## APPENDIX C

## SAMPLE QUESTION PAPER (SOLVED)

## CLASS XII INFORMATICS PRACTICES (NEW) (065)

IME: Hr	s. M.M: 70			
1. (a)	Explain dataframe. Can it be considered as 1D Array or 2D Array? (2)			
Ans.	Dataframe is a 2-Dimensional Array with heterogeneous data usually represented in a tabular format. It can be considered as 2D Array.			
(b)	How can we check if a dataframe has any missing values? (2)			
Ans.	df.isnull values.any()			
(c)	<pre>a=pd.DataFrame([1, 1, 1, np.nan], index=['a', 'b', 'c', 'd'], columns=['one']) Give the output for the above statement.</pre> (2			
Ans.	one a 1.0 b 1.0 c 1.0 d NaN			
(d)	<pre>import pandas as pd data = [1,2,3,4,5] df = pd.DataFrame(data) print(df) What will be the output of the following snippet? (2)</pre>			
Ans.	0 0 1 1 2 2 3 3 4 4 5			
(e)	What is meant by data aggregation in Pandas? (2)			
Ans.	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.			
2. (a)	What is Software Development Life Cycle (SDLC)? (2)			
	Software Development Life Cycle (SDLC) is the overall process of developing information systems through a multi-step process from investigation of initial requirements through analysis, design, implementation and maintenance.			
(b)	What is feasibility study? (2)			
Ans.	A feasibility study is an initial look at an existing information processing system to decide how it might be computerized or improved.			
(c)	Define the terms: (2) (i) Agile Methods (ii) Agile Process			
Ans.	<ul> <li>(i) Agile Methods: Agile methods are the methods to overcome perceived and actual weakness in conventional software engineering and to accommodate changes in environment, requirements and use cases.</li> </ul>			
	(ii) Agile Process: Agile process focuses on team structures, team communications, rapid delivery of software and its de-emphasizes importance of intermediate product.			
10000	What is ERD? (2)			
Ans.	Entity Relationship Diagram is the graphical representation of the object relationship pair. It is mainly used in database applications.			

- (e) Which model is best suited for larger projects and organizations and why? (2) Ans. WaterFall Model. The reasons are:
  - (i) It adapts to shifting teams;
    - (ii) It forces structured organization.
- (f) Explain spiral model along with the steps involved and its drawbacks. (5)
- Ans. The spiral model is divided into a number of frameworks. These frameworks are denoted by task regions. Usually, there are six task regions. In a spiral model project, entry point axis is defined. The task regions are:
  - Customer communication
  - · Planning
  - Risk analysis
  - Engineering
  - Construct and release
  - Customer evaluation

## Drawbacks

- It is based on customer communication.
- It involves a considerable risk assessment.
- 3. (a) What is another name for numpy? In numpy, what are dimensions called? (2)
- Ans. ND ARRAY and AXES
  - (b) Name any two functions of numpy module to create numpy array.
- Ans. zeros(), ones(), empty(), arrange()
  - (2) (c) Differentiate between series data structure and dataframe data structure?
- Ans. A series is a one-dimensional object that can hold any data type such as integers, floats and strings. It has only one axis.
  - A dataframe is a two-dimensional object that can hold different data types. Individual columns of a dataframe can act as a separate series object. (2)

(2)

- Ans. Matplotlib is a Python 2D plotting library which produces publication quality figures in a variety of hard copy formats and interactive environments across platforms.
  - (e) A dataframe fdf stores data about passengers, flights and years. The first few rows of the dataframe are shown below:

SHOWIT BEIGHT		Month	Passengers
	Year	50	112
0	Soap		118
1	Powder	100	
2	Face cream	150	132
3	Pen	50	129
1	Soap box	20	121
4	Joup Ser		

Using the above dataframe, write commands for the following:

- (i) Compute total passengers per year. (ii) Compute average passengers per month.
- Ans. (i) fdf.pivot\_table(index='year', value='passengers', aggfunc='sum')
  - (ii) fdf.pivot\_table(index='month', values='passengers', aggfunc='mean') (4)
  - (f) Write the output of the following code.

```
import numpy as np
a = np.array([1, 2, 3])
print(type(a))
print(a.shape)
print(a[0], a[1], a[2])
a[0] = 5
print(a)
b = np.array([[1,2,3],[4,5,6]])
print (b. shape)
print(b[0, 0], b[0, 1], b[1, 0])
```

```
Ans. <class 'numpy.ndarray'>
      (3,)
      123
      [5 2 3]
      (2, 3)
      124
  (g) Give the output for the following code.
                                                                                                 (4)
      import pandas as pd
      data = [{'a': 1, 'b': 2}, {'a': 5, 'b': 10, 'c': 20}]
      #With two column indices, values same as dictionary key
      dfl = 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)
 Ans.
                          b
      first
                  1
                          2
      second
                  5
                         10
                  a
                        b1
      first
                  1
                       NaN
      second
                  5
                       NaN
4. (a) Is Django a framework? Yes or No?
                                                                                                 (1)
 Ans. Yes
  (b) What is fetchall() method?
                                                                                                (1)
Ans. fetchall() fetches all (remaining) cases from the active dataset or, if there are splits, the remaining
      cases in the current split. If there are no remaining rows, the result is an empty tuple. Each element
      in a tuple contains the data value for a specific variable.
  (c) Write the command to install mysql connector.
                                                                                                (1)
Ans. pip install mysgl - connector
  (d) Write the difference between Single-Row Functions and Multiple-Row Functions in SQL.
                                                                                                (2)
Ans. Single row functions perform on individual rows or records and returns the answer either as integer or
      string. For example, len() and trim(). 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 sum(), count(), max(), min() & avg().
  (e) Compare Having clause and Order by clause?
                                                                                                (2)
Ans. Having clause is used in conjuction 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.
  (f) Write SQL commands and output for the following queries:
                                                                                                (8)
      StudentNo
                   Class
                             Name
                                           Game1
                                                          Grade1
                                                                    Game2
                                                                                 Grade2
      10
                   7
                             Sameer
                                           Cricket
                                                          В
                                                                    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
       (i) Display the names of the students who have grade 'A' in either Game1 or Game2 or both.
          Select name from SPORTS where Grade1='A' OR Grade2='A';
 Ans.
```

(ii) Display the number of students having game 'Cricket'.

Ans.

Select count(\*) from SPORTS Where Game1='Cricket' OR Game2='Cricket';

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(iii) Display the names of the students who have same game for both Game1 and Game2. Select Name from SPORTS where Game1=Game2; Ans. (iv) Display the games taken by the students whose name starts with 'A'. Select Game1, Game2 from SPORTS where Name LIKE 'A%': Ans. (v) Give the output of the following sql statements. (1) SELECT COUNT(\*) FROM SPORTS; Ans. (2) SELECT DISTINCT Class FROM SPORTS: 7 Ans. 8 9 10 (3) SELECT MAX(Class) FROM STUDENT; Ans. (4) SELECT COUNT(\*) FROM SPORTS GROUP BY Game1; 2 Ans. 2 1 1 (1) 5. (a) True Name and Account Takeover are categories of? Ans. Identity Theft (1) (b) IT Act 2000, Section 72 deals with? Ans. Privacy and confidentiality (2) (c) Explain phishing. Ans. Phishing is a term used to describe a malicious individual or group of individuals who scam users. They do so by sending emails or creating web pages that are designed to access an individual's online bank credit card, or other login information. (2) (d) Write the appropriate usage of social networks. Ans. 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. (e) 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. (i) What is happening to Reena? Reena has become a victim of cyber bullying and cyber stalking. Ans. (ii) What action should she take to stop them? She must immediately bring it to the notice of her parents and college authorities and report this Ans. cyber crime to local police with the help of her parents. (2) (f) Write two advantages of online campaigning? Ans. (i) Reaches more people: Online campaign helps you reach anyone with internet access. You don't

need people's addresses or phone numbers to reach them.

Facebook and Twitter.

(ii) Updates Information: An online campaign enables you to update information instantly, whether through your campaign site, mass emails and texts, blog or social networking websites like