard Exam 2023",15,4) a. option (i) b. option (i) and (iii) c. option (i) and (iv) d. option (ii)	1
8	The mid( ) function in MySQL is an example of_____. a. Math function b. Text function c. Date Function d. Aggregate Function	1



22.	Write a program to create a series object using a dictionary that stores the number of students in each stream of class XII. <b>Note: Assume three streams as ‘science’, ‘arts’, ‘commerce’ with 27, 38, 42 students respectively.</b>	2																																																
23.	List any four benefits of e-waste management. <div>OR</div> What is IPR? Why should it be protected?	2																																																
24	Consider the commands below: import pandas as pd lst=[10,20] ds=pd.Series([10,20])  Here lst is a list and ds is a series. Both have same values 10 and 20. What will be the output of the following commands? Justify your answer. a. print ( lst * 2 ) b. print ( ds * 2 )	2																																																
25	Carefully observe the following code: import pandas as pd L=[['S101','Anushree',65],['S102','Anubha',56],['S104','Vishnu',67],['S105','Kritika',45]] df=pd.DataFrame (L, columns=['ID','Name','Marks']) print(df) <div>i. What is the shape of the data frame df? ii. Name the index and column names of dataframe df</div>	2																																																
SECTION-C (03 MARKS)																																																		
26	Write the output of the queries (a) to (c) based on the table, Staff given below: <b>Table: Staff</b> <table><tr><th>Id</th><th>Name</th><th>DOJ</th><th>Dept</th><th>Gender</th><th>Exp</th></tr><tr><td>1</td><td>Aman</td><td>12-01-2006</td><td>Finance</td><td>M</td><td>15</td></tr><tr><td>2</td><td>Dima</td><td>03-05-2016</td><td>Personnel</td><td>F</td><td>5</td></tr><tr><td>3</td><td>Christina</td><td>15-11-2009</td><td>Sales</td><td>F</td><td>12</td></tr><tr><td>4</td><td>Shem</td><td>20-12-2006</td><td>Sales</td><td>M</td><td>15</td></tr><tr><td>5</td><td>Roshan</td><td>13-10-2013</td><td>Finance</td><td>M</td><td>8</td></tr><tr><td>6</td><td>Danish</td><td>11-09-2013</td><td>Personnel</td><td>M</td><td>8</td></tr><tr><td>7</td><td>Habeena</td><td>16-08-2011</td><td>Sales</td><td>F</td><td>10</td></tr></table> (a) Select avg(exp) from staff where gender = ‘F’; (b) Select * from staff where gender = ‘M’ and dept like ‘P%’; (c) Select upper(Name) from Staff where year(DOJ) < 2010 ;	Id	Name	DOJ	Dept	Gender	Exp	1	Aman	12-01-2006	Finance	M	15	2	Dima	03-05-2016	Personnel	F	5	3	Christina	15-11-2009	Sales	F	12	4	Shem	20-12-2006	Sales	M	15	5	Roshan	13-10-2013	Finance	M	8	6	Danish	11-09-2013	Personnel	M	8	7	Habeena	16-08-2011	Sales	F	10	3
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27	Write a Python code to create a DataFrame ‘Df’ using dictionary of lists for the following data.	<table><tr><td></td><td>Arnab</td><td>Ramit</td><td>Samridhi</td></tr><tr><td>Maths</td><td>90</td><td>92</td><td>89</td></tr><tr><td>Science</td><td>91</td><td>81</td><td>91</td></tr><tr><td>Hindi</td><td>97</td><td>96</td><td>88</td></tr></table>		Arnab	Ramit	Samridhi	Maths	90	92	89	Science	91	81	91	Hindi	97	96	88	3																															
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28	Consider the following dataframe ndf as shown below : <table><tr><td></td><td>Col1</td><td>Col2</td><td>Col3</td><td>Res</td></tr><tr><td>T1</td><td>62.893165</td><td>100.0</td><td>60.00</td><td>True</td></tr><tr><td>T2</td><td>94.734483</td><td>100.0</td><td>59.22</td><td>True</td></tr><tr><td>T3</td><td>49.090140</td><td>100.0</td><td>46.04</td><td>False</td></tr><tr><td>T4</td><td>38.487265</td><td>85.4</td><td>58.60</td><td>False</td></tr></table>		Col1	Col2	Col3	Res	T1	62.893165	100.0	60.00	True	T2	94.734483	100.0	59.22	True	T3	49.090140	100.0	46.04	False	T4	38.487265	85.4	58.60	False	3																							
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	What will be the output produced by following statements :- a. print( ndf.loc [ : , 'Col3' : ] ) b. print( ndf.iloc[2 : , : 3] ) c. print( ndf.iloc [ 1:3 , 2:3 ])																																									
29	What do you mean by Identity theft? Explain with the help of an example. <b>OR</b> What do you understand by Net Etiquettes? Explain any two such etiquettes.	3																																								
30	Consider the below mentioned table of ‘CLOTH’ <table border="1"><thead><tr><th>DCODE</th><th>DESCRIPTION</th><th>PRI CE</th><th>FABRIC</th><th>LAUNCHDATE</th></tr></thead><tbody><tr><td>10001</td><td>FORMAL SHIRT</td><td>1250</td><td>COTTON</td><td>12-JAN-08</td></tr><tr><td>10020</td><td>FROCK</td><td>750</td><td>SILK</td><td>09-SEP-07</td></tr><tr><td>10012</td><td>INFORMAL SHIRT</td><td>1450</td><td>POLYESTER</td><td>06-JUN-08</td></tr><tr><td>10019</td><td>EVENING GOWN</td><td>850</td><td>POLYESTER</td><td>06-JUN-08</td></tr><tr><td>10090</td><td>TULIP SKIRT</td><td>850</td><td>SILK</td><td>31-MAR-07</td></tr><tr><td>10023</td><td>PENCIL SKIRT</td><td>1250</td><td>COTTON</td><td>19-DEC-08</td></tr><tr><td>10089</td><td>SLACKS</td><td>850</td><td>COTTON</td><td>20-OCT-08</td></tr></tbody></table> <b>Write the SQL commands for the following:</b> (a) Display first three letters of all values in DESCRIPTION column e.g. ‘FRO’ for ‘FROCK’ (b) Display number of cloths of each Fabric. (c) Display average price of cloths of each Fabric. <b>OR</b> Discuss the significance of <b>Group by</b> and <b>having</b> clause in detail with help of suitable example.	DCODE	DESCRIPTION	PRI CE	FABRIC	LAUNCHDATE	10001	FORMAL SHIRT	1250	COTTON	12-JAN-08	10020	FROCK	750	SILK	09-SEP-07	10012	INFORMAL SHIRT	1450	POLYESTER	06-JUN-08	10019	EVENING GOWN	850	POLYESTER	06-JUN-08	10090	TULIP SKIRT	850	SILK	31-MAR-07	10023	PENCIL SKIRT	1250	COTTON	19-DEC-08	10089	SLACKS	850	COTTON	20-OCT-08	3
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SECTION-D (5 MARKS)																																										
31	Write Suitable query for the following: i. Display 4 characters from third position of string “Computer Lab”. ii. Round off the value 2.372 to one decimal place. iii. Display today’s dayname iv. Remove the extra spaces from both side of the string “ Python is Dangerous “. v. Find out remainder after dividing 37 by 10. <b>OR</b> Explain the following SQL functions using suitable examples: i. Ltrim() ii. Ucase() iii. Pow(m,n) iv. Right () v. Month()	5																																								
32	Ayurveda Training Educational Institute is setting up its centre in Hyderabad with four specialized departments for Orthopedics, Neurology and Pediatrics along with an administrative office in separate buildings. The physical distances between these department buildings and the number of computers to be installed in these departments and administrative office are given as follows. Answer the queries as raised by them in (i) to (iv). <div><div>Administrative Office</div><div><div>Orthopedics Unit</div><div>Pediatrics Unit</div><div>Neurology Unit</div></div></div>	5																																								

Shortest distances between various locations in meters :

Administrative Office to Orthopedics Unit	55
Neurology Unit to Administrative Office	30
Orthopedics Unit to Neurology Unit	70
Pediatrics Unit to Neurology Unit	50
Pediatrics Unit to Administrative Office	40
Pediatrics Unit to Orthopedics Unit	110

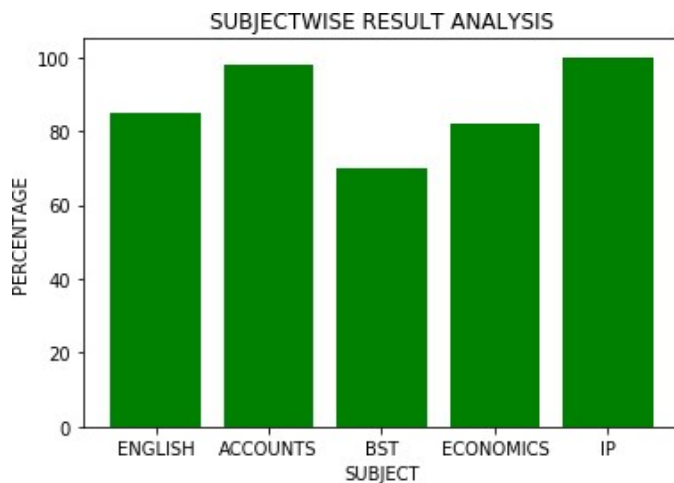
Number of Computers installed at various locations are as follows :

Pediatrics Unit	40
Administrative Office	140
Neurology	50
Orthopedics Unit	80

- Suggest the most suitable location to install the main server of this institution to get efficient connectivity.
- Suggest the best cable layout for effective network connectivity of the building having server with all the other buildings.
- Suggest the devices to be installed in each of these buildings for connecting computers installed within the building out of the following : Gateway, switch, Modem
- Suggest the topology of the network and network cable for efficiently connecting each computer installed in each of the buildings out of the following :  
Topologies: Bus Topology, Star Topology  
Network Cable: Single Pair Telephone Cable, Coaxial Cable, Ethernet Cable.
- Suggest type of network to connect each building  
Network: PAN, LAN, MAN and WAN

33 Write python code to plot bar chart for subject wise result analysis as shown below:

5



Also give suitable python statement to save this chart as 'Result.png'

**OR**

Write Python programming to display a bar chart of the popularity of programming Languages. Sample data:

**Programming languages:** Python, Java, PHP, JavaScript

**Popularity:** 8.6, 8, 7.8, 6.4

**SECTION-E(4 MARKS)**

- 34 Shreya, a database administrator has designed a database for a clothing shop. Help her by writing answers of the following questions based on the given table:

Table: Cloth

CCODE	CNAME	SIZE	COLOR	PRICE	DOP
C001	JEANS	XL	BLUE	990	2022-01-21
C002	T SHIRT	M	RED	599	2021-12-12
C003	TROUSER	M	GREY	399	2021-11-10
C004	SAREE	FREE	GREEN	1299	2019-11-12
C005	KURTI	L	WHITE	399	2021-12-07

- Write a query to display total number of cloths of Green color.
- Write a query to display the cloth name along with Day of purchase i.e. Monday, Tuesday
- Write a query to display size-wise total price of cloths.

**OR (for option iii only)**

Write a query to display name of cloths which are purchased in month of November and whose price is less than 1200.

- 35 Mr. Kapoor, a data analyst has designed the dataframe DF that contains data about Attendance and number of classes of a week as shown below. Answer the following questions:

	No_of_classes	Atten
Monday	5	15
Tuesday	8	24
Wednesday	4	20
Thursday	5	10
Friday	4	12
Saturday	8	16

A. Predict the output of the following python statement:

- `print(DF[3: ])`
- `print(DF.index)`

B. Write Python statement to display the data of 'No\_of\_classes' column of indexes 'Tuesday' to 'Thursday'

**OR (for option B only)**

Write python statement to calculate No\_of\_classes \* Atten and display it as Total attendance in a day.

\*\*\*\*\* End of Question Paper \*\*\*\*\*