

SOLVED QUESTION PAPER
CLASS – XII
SUBJECT: INFORMATICS PRACTICES (065)

PART A SECTION – I																						
1	State whether True or False : (i) Online personal account, personal websites are examples of Digital property. <u>True</u> (ii) In OSS source code is not usually hidden from the users. <u>True</u>	1																				
2	Fill in the blanks : The command used to draw line graph is a. <code>plt.show()</code> b. <code>plt.plot()</code> c. <code>plt.line()</code> d. <code>plt.title()</code>	1																				
3	Write the output of the following SQL command. <code>select round(298.88,-1);</code> a. 200 b. 290 c. 300 d. 298.9	1																				
4	Given a Pandas series called Sequences, the command which will display the first 4 rows is _____. a. <code>print(Sequences.head(4))</code> b. <code>print(s.iloc[:3])</code> c. Both a and b d. <code>print(sequences.head(4))</code>	1																				
5	Given the following Series S1 and S2: <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2" style="text-align: left;">S1</th> <th colspan="2" style="text-align: left;">S2</th> </tr> </thead> <tbody> <tr> <td>A</td><td>10</td> <td>A</td><td>80</td> </tr> <tr> <td>B</td><td>40</td> <td>B</td><td>20</td> </tr> <tr> <td>C</td><td>34</td> <td>C</td><td>74</td> </tr> <tr> <td>D</td><td>60</td> <td>D</td><td>90</td> </tr> </tbody> </table> Write the command to find the sum of series S1 and S2 <code>print(S1+S2)</code>	S1		S2		A	10	A	80	B	40	B	20	C	34	C	74	D	60	D	90	1
S1		S2																				
A	10	A	80																			
B	40	B	20																			
C	34	C	74																			
D	60	D	90																			
6	Using Python Matplotlib _____ can be used to count how many values fall into each interval a. line plot b. bar graph c. histogram	1																				

7	To prevent unauthorized access to and / or from the network, a system known as Firewall , can be implemented by hardware and / or software.	1
8	In a DataFrame, Axis= 0 represents the Rows elements.	1
9	Which of the following is not a network protocol: TCP/IP, FTP , HTTP, UTP	1
10	For web pages where the information is changed frequently, for example, stock prices, weather information which out of the following options would you advise ? a) Static web page b) Dynamic web page Justify your answer. Displayed info changes as per backend	1
11	In Pandas the function used to check missing values in a DataFrame is __ df.isnull().any() OR df.isnull().values.any()	1
12	The practice of taking someone else's work or ideas and passing them of as one's own is known as Plagiarism	1
13	The Length() function in MySql is an example of a. Math function b. Text function c. Date Function d. Aggregate Function	1
14	I can keep you signed in. I can remember your site preferences. I can give you locally relevant content. Who am I? Cookies	1
15	Which amongst the following is/are not an example(s) of web browser? a. Chrome b. QuickHeal c. Avast d. Edge	1
16	A mail or message sent to a large number of people indiscriminately without their consent is called _Spam_	1
17	Intellectual property rights protect the use of information and ideas that are of: (a) Ethical Value (b) Moral Value (c) Social Value (d) Commercial Value	1
18	The _DDL_ category of commands can not be rollbacked in SQL.	1
19	Write the SQL command that will display the current system date CURDATE()	1
20	SWITCH network device is known as an intelligent hub.	1
21	Receiving unwanted emails from unknown sources repeatedly is an example of __SPAMMING__	1

PART A SECTION – II													
	22 (i)	Explain dataframe. Can it be considered as 1D Array or 2D Array?	1										
		Dataframe is a 2-Dimensional Array with heterogeneous data usually represented in a tabular format. It can be considered as 2D Array.											
	(ii)	Explain Matplotlib.	1										
		Matplotlib is a Python 2D plotting library which produces publication quality figures/charts in a variety of hard copy formats and interactive environments across platforms											
	(iii)	Give the output for following statement: a = pd.DataFrame([1, 1, 1, np.nan], index=['a', 'b', 'c', 'd'], columns=['one'])	1										
		<pre> one a 1.0 b 1.0 c 1.0 d NaN </pre>											
	(iv)	Give the output for following statement: import pandas as pd data = [1,2,3,4,5] df = pd.DataFrame(data) print(df)	1										
		<pre> 0 0 1 1 2 2 3 3 4 4 5 </pre>											
	(v)	Consider given data: <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Marks</th> </tr> </thead> <tbody> <tr> <td>Term1</td> <td>45</td> </tr> <tr> <td>Term2</td> <td>65</td> </tr> <tr> <td>Term3</td> <td>24</td> </tr> <tr> <td>Term4</td> <td>89</td> </tr> </tbody> </table> Write a program in Python Pandas to create the series named as M1.		Marks	Term1	45	Term2	65	Term3	24	Term4	89	1
	Marks												
Term1	45												
Term2	65												
Term3	24												
Term4	89												
		<pre> import pandas as pd Marks=[45,65,24,89] M1=pd.Series(Marks, index=["Term1", "Term2", "Term3", "Term4"]) print(" Marks") print(M1) </pre>											

23	<p>Write SQL commands and output for the following on table SPORTS:</p> <table border="1"> <thead> <tr> <th>StudentNo</th> <th>Class</th> <th>Name</th> <th>Game1</th> <th>Grade1</th> <th>Game2</th> <th>Grade2</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>7</td> <td>Sameer</td> <td>Cricket</td> <td>B</td> <td>Swimming</td> <td>A</td> </tr> <tr> <td>11</td> <td>8</td> <td>Sujit</td> <td>Tennis</td> <td>A</td> <td>Skating</td> <td>C</td> </tr> <tr> <td>12</td> <td>7</td> <td>Kamal</td> <td>Swimming</td> <td>B</td> <td>Football</td> <td>B</td> </tr> <tr> <td>13</td> <td>7</td> <td>Veena</td> <td>Tennis</td> <td>C</td> <td>Tennis</td> <td>A</td> </tr> <tr> <td>14</td> <td>9</td> <td>Archana</td> <td>Basketball</td> <td>A</td> <td>Cricket</td> <td>A</td> </tr> <tr> <td>15</td> <td>10</td> <td>Arpit</td> <td>Cricket</td> <td>A</td> <td>Athletics</td> <td>C</td> </tr> </tbody> </table> <p>(i) Display the names of the students who have grade 'A' in either Game1 or Game2 or both. 1</p> <p>(ii) Display the games taken by the students whose name starts with 'A'. 1</p> <p>Give the output of the following SQL Statements</p> <p>(iii) SELECT DISTINCT Class FROM SPORTS; 1</p> <p>(iv) SELECT MAX(Class) FROM SPORTS; 1</p> <p>(v) SELECT COUNT(*) FROM SPORTS GROUP BY Game1; 1</p>	StudentNo	Class	Name	Game1	Grade1	Game2	Grade2	10	7	Sameer	Cricket	B	Swimming	A	11	8	Sujit	Tennis	A	Skating	C	12	7	Kamal	Swimming	B	Football	B	13	7	Veena	Tennis	C	Tennis	A	14	9	Archana	Basketball	A	Cricket	A	15	10	Arpit	Cricket	A	Athletics	C	
StudentNo	Class	Name	Game1	Grade1	Game2	Grade2																																													
10	7	Sameer	Cricket	B	Swimming	A																																													
11	8	Sujit	Tennis	A	Skating	C																																													
12	7	Kamal	Swimming	B	Football	B																																													
13	7	Veena	Tennis	C	Tennis	A																																													
14	9	Archana	Basketball	A	Cricket	A																																													
15	10	Arpit	Cricket	A	Athletics	C																																													
	<p>(i) Select name from SPORTS where Grade1='A' OR Grade2='A';</p> <p>(ii) Select Game1,Game2 from SPORTS where Name LIKE 'A%';</p> <p>(iii) 7 8 9 10</p> <p>(iii) 10 (v) 2 2 1 1</p>																																																		
	PART – B																																																		
	SECTION – I																																																		
24	Write two points of difference between series data structure and DataFrame data structure?	2																																																	
	<p>A series is a one-dimensional object that can hold homogeneous data of any type such as integers, floats and strings. It has only one axis. Data mutable but size immutable</p> <p>A dataframe is a two-dimensional object that can hold heterogeneous data types. Individual columns of a dataframe can act as a separate series object.. Data and size mutable</p>																																																		
25	What is meant by data aggregation in Pandas?	2																																																	
	<p>Aggregation is the process of turning the values of a dataset (or a subset of it) into one single value or, we can say, data aggregation is a multi-value function which requires multiple values and returns a single value as a result. There are a number of aggregations possible in Pandas like count(), sum(), min(),max(), median(), quartile() etc.</p>																																																		
26	Giving suitable example differentiate between reindex() and rename()?	2																																																	
	<p>reindex() to change sequence of index whereas; rename() to change names/ labels of indexes in a series and dataframe.</p> <pre>df.reindex([2,1, 0,4,3]) df.reindex(columns=['name','runsscored','age']) df1.rename(index={0:'zero',1:'one'}) df1.rename(columns={"Marks1":'A',"Marks2":'B'})</pre>																																																		

27	Write the name of any four types of plots and four methods offered by matplotlib.pyplot	2
	<p>Matplotlib offers several types of plots:- Line Graph, Bar graph Histogram, Scatter Plot, Area Plot Pie Chart</p> <p>Various methods used with pyplot:- plot() show() title() xlabel() ylabel() explode() bar() hist() box plot() scatter()</p>	
28	Giving suitable example of each explain following methods: read_csv() (ii) to_csv()	2
	<p>To read from CSV file and create dataframe and write dataframe in CSV file respectively. df= pd.read_csv("ABC.CSV") df.to_csv("TRY.CSV")</p>	
29	<p>Write the output of the following code:</p> <pre>import pandas as pd data = {'Day':[1,2,3,4,5,6], "Visitors":[1000,700,6000,1000,400,350], 'Bounce_Rate':[25,30,23,27,23,34]} df = pd.DataFrame(data) print (df.T) df.at[7,"Visitors"]=1500 df.iat[3,2]=37 print(df) print (df.ndim) print (df.shape)</pre> <p style="text-align: center;">OR</p> <p>Give the output for the following code.</p> <pre>import pandas as pd data = [{'a': 1, 'b': 2},{'a': 5, 'b': 10, 'c': 20}] #With two column indices, values same as dictionary key df1 = pd.DataFrame(data, index=['first', 'second'],columns=['a', 'b']) #With two column indices with one index with other name df2 = pd.DataFrame(data, index=['first', 'second'], columns=['a', 'b1']) print(df1) print(df2)</pre>	2

	<pre> 0 1 2 3 4 5 Day 1 2 3 4 5 6 Visitors 1000 700 6000 1000 400 350 Bounce_Rate 25 30 23 27 23 34 Day Visitors Bounce_Rate 0 1.0 1000.0 25.0 1 2.0 700.0 30.0 2 3.0 6000.0 23.0 3 4.0 1000.0 37.0 4 5.0 400.0 23.0 5 6.0 350.0 34.0 7 NaN 1500.0 NaN 2 (7, 3) OR a b first 1 2 second 5 10 a b1 first 1 NaN second 5 NaN </pre>																																					
30	<p>Write the code in pandas to create the following dataframes :</p> <table border="0"> <thead> <tr> <th></th> <th colspan="2">df1</th> <th></th> <th colspan="2">df2</th> </tr> <tr> <th></th> <th>mark1</th> <th>mark2</th> <th></th> <th>mark1</th> <th>mark2</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>10</td> <td>1 50</td> <td>0</td> <td>30</td> <td>20</td> </tr> <tr> <td>1</td> <td>40</td> <td>451</td> <td>1</td> <td>20</td> <td>25</td> </tr> <tr> <td>2</td> <td>15</td> <td>302</td> <td>2</td> <td>20</td> <td>30</td> </tr> <tr> <td>3</td> <td>40</td> <td>703</td> <td>3</td> <td>50</td> <td>30</td> </tr> </tbody> </table> <p>Also write the commands to do the following operations on the dataframes given above :</p> <p>(i) To subtract df2 from df1 (ii) To change index label of df1 from 0 to zero and from 1 to one</p>		df1			df2			mark1	mark2		mark1	mark2	0	10	1 50	0	30	20	1	40	451	1	20	25	2	15	302	2	20	30	3	40	703	3	50	30	3
	df1			df2																																		
	mark1	mark2		mark1	mark2																																	
0	10	1 50	0	30	20																																	
1	40	451	1	20	25																																	
2	15	302	2	20	30																																	
3	40	703	3	50	30																																	
	<pre> print(df1-df2) df1.rename(index={0:'zero',1:'one'}) </pre>																																					
31	<p>The _____ function returns its argument with a modified shape, whereas the _____ method modifies the array itself.</p> <p>(i) reshape,resize (ii) resize,reshape (iii) reshape2,resize (iv) all of the Mentioned</p>	2																																				
	<pre> reshape,resize </pre>																																					

32	Write a Python program to display a bar chart of the popularity of programming Languages Data: Programming languages: Java, Python, PHP, JavaScript, C#, C++ Popularity: 22.2, 17.6, 8.8, 8, 7.7, 6.7	2
	<pre>import matplotlib.pyplot as plt proglang = ['Java', 'Python', 'PHP', 'JavaScript', 'C#', 'C++'] popularity = [22.2, 17.6, 8.8, 8, 7.7, 6.7] plt.bar(proglang, popularity, color='blue') plt.xlabel("Languages") plt.ylabel("Popularity") plt.title("Popularity of Programming Language\nWorldwide, Oct 2017 compared to a year ago") # Turn on the grid plt.minorticks_on() plt.grid(which='major', linestyle='-', linewidth='0.5', color='red') # Customize the minor grid plt.grid(which='minor', linestyle=':', linewidth='0.5', color='black') plt.show()</pre>	
PART B SECTION – II		
33	Giving suitable example of each explain the use of following functions in MySQL : (i) MOD() (ii) INSTR() (vii) DATE() (viii) SIGN()	4
	<p>To find remainder MOD(7,2) will give output 1</p> <p>To find location INSTR("CORPORATE FLOOR","OR") 2</p> <p>To extract date part DATE("2020-12-15 11:15:16") 2020-12-15</p> <p>To check a number is negative positive or zero SIGN(-45) -1</p>	
34	Which SQL keyword is used to give column alias.	1
	Keyword AS is used to give column alias. Example- SELECT SAL*12 AS "ANNUAL SALARY" FROM EMP;	
35	Find the odd one out and justify: (i) DROP (ii) TRUNCATE (iii) ALTER (iv) DELETE	1
	Delete. DML whereas; other belongs to DDL category.	
36	Giving suitable example of each write the difference between Single-Row Functions and Multiple-Row Functions in SQL.	2

	<p>Single row functions perform on individual rows or records and returns the answer either as integer or string. For example, <code>ucase()</code>, <code>mid()</code>, <code>length()</code> and <code>trim()</code> etc. On the other hand, multiple row functions perform on a range of values and always return the result as a numeric value or number. For example, Aggregate functions like <code>sum()</code>, <code>count()</code>, <code>max()</code>, <code>min()</code> & <code>avg()</code> etc.</p>	
37	Compare Having clause and Order by clause?	1
	<p>Having clause is used with group by clause in MySQL. It is used to provide condition based on grouped data. On the other hand, order by clause is an independent clause used to arrange records of a table in either ascending or descending order on the basis of one or more columns.</p>	
38	.What is difference between SYSDATE() and NOW() functions in MySQL.	1
	<p>SYSDATE() returns time of its own execution whereas; NOW() returns constant time ie time of command's execution.</p>	
39	<p>Reena created a table named student, she wants to see those students whose name ending with 'p' She wrote a query-</p> <pre>SELECT * FROM student WHERE name="p%";</pre> <p>Help Reena to run the query by removing the errors from the query and rewriting it.</p> <p>Select * from student where name like "%p";</p>	1
40	Sanjeev is not able to reduce the salary of employee. Which constraint has he used while creating table?	1
	<p>Check constraint CHECK SAL>50000</p>	
	<p>PART B SECTION – III</p>	

	<p>41 (i) Mention any one point of similarity between shareware and freeware software. Similarity- Source code is not available in both.</p> <p style="text-align: center;">OR</p> <p>Define the term network topology? Pattern of interconnecting nodes in a network. Eg. STAR, RING,BUS topology</p> <p>(ii) Expand the terms: (i) SMTP (ii) DNS (i) Simple Mail Transfer Protocol (ii) Domain Name System/Service</p> <p>(iii) The IIBM has to set up its new branch at Manipur for its office and web based activities. It has four wings of buildings having number of computers shown in the table: Number of Computers in various blocks:</p> <table border="1"> <tr> <td>Wing X</td> <td>50</td> </tr> <tr> <td>Wing Z</td> <td>130</td> </tr> <tr> <td>Wing Y</td> <td>40</td> </tr> <tr> <td>Wing U</td> <td>15</td> </tr> </table> <p>(i) Suggest the most suitable place (i.e. Wing) to house the server of this organization with a suitable justification. (ii) Suggest the placement (i.e. Wing) of the Hub/Switch with justification.</p>	Wing X	50	Wing Z	130	Wing Y	40	Wing U	15	<p>1</p> <p>2</p>
Wing X	50									
Wing Z	130									
Wing Y	40									
Wing U	15									
	<p>(i) Wing Z because maximum number of computers (ii) Hub/Switch should be placed in Each Wing to connect computers in that wing</p>									
42(i)	<p>Leaking your company data to the outside network without prior permission of senior authority is a crime true or false. (i) True (ii) False</p>	1								
(ii)	<p>What types of data are stolen by cyber-criminals in most of the cases? (i) Data that will pay once sold (ii) Data that has no value (iii) Data like username and passwords only (iv) Data that is old</p>	1								
(iii)	<p>Write the appropriate usage of social networks. OR What are the different way in which authentication of a person can be performed?.</p>	1								

	<p>A social networking service (also known as social networking site, or SNS or social media) is an online platform which people use to build social networks or social relationships with other people who share similar personal or career interests, activities, backgrounds or real- life connections</p> <p style="text-align: center;">OR</p> <p>Password, User ID, Biometric etc.</p>																																																		
(iv)	<p>Reena has recently shifted to a new city and new college. She does not know many people in her new city and college. But all of a sudden, someone starts posting negative, demeaning comments on her social networking profile, college 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 happening to Reena? (ii) What action should she take to stop them?</p> <p style="text-align: center;">OR</p> <p>Write any two relevant methods of e-waste management?</p>	2																																																	
	<p>(i) Reena has become a victim of cyber bullying and cyber stalking. (ii) She must immediately bring it to the notice of her parents and college authorities and report this cyber crime to local police with the help of her parents.</p> <p style="text-align: center;">OR</p> <p>Recycle, Resale, Use environment friendly devices etc.</p>																																																		
43	<p>Write commands in SQL for (i) to (iii) and output for (iv) and (v).</p> <p style="text-align: center;">Table : Store</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>StoreId</th> <th>Name</th> <th>Location</th> <th>City</th> <th>NoOfEmp</th> <th>DateOpen</th> <th>SalesAmt</th> </tr> </thead> <tbody> <tr> <td>S101</td> <td>Planet Fashion</td> <td>Bandra</td> <td>Mumbai</td> <td>7</td> <td>2015-10-16</td> <td>40000</td> </tr> <tr> <td>S102</td> <td>Vogue</td> <td>Karol Bagh</td> <td>Delhi</td> <td>8</td> <td>2015-07-14</td> <td>12000</td> </tr> <tr> <td>S103</td> <td>Trends</td> <td>Powai</td> <td>Mumbai</td> <td>10</td> <td>2015-06-24</td> <td>30000</td> </tr> <tr> <td>S104</td> <td>SuperFashion</td> <td>Thane</td> <td>Mumbai</td> <td>11</td> <td>2015-02-06</td> <td>45000</td> </tr> <tr> <td>S105</td> <td>Annabelle</td> <td>South Extn.</td> <td>Delhi</td> <td>8</td> <td>2015-04-09</td> <td>60000</td> </tr> <tr> <td>S106</td> <td>Rage</td> <td>Defence Colony</td> <td>Delhi</td> <td>5</td> <td>2015-03-01</td> <td>20000</td> </tr> </tbody> </table> <p>(i) To display names of stores along with SalesAmount of those stores that have 'u' as second character and 'fashion' anywhere in their store names. (ii) To display Stores names, Location and DateOfOpen of stores that were opened before 1st March, 2015. (iii) To display the City and the number of stores located in that City, only if number of stores is more than 2. (iv) Select Min(DateOpen) from Store; (v) Select Count(Distinct City) As "City Count" From Store;</p>	StoreId	Name	Location	City	NoOfEmp	DateOpen	SalesAmt	S101	Planet Fashion	Bandra	Mumbai	7	2015-10-16	40000	S102	Vogue	Karol Bagh	Delhi	8	2015-07-14	12000	S103	Trends	Powai	Mumbai	10	2015-06-24	30000	S104	SuperFashion	Thane	Mumbai	11	2015-02-06	45000	S105	Annabelle	South Extn.	Delhi	8	2015-04-09	60000	S106	Rage	Defence Colony	Delhi	5	2015-03-01	20000	5
StoreId	Name	Location	City	NoOfEmp	DateOpen	SalesAmt																																													
S101	Planet Fashion	Bandra	Mumbai	7	2015-10-16	40000																																													
S102	Vogue	Karol Bagh	Delhi	8	2015-07-14	12000																																													
S103	Trends	Powai	Mumbai	10	2015-06-24	30000																																													
S104	SuperFashion	Thane	Mumbai	11	2015-02-06	45000																																													
S105	Annabelle	South Extn.	Delhi	8	2015-04-09	60000																																													
S106	Rage	Defence Colony	Delhi	5	2015-03-01	20000																																													

		<p>(i) Select Name,SaleAmt from Store where Name like “_u%Fashion%”;</p> <p>Select Name,SaleAmt from Store where Name like “_u” and name like “% Fashion%”;</p> <p>(ii) Select Name,Location,DateOpen from Store where DateOpen< “2015-03-01”;</p> <p>(iii) Select City, Count(StoreId) from Store group by City Having</p>	
--	--	--	--