

**KENDRIYA VIDYALAYA SANGATHAN REGIONAL OFFICE LUCKNOW**

**Class XII**

**INFORMATICS PRACTICES (SUBJECT CODE – 065)**

**2<sup>ND</sup> PRE-BOARD EXAMINATION (2020-21)**

**Max Marks: 70**

**Time: 3 Hours**

**General Instructions:**

1. This question paper contains two parts A and B. Each part is compulsory.
2. Both Part A and Part B have choices.
3. Part-A has 2 sections:
  - a. Section – I is short answer questions, to be answered in one word or one line.
  - b. Section – II has two case studies questions. Each case study has 4 case-based sub- parts. An examinee is to attempt any 4 out of the 5 subparts.
4. Part - B is Descriptive Paper.
5. Part- B has three sections
  - a. Section-I is short answer questions of 2 marks each in which two questions have internal options.
  - b. Section-II is long answer questions of 3 marks each in which two questions have internal options.
  - c. Section-III is very long answer questions of 5 marks each in which one question has question has internal option.

Q1	<p>State whether True or False :</p> <p>i. Cyber laws are incorporated for punishing all types of criminals.</p> <p>ii. Firewall can be implemented in software as well as in hardware.</p>	1
Q2	<p>Fill in the blanks :</p> <p>Which argument of bar () lets you set the thickness of bar?</p> <p>a. thick</p> <p>b. thickness</p> <p>c. width</p> <p>d. barwidth</p>	1
Q3	<p>With WQL, how can you return the number of non null records in the Project field of “Students” table ?</p> <p>a. SELECT COUNT(Project) FROM Students</p> <p>b. SELECT COLUMNS(Project) FROM Students</p> <p>c. SELECT COLUMNS(*) FROM Students</p> <p>d. SELECT COUNT(*) FROM Students</p>	1
Q4	<p>To display the 3<sup>rd</sup>, 4<sup>th</sup>, and 5<sup>th</sup> columns from the 6<sup>th</sup> to 9<sup>th</sup> rows of dataframe DF, you can write _____.</p> <p>a. DF.loc[6:9, 3:5]</p> <p>b. DF.iloc[6:10, 3:6]</p> <p>c. DF.loc[6:10, 3:5]</p> <p>d. DF.iloc[6:9, 3:5]</p>	1
Q5	<p>To get a number of elements in a dataframe, _____ attribute may be used.</p> <p>a. size</p> <p>b. shape</p> <p>c. values</p> <p>d. ndim</p>	1
Q6.	<p>The plot which tells the trend between two graphed variables is the _____ graph/chart.</p> <p>a. line plot</p> <p>b. bar graph</p> <p>c. histogram</p>	1

Q7	A network having a span of city, is called as _____	1
Q8	In a DataFrame, Axis= 1 represents the_ elements.	1
Q9	The____is a network device that connects dissimilar network.	1
Q10	In URL, <a href="http://www.python.com/er/main.html">http://www.python.com/er/main.html</a> , which component identifies the protocol or types of the server.	1
Q11	Which of the following is not a text function ? a. Trim( ) b. Truncate( ) c. Left( ) d. Mid( )	1
Q12	The____is the digital trail of your activity on the Internet.	1
Q13	In Pandas which function is used to delete the column in DataFrame	1
Q14	I can keep you signed in. I can remember your site preferences. I can give you locally relevant content. Who am I ?	1
Q15	Which of these is not a part of URL? a. IP Address b. Port Number c. Domain Name	1
Q16	A mail or message sent to a large number of people indiscriminately without their consent is called____	1
Q17	Give a solution to recycle the e-wastage in country?	1
Q18	The _____command can be used for pattern matching?	1
Q19	Write the SQL command that will display the current time and date	1
Q20	____network device is known as an intelligent hub .	1
Q21	Gaining unauthorized access to the network or computer with malicious intention is an example of _____.	1
	<b>Section - II</b>  <b>Both the case study based questions (22 &amp; 23 ) are compulsory. Attempt any four sub parts from each question. Each sub question carries 1 mark .</b>	

Q22	<p>Consider the following DataFrame <b>df</b> and answer any four questions from (i)- (v)</p> <table border="1" data-bbox="240 203 1043 383"> <thead> <tr> <th></th> <th>Hospital</th> <th>Population</th> <th>School</th> </tr> </thead> <tbody> <tr> <td>Delhi</td> <td>123</td> <td>25678</td> <td>344</td> </tr> <tr> <td>Mumbai</td> <td>456</td> <td>7896</td> <td>255</td> </tr> <tr> <td>Kolkata</td> <td>233</td> <td>78856</td> <td>452</td> </tr> <tr> <td>Lucknow</td> <td>122</td> <td>9875</td> <td>355</td> </tr> </tbody> </table>		Hospital	Population	School	Delhi	123	25678	344	Mumbai	456	7896	255	Kolkata	233	78856	452	Lucknow	122	9875	355	
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(i)	<p>Write down the command that will give the following output.</p> <pre>Delhi 25678 Mumbai 7896 Kolkata 78856 Lucknow 9875 Name: Population, dtype: int64</pre> <p>I. <code>print(df['Population'])</code>  II. <code>print(df('Population'))</code>  III. <code>print(df.Population)</code>  IV. <code>print(df.(Population))</code></p> <p>Choose the correct option :</p> <p>(a) Only I  (b) Only II and III  (c) Only I and III  None of above</p>	1																				
(ii)	<p>Now suppose that you want to display which state has more than 350 schools what command you will write for this purpose :</p> <p>a. <code>print(df[df['School']&gt;350])</code>  b. <code>print(df[df['School']==350])</code>  c. <code>print(df[df[School]&gt;=350])</code>  d. None of these</p>	1																				
(iii)	<p>Which of the following commands will display the elements of dataframe in array format?</p> <p>a. <code>print(df.size)</code>  b. <code>print(df.shape)</code>  c. <code>print(df.shape())</code>  d. <code>print(df.values)</code></p>	1																				
(iv)	<p>Which command is used to check whether the dataframe is empty or not?</p> <p>a. <code>Isnan()</code>  b. <code>empty</code>  c. <code>IsNull()</code>  d. None of above</p>	1																				
(v)	<p>Which of the following terms is not true with reference to DataFrame?</p>	1																				

	<p>(a) It has two axes</p> <p>(b) Columns can have data of same types</p> <p>(c) DataFrame is mutable.</p> <p>(d) All of above is true</p>																															
Q23.	<p>Consider the table Worker given below :</p> <table border="1"> <thead> <tr> <th>Ecode</th> <th>Name</th> <th>Gender</th> <th>Desig</th> <th>Doj</th> </tr> </thead> <tbody> <tr> <td>11</td> <td>RADHE</td> <td>M</td> <td>SUPERVISOR</td> <td>1998-12-20</td> </tr> <tr> <td>12</td> <td>FIZZA</td> <td>F</td> <td>CLERK</td> <td>1997-08-07</td> </tr> <tr> <td>13</td> <td>RADHIKA</td> <td>F</td> <td>SUPERVISOR</td> <td>2000-09-06</td> </tr> <tr> <td>14</td> <td>SHYAM</td> <td>M</td> <td>OPERATOR</td> <td>1999-07-16</td> </tr> <tr> <td>15</td> <td>SANYA</td> <td>F</td> <td>OPERATOR</td> <td>1999-07-13</td> </tr> </tbody> </table>	Ecode	Name	Gender	Desig	Doj	11	RADHE	M	SUPERVISOR	1998-12-20	12	FIZZA	F	CLERK	1997-08-07	13	RADHIKA	F	SUPERVISOR	2000-09-06	14	SHYAM	M	OPERATOR	1999-07-16	15	SANYA	F	OPERATOR	1999-07-13	
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(i)	<p>What will the output of following command :</p> <p>SELECT NAME FROM WORKER WHERE DOJ&gt;"1998-12-20";</p>	1																														
(a)	<pre> NAME RADHIKA </pre>																															
(b)	<pre> NAME RADHIKA SHYAM SANYA </pre>																															
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(ii)	<p>State the command that will give the output as :</p> <table border="1"> <thead> <tr> <th>NAME</th> <th>DOJ</th> </tr> </thead> <tbody> <tr> <td>FIZZA</td> <td>1997-08-07</td> </tr> <tr> <td>RADHIKA</td> <td>2000-09-06</td> </tr> <tr> <td>SANYA</td> <td>1999-07-13</td> </tr> </tbody> </table>	NAME	DOJ	FIZZA	1997-08-07	RADHIKA	2000-09-06	SANYA	1999-07-13	1																						
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	<p>(a) SELECT NAME, DOJ FROM WORKER WHERE GENDER="F" ORDER BY DOJ;</p> <p>(b) SELECT NAME, DOJ FROM WORKER WHERE GENDER="F" ORDER BY NAME DESC;</p> <p>(c) SELECT NAME, DOJ FROM WORKER WHERE GENDER="F" ORDER BY NAME;</p> <p>(d) SELECT NAME, DOJ FROM WORKER WHERE GENDER="F" ;</p>																															

(iii)	Ragav wants to know number of male and female employee in table worker what the command he will write : (a) SELECT GENDER, COUNT(*) GROUP BY GENDER FROM WORKER; (b) SELECT COUNT(*) FROM WORKER WHERE GENDER = "M" OR GENDER="F"; (c) SELECT COUNT(*) FROM WORKER WHERE GENDER = "M" AND GENDER="F"; (d) SELECT GENDER, COUNT(*) FROM WORKER GROUP BY GENDER;	1
(iv)	Sangita want to display the month in field DOJ which command she will use for this : (a) SELECT DAYOFMONTH(DOJ) FROM WORKER; (b) SELECT MONTH(DOJ) FROM WORKER; (c) SELECT DATE(DOJ) FROM WORKER; (d) ALL OF ABOVE.	1
(v)	Which SQL command is used to delete the row of table (a) Del (b) Remove (c) Delete (d) All of above	
Q24	Total number of medals to be won is 250 in the inter school games held every alternate year. Write code to create a Series object that stores these medals for games to be held in the decade 2020-2029.	2
Q25	State any two differences between single row functions and multiple row functions.  <p style="text-align: center;"><b>OR</b></p> What is the difference between the order by and group by clause when used along with the <b>select</b> statement. Explain with an example.	2
Q26	Consider the decimal number x with value 8459.2654. Write commands in SQL to: i. round it off to a whole number ii. round it to 2 places <b>before</b> the decimal.	2
Q27	Consider the following Series object mark Amit 345 Harsh 200 Rajnish 350 Manish 400 Aman 450 Dolly 250 Suman 370 (a) Display the marks of Amit. (b) Display the marks of those student whose score less than 200.	2

Q28	What are the aggregate function? Explain with suitable example?	2																																			
Q29	Write SQL commands to display:  (a) System date with time (b) 4 <sup>4</sup>  Or Considering the string “Preoccupied” Write SQL commands to display:  a. the position of the substring ‘cup’ in the string “Preoccupied” b. the first 4 letters of the string	2																																			
Q30	Consider the following DataFrame, classframe <table border="1" style="margin-left: 40px;"><thead><tr><th></th><th>Rollno</th><th>Name</th><th>Class</th><th>Section</th><th>CGPA</th><th>Stream</th></tr></thead><tbody><tr><td>St1</td><td>1</td><td>Aman</td><td>IX</td><td>E</td><td>8.7</td><td>Science</td></tr><tr><td>St2</td><td>2</td><td>Preeti</td><td>X</td><td>F</td><td>8.9</td><td>Arts</td></tr><tr><td>St3</td><td>3</td><td>Kartikey</td><td>IX</td><td>D</td><td>9.2</td><td>Science</td></tr><tr><td>St4</td><td>4</td><td>Lakshay</td><td>X</td><td>A</td><td>9.4</td><td>Commerce</td></tr></tbody></table> Write commands to :  i. Add a new column ‘Activity’ to the Dataframe ii. Add a new row with values ( 5 , Mridula ,X, F , 9.8, Science)		Rollno	Name	Class	Section	CGPA	Stream	St1	1	Aman	IX	E	8.7	Science	St2	2	Preeti	X	F	8.9	Arts	St3	3	Kartikey	IX	D	9.2	Science	St4	4	Lakshay	X	A	9.4	Commerce	2
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Q31	What is the function of Router? Write any two.	2																																			
Q32	What are some health concerns related to the excessive use of technology?	2																																			
Q33	Compare and contrast : Free software and Open source Software	2																																			
<b>Section-II</b>																																					
Q34	Consider the following Series object school Lucknow 350 Delhi 230 Mumbai 350 Punjab 400 Bihar 322 Write the command for following : (a) Change the value of state Punjab by 450. (b) Display the data of state Bihar, Mumbai. (c) Display which state has maximum number of school.	3																																			
Q35	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																																			
Q36	Create multiple line charts on common plot where three data ranges are plotted on same char. The data ranges to be plotted are data=[[5, 25, 45, 20], [8,13,29,27], [9,29, 27,39]]	3																																			

	<p>Note the following point when writing the code :</p> <p>(a) Three line should be of three different color .</p> <p>(b) Display the legend</p> <p>Or</p> <p>Create horizontal bar graph with following data</p> <pre>obj = ['python', 'c++', 'java', 'Perl', 'lisp'] performance=[10, 8, 6, 2, 1]</pre> <p><b>Note</b> the following point when writing the code :</p> <p>(a) Title of graph is “Programming language”</p> <p>(b) The color of bar graph is red.</p>																																																																
Q37	<p>A relation Toys is given below :</p> <table border="1" data-bbox="284 763 1070 1081"> <thead> <tr> <th>T_no</th> <th>Name</th> <th>Company</th> <th>Price</th> <th>Qty</th> </tr> </thead> <tbody> <tr> <td>T001</td> <td>Doll</td> <td>Barbie</td> <td>1200</td> <td>10</td> </tr> <tr> <td>T002</td> <td>Car</td> <td>Seedo_wheels</td> <td>550</td> <td>12</td> </tr> <tr> <td>T003</td> <td>Mini House</td> <td>Barbie</td> <td>1800</td> <td>15</td> </tr> <tr> <td>T004</td> <td>tiles</td> <td>Seedo_wheels</td> <td>450</td> <td>20</td> </tr> <tr> <td>T005</td> <td>Ludo</td> <td>Seedo_wheels</td> <td>200</td> <td>24</td> </tr> </tbody> </table> <p>Write SQL commands to:</p> <p>a. Display the average price of each type of company having quantity more than 15.</p> <p>b. Count the type of toys manufactured by each company. Display the total price of all toys</p>	T_no	Name	Company	Price	Qty	T001	Doll	Barbie	1200	10	T002	Car	Seedo_wheels	550	12	T003	Mini House	Barbie	1800	15	T004	tiles	Seedo_wheels	450	20	T005	Ludo	Seedo_wheels	200	24	3																																	
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Part-III																																																																	
Q38	<p>Observe the following dataframe and answer the following questions :</p> <table border="1" data-bbox="268 1503 1002 1989"> <thead> <tr> <th></th> <th>Elephant</th> <th>Tiger</th> <th>Deer</th> <th>Bear</th> <th>Rhino</th> <th>Fox</th> </tr> </thead> <tbody> <tr> <td>Assam</td> <td>25</td> <td>35</td> <td>115</td> <td>75</td> <td>12</td> <td>125</td> </tr> <tr> <td>UP</td> <td>65</td> <td>65</td> <td>56</td> <td>52</td> <td>118</td> <td>29</td> </tr> <tr> <td>Odisha</td> <td>75</td> <td>45</td> <td>96</td> <td>46</td> <td>145</td> <td>86</td> </tr> <tr> <td>Haryana</td> <td>125</td> <td>47</td> <td>85</td> <td>96</td> <td>74</td> <td>94</td> </tr> <tr> <td>Jharkhand</td> <td>52</td> <td>85</td> <td>62</td> <td>158</td> <td>56</td> <td>88</td> </tr> <tr> <td>Nagaland</td> <td>85</td> <td>98</td> <td>45</td> <td>244</td> <td>46</td> <td>97</td> </tr> <tr> <td>Manipur</td> <td>110</td> <td>120</td> <td>79</td> <td>95</td> <td>75</td> <td>56</td> </tr> <tr> <td>Sikkim</td> <td>25</td> <td>68</td> <td>78</td> <td>63</td> <td>88</td> <td>26</td> </tr> </tbody> </table> <p>(i) Display Deer, Bear, and Rhino between states Haryana to Sikkim.</p>		Elephant	Tiger	Deer	Bear	Rhino	Fox	Assam	25	35	115	75	12	125	UP	65	65	56	52	118	29	Odisha	75	45	96	46	145	86	Haryana	125	47	85	96	74	94	Jharkhand	52	85	62	158	56	88	Nagaland	85	98	45	244	46	97	Manipur	110	120	79	95	75	56	Sikkim	25	68	78	63	88	26	5
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	<p>(ii) Display the elephant state wise.</p> <p>(iii) Display which state has number of elephant more than 100.</p> <p>(iv) Write the code to create the above dataframe using dictionary and sequence of column will same as shown in above dataframe.</p>																																									
Q39	<p>Write the output of following SQL Command</p> <p>(a) SELECT MID('INFORMATION', 2, 3)</p> <p>(b) SELECT INSTR('UNICODE', 'CO');</p> <p>(c) SELECT RIGHT('INFORMATICS', 3)</p> <p>(d) SELECT DAYOFMONTH('2009-08-25')</p> <p>(e) SELECT TRUNCATE(5.3456,1)</p> <p>Or</p> <p>Consider a table Employee with the following data:</p> <table border="1"> <thead> <tr> <th>ENO</th> <th>ENAME</th> <th>SALARY</th> <th>BONUS</th> <th>DATE OF JOINING</th> </tr> </thead> <tbody> <tr> <td>E01</td> <td>RamMehta</td> <td>35000</td> <td>NULL</td> <td>02-11-2020</td> </tr> <tr> <td>E02</td> <td>ShyamSahay</td> <td>55000</td> <td>32.34</td> <td>16-03-2008</td> </tr> <tr> <td>E03</td> <td>AlishaThakkar</td> <td>32000</td> <td>NULL</td> <td>18-09-2020</td> </tr> <tr> <td>E04</td> <td>Neena Gupta</td> <td>85000</td> <td>28.54</td> <td>31-11-1993</td> </tr> <tr> <td>E05</td> <td>GautamSingh</td> <td>24000</td> <td>NULL</td> <td>30-09-2020</td> </tr> <tr> <td>E06</td> <td>Tez Singh</td> <td>75000</td> <td>22.47</td> <td>25-07-985</td> </tr> <tr> <td>E07</td> <td>ReemaSaxena</td> <td>55000</td> <td>NULL</td> <td>30-10-2020</td> </tr> </tbody> </table> <p>Write SQL queries using SQL functions to perform the following operations:</p> <p>a) Display employee name and bonus after rounding off to zero decimal places.</p> <p>b) Display the position of occurrence of the string "ee" in employee names.</p> <p>c) Display the four characters from employee name starting from second character.</p> <p>d) Display the day name for the date of joining of employee</p> <p>e) Display the name of the month from the date of joining of employee</p>	ENO	ENAME	SALARY	BONUS	DATE OF JOINING	E01	RamMehta	35000	NULL	02-11-2020	E02	ShyamSahay	55000	32.34	16-03-2008	E03	AlishaThakkar	32000	NULL	18-09-2020	E04	Neena Gupta	85000	28.54	31-11-1993	E05	GautamSingh	24000	NULL	30-09-2020	E06	Tez Singh	75000	22.47	25-07-985	E07	ReemaSaxena	55000	NULL	30-10-2020	5
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Q40	<p>Knowledge Supplement Organization has set up its new center at Mangalore for its office and web based activities. It has four buildings as shown in the diagram below :</p>	5																																								



Center to Center Distances between various buildings :

Alpha to Beta	50m
Beta to Gamma	150m
Gamma to Lambda	25m
Alpha to Lambda	170m
Beta to Lambda	125m
Alpha to Gamma	90m

Number of Computer	
Alpha	25
Beta	50
Gamma	125
Lambda	10

- (a) Suggest a cable layout of connections between the buildings.
- (b) Suggest the most suitable place to house the server of this organization with a suitable reason.
- (c) Suggest the placement of the following devices with justification :
  - (i) Repeater      (ii) Hub/Switch
- (d) The Organization is planning to link its sale counter suitable in various parts of the same city, which type of network out of LAN, MAN or WAN will be formed ? Justify your answer?
- (e) The Organization is planning to link its head office situated in Delhi with the offices at Srinagar. Suggest an economic way to connect it; the company is ready to compromise on the speed of connectivity. Justify your answer.

X-----X