**PRE-BOARD EXAMINATION 2020-21**
**CLASS XII**
**INFORMATICS PRACTICES (065)**

Max Marks: 70 Time: 3 hrs

General Instructions:

- *This question paper contains two parts A and B. Each part is compulsory.*
- *Both Part A and Part B have choices.*
- *Part-A has 2 sections:*
- *Section – I is short answer questions, to be answered in one word or one line.*
- *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.*
- *Part - B is Descriptive Paper.*
- *Part- B has three sections*
- *Section-I is short answer questions of 2 marks each in which two questions have internal options.*
- *Section-II is long answer questions of 3 marks each in which two questions have internal options.*
- *Section-III is very long answer questions of 5 marks each in which one question has question has internal option.*

**PART-A**
**SECTION-I**
**(Attempt 15 questions from the questions 1 to 21)**

**1.** Jiya has stolen a credit card. She used that credit card to purchase a laptop. What type of offence has she committed?

2. Fill in the blanks :
   _____ is not a valid functions of pyplot
   (a) plt.show() (b) plt.plot() (c) plt.line() (d) plt.barh()
3. What output will produce by the following SQL statement.
   Select day(date(now))
4. Assuming s1 as an object of pandas Series, the command will display the first 4 row
   (a) s1.head() (b) s1.Head(4) (c) s1.tail(4) (d) s1.head(4)
5. Given the following Series

| S1 | | S2 | |
|---|---|---|---|
| a | 19 | c | 45 |
| b | 23 | d | 23 |
| c | 34 | e | 88 |
| d | 33 | f | 20 |

   Find the sum of the S1 and S2
6. Using ____ in Matplotlib we can create a horizontal bar.
7. The information/art/work that exist in digital form is called _____
8. _____ is not a valid function of Pyplot
   (a) plot( ) (b) xlim() (c) print() (d) xlabel( )
9. Write a small python code to drop a row labeled 0.
10. _____ protocol is used to transfer hypertext document over internet.
11. For web pages where the information is changed frequently, for example, live score, weather information which out of the following options would you advise ?
    a) Static web page
    b) Dynamic web page , Justify your answer.
12. Instr() function of MySQL is an example of _____
    (a) Math Function (b) Text Function (c) Date Function (d) multiline function
13. Which of the following is not an intellectual property?

(i) A poem written by a poet (ii) An original painting made by a painter
(iii) Trademark of a Company (iv) A remixed song

14. In pandas _____ is used to change the index of row and columns of a series or dataframe.
15. _____ is he amount of data that can be transferred from one point to another
**16.** _____is the use of technology to harass, threaten or humiliate a target
17. The data type char(n) and varchar(n) are used to _____ and ____ types of string fields in a database.
18. _____ command is used to add a new column in a table .
19. _____ is used to search null values in a column.
20. _____ is a device, which can regenerate or amplify the signal in a network.
**21.** _____are built specifically for Internet web browsers to track, personalize, and save information about each user's session

**Section –II**

**(Both the case study based questions (22 & 23 ) are compulsory. Attempt any four sub parts from each question. Each sub question carries 1 mark)**

22. Consider the following DataFrame **df** and answer any four questions from (i)- (v)

| Id | name | m1 | m2 | m3 | m4 |
|---|---|---|---|---|---|
| 1 | Juvaraj Singh | 54 | 14 | 30 | 34 |
| 2 | Virat Kohli | 48 | 37 | 21 | 25 |
| 3 | Rohit Sharma | 40 | 42 | 38 | 34 |
| 4 | Sikhar Dhavan | 42 | 13 | 34 | 30 |
| 5 | Dinesh Kartik | 15 | 10 | 28 | 64 |

(i)To display the minimum valued of m1. 1
(ii)To display the first and second row values. 1
(iii) To remove the m4 column from the dataframe. 1
(iv) To add a new column total which is the summation of (m1,m2,m3,m4) 1
(v) Write code to transpose the dataframe 1

23. Consider the table TEACHER given below.

**TEACHER**

| ID | Name | Department | HireDate | Category | Gender | Salary |
|---|---|---|---|---|---|---|
| 1 | Tarun Nanda | Hindi | 17-03-94 | TGT | M | 25000 |
| 2 | Sanajy Sharma | English | 12-02-90 | PRT | M | 20000 |
| 3 | Nikhil Arora | Arts | 16-05-80 | PGT | M | 30000 |
| 4 | James Kaur | Science | 16-10-89 | TGT | M | 25000 |
| 5 | Jaspreet Sehgal | Science | 01-08-90 | PGT | F | 22000 |
| 6 | Siddhart Kapoor | English | 10-02-80 | PRT | M | 21000 |
| 7 | Sonali Khanna | Arts | 02-09-94 | TGT | F | 27000 |
| 8 | Mukul Roy | Computer | 14-11-80 | TGT | M | 30000 |

(a) Select the statement to get the following output 1

Department
Hindi
English
Arts
Science
Computer

(i) Select department from teacher where gender='M' (ii) Select distinct department from teacher.
(iii) Select department from teacher where salary>25000 (iv) Select department from teacher

(b) Select the correct output of the following code

Select * from teacher where category is not in ('PRT','PGT') 1

i)

| ID | Name | Department | HireDate | Category | Gender | Salary |
|---|---|---|---|---|---|---|
| 1 | Tarun Nanda | Hindi | 17-03-94 | TGT | M | 25000 |
| 4 | James Kaur | Science | 16-10-89 | TGT | M | 25000 |
| 7 | Sonali Khanna | Arts | 02-09-94 | TGT | F | 27000 |
| 8 | Mukul Roy | Computer | 14-11-80 | TGT | M | 30000 |

(ii)

| ID | Name | Department | HireDate | Category | Gender | Salary |
|---|---|---|---|---|---|---|
| 2 | Sanajy Sharma | English | 12-02-90 | PRT | M | 20000 |
| 6 | Siddhart Kapoor | English | 10-02-80 | PRT | M | 21000 |

(iii)

| ID | Name | Department | HireDate | Category | Gender | Salary |
|---|---|---|---|---|---|---|
| 2 | Sanajy Sharma | English | 12-02-90 | PRT | M | 20000 |
| 3 | Nikhil Arora | Arts | 16-05-80 | PGT | M | 30000 |
| 5 | Jaspreet Sehgal | Science | 01-08-90 | PGT | F | 22000 |

(iv)'

| Name | Category |
|---|---|
| Tarun Nanda | TGT |
| James Kaur | TGT |
| Sonali Khanna | TGT |
| Mukul Roy | TGT |

(c) Pranab has given the following command to obtain the highest Salary for each category

Select max(salary) from teacher where group by category; 1

but he is not getting the desired result. Help her by writing the correct command.

a. Select max(salary) from teacher group by Category;

b. Select max(salary), category from teacher group by Category;

c. Select max(salary) from teacher;

d. Select max(salary), category from teacher;

(d) State the command to display the average salary scored by male teachers of each category? 1

i. Select gender, avg(salary) from teacher group by category;

ii Select category, avg(salary) from teacher group by gender;

iii. Select avg(salary) from teacher group by category having gender='M';

iv. Select avg(salary) from teacher group by category where gender='M';

(e) Choose the correct command(s) to get the following result 1

| *Gender* | Count(*) |
|---|---|
| *M* | 6 |
| *F* | 2 |

(i) Select gender, count(*) from teacher group by category;

(ii) Select gender, count(*) from teacher group by gender;

(iii) Select gender, count(*) from teacher group by gender having count(*)>=2;

(iv) Select gender, count(gender) from teacher group by gender having count(*)>=2;

**Part-B**

**(Section-I)**

24. Consider the following series T1 2

| | Marks |
|---|---|
| Rohan | 45 |

| | |
|---|---|
| Krishanu | 65 |
| Turin | 66 |
| Nitin | 55 |

(a) Write command to display the index of the series.

(b) Write command to display the values with index [‘Rohan’, ‘Turin’]

25. Compare having and order by clause. 2

**OR**

Compare Count(*) and count(column name)

26. What do you understand by the terms Candidate key and Degree of a relation in relational databases.2

27. Create a dataframe of the given dictionary 2

{‘name’:[‘tina’,’nitin’,seela’,’rashid’, ‘hiren’], ‘age’:[23,44,66,12,23}

Row index of the dataframe should be [‘rank1’, ‘rank2’, ‘rank3’,‘rank4’, ‘rank5’]

28. Give the output of the following queries based on the following **EMP** tables 2

| EmpId | Ename | Salary |
|---|---|---|
| A001 | BOB | 4500 |
| B008 | JOHN | NULL |
| C09 | TOM | 5500 |

(i) Select avg(Salary) from EMP;

(ii) Select Salary+100 from EMP where EmpId=’B008’;

29. Consider the following SQL string: “Pre_Board 2020” 2

Write commands to display:

“2020

“BOARD”

30. Consider the following dataframe ndf1 as shown below 2

| | Column1 | Column2 | Column3 | Res |
|---|---|---|---|---|
| T1 | 67.6 | 100.00 | 60.7 | True |
| T2 | 94.2 | 100.00 | 59.22 | True |
| T3 | 85.9 | 100.00 | 45.07 | False |
| T4 | 73.7 | 85.4 | 58.7 | False |

What will be output produced by the following statements

(i) print(ndf.at[‘T3’,’Res’] , ndf.at[‘T1’,’Columns’])

(ii) print(ndf.iat[2,3] , ndf.iat[3,2])

31. Expand the following terms : 2

HTTP, TCP/IP, VoIP, IMAP

32. Write any two difference between licensing and copyright. 2

33. How to avoid plagiarism? 2

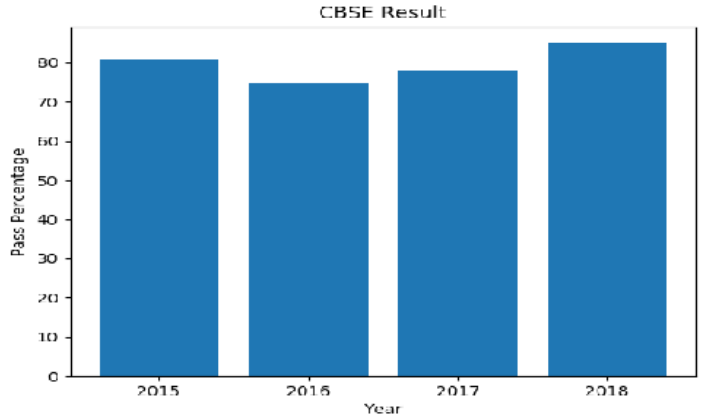
**Section-II**

34. Find the output : 3

```
import pandas as pd
source=[{100:’Amrit’,200: ‘Bikash’},{100: ‘Diya’,300:’Jyoti’}]
d1=pd.DataFrame(source,index=[‘A’,’B’])
d2=pd.DataFrame(source, columns=[100,300,200])
print(d1)
print(d2)
```

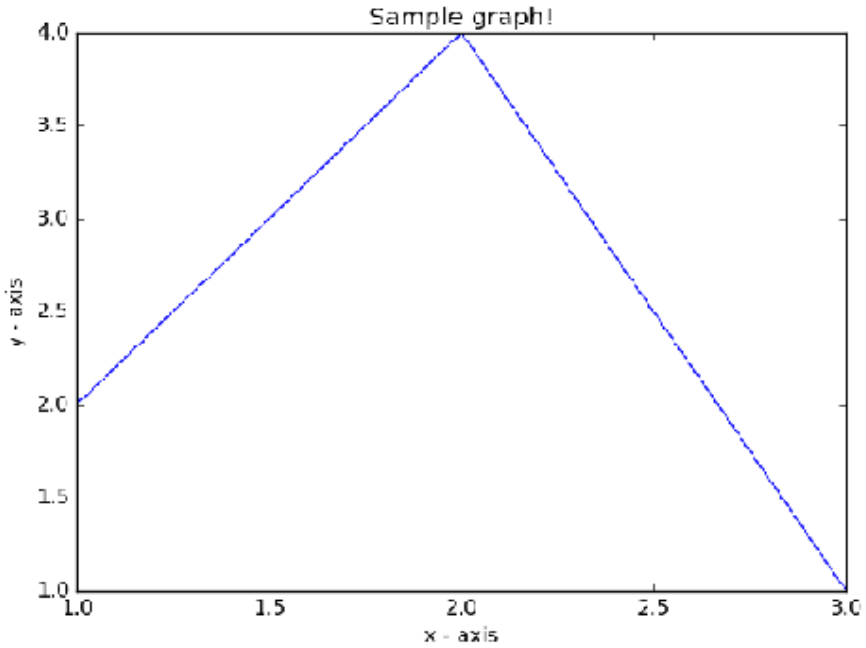
35. What do you mean by How does the Biometric way of providing identity have an advantage over passwords? 3

36. The following is a bar chart showing the results of cbse exam . Write the code to plot the bar. 3




Or

Consider the following graph. Write code to plot it.




37. Consider the following table names 'Gift' maintained by a Gift shop. Write queries for (i) to (iii) 3

Table : Gift

| ID | Name | Category | price | Dateofpurchase |
|---|---|---|---|---|
| 101 | Key Chain | A | | 2019-10-09 |
| 102 | Cushion | B | 450.00 | 2019-12-09 |
| 103 | Pen Stand | A | 350.00 | 2020-03-20 |
| 104 | Coffee Mug | C | 150.00 | 2020-05-21 |
| 105 | Snake Plant | C | 75.00 | 2019-05-12 |

(i) Display the price along the names of those gift items whose name starts with 'C'

(ii) Display name of and price category wise.

(iii) To assign price as 150.00 for those gift whose price is not given

**Section-III**

38. (a) Write python code to create the following DataFrane df1 using python pandas. Use any method

2+1+1+1+=5

| Name | Class | Marks |
|---|---|---|
| Tanmay | XII | 95 |
| Aditi | X | 81 |
| Mahak | XI | 90 |
| Kriti | XI | 75 |

(b) Write code to add a new column Grade with values ['A','B','A','C']

(c) Write a statement to print three highest scoring students

(d) Write a statement to display the name and class of first two rows.

39. Write the output for SQL queries (a) to (e) based on the following tables: 5

Table : Employee

| EmpId | Name | Salary | Gender | dateofBirth |
|---|---|---|---|---|
| 101 | Reema Sharm | 60000.67 | F | 1978-10-16 |
| 102 | Vijay Singh | 75000.45 | M | 1981-02-01 |
| 103 | Seema Prakash | 45000.34 | F | 1994-06-14 |
| 104 | Faizul Rahman | 61000.76 | M | 1990-11-12 |

(a) Select substr(Name,1,4) from Employee where Gender='M'

(b) Select concate(ucase(name, ',', gender) from employee;

(c) Select monthname(dateofbirth) from employee;

(d) Select instr(name, 'si') from Employee where EmpId=102;

(e) Select Round(salary) from employee;

40.

Indian School, in Mumbai is starting up the network between its different wings. There are Four Buildings named as SENIOR, JUNIOR, ADMIN and HOSTEL as shown below.: 5

The distance between various buildings is as follows:

ADMIN TO SENIOR 200m
ADMIN TO JUNIOR 150m
ADMIN TO HOSTEL 50m
SENIOR TO JUNIOR 250m
SENIOR TO HOSTEL 350m
JUNIOR TO HOSTEL 350m

Number of Computers in Each Building

SENIOR 130
JUNIOR 80
ADMIN 160
HOSTEL 50

(a) Suggest the cable layout of connections between the buildings.

(b) Suggest the most suitable place (i.e. building) to house the server of this School, provide a suitable reason.

(c) Suggest the placement of the following devices with justification.

Repeater

Hub / Switch

(d) The organization also has Inquiry office in another city about 50-60 Km away in Hilly Region. Suggest the suitable transmission media to interconnect to school and Inquiry office out of the following .

Fiber Optic Cable

Microwave

Radio Wave

(e)The school management wants to make available shared internet access for each of the building. How can this be achieved.

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