QUESTION PAPER CLASS XII

INFORMATICS PRACTICES (065)

Time: 3 Hours **M.M 70**

General Instructions:

- This question paper contains five sections, Section A to E.
- All questions are compulsory.
- Section A consists of 21 questions (1 to 21). Each question carries 1 Mark.
- Section B consists of 7 questions (22 to 28). Each question carries 2 Marks.
- Section C consists of 4 questions (29 to 32). Each question carries 3 Marks.
- Section D consists of 2 questions (33 to 34). Each question carries 4 Marks.
- Section E consists of 3 questions (35 to 37). Each question carries 5 Marks.
- There is no overall choice. However, internal choices have been provided in some questions. A student has to attempt only one of the choices in such questions.
- All programming questions are to be answered using Python Language only.

	SECTION - A	
1.	The first page that you normally view at a web site is its: i. Home page ii. Master page iii. First page iv. Banner page	1
Ans	**i. Home page**	
2.	Legal term to describe the rights of a creator of original creative or artistic work is called _____. i. Copyright ii. Copyleft iii. GPL iv. None of these	1
Ans	**i. Copyright**	
3.	Which of the following is not done by cyber criminals? i. Unauthorized account access ii. Mass attack using Trojans as botnets iii. Email spoofing and spamming iv. Report vulnerability in any system	1
Ans	**Report vulnerability in any system**	

4	What will be printed by the given query? **SELECT LENGTH("WINNER") ;** i. 7 ii. 6 iii. 8 iv. 9	1
Ans	**6**	
5	If column **"Salary"** contains the data set (5000,8000,7500,5000,8000), what will be the output after the execution of the given query? **SELECT SUM (DISTINCT Salary) FROM EMPL;** i. 20500 ii. 10000 iii. 20000 iv. 33500	1
Ans	**20500**	
6	**IAD** stands for: i. Internet Added Diagram ii. Internet Addiction Disorder iii. Internet Access Disorder iv. Internet Area Define	1
Ans	**i. Internet Addiction Disorder**	
7	By default, ORDER BY clause lists the result in _____ order. i. Descending ii. Any iii. Same iv. Ascending	1
Ans	**Ascending**	
8	Where and Having clauses can be used interchangeably in SELECT queries? i. True ii. False iii. Only in views iv. With order by	1
Ans	**False**	
9	Which of the following is not a numeric function? i. MOD ii. SIGN iii. MID iv. POW	1
Ans	**MID**	
10.	To display last five rows of a series object **'S'**, you may write:	1

	i. S.Head() ii. S.Tail(5) iii. S.Head(5) iv. S.tail()	
Ans	**S.tail()**	
11	Which of the following statement will import pandas library? i. Import pandas as pd ii. import Pandas as py iii. import pandas as pd iv. import panda as pd	1
Ans	**import pandas as pd**	
12	_____ function sorts on the basis of index of a dataframe. i. sort_index() ii. sort_values() iii. sort.index() iv. sort.values()	1
Ans	**sort_index()**	
13	Which amongst the following is not an example of a browser? i. Chrome ii. Firefox iii. Avast iv. Edge	1
Ans	**Avast**	
14	To get the day name from a date ____ function is used. i. Day () ii. Dayname () iii. Curdate () iv. Now ()	1
Ans	**Dayname ()**	
15	Stealing someone else's intellectual work and representing it as own, is called_____ i. Intellectual steal ii. Pluckism iii. Plagiarism iv. Pickism	1
Ans	**Plagiarism**	
16	The information/art/work that exists in digital form is called _____. i. E-work ii. E-asset iii. Digital property iv. E-commerce	1
Ans	**Digital property**	
17	What will df.iloc[: 3] return? (a) Last 3 rows of df	1

	(b) Rows from index 3 to end (c) First 3 rows of df (d) Only row with index 3	
Ans	**First 3 rows of df**	
18	Under the IT Act, 2000, which of the following is treated as a punishable offence? (a) Installing licensed software (b) Unauthorised access to someone's computer (c) Opening an email account (d) Browsing educational website	1
Ans	**Unauthorised access to someone's computer**	
19	A student downloaded a paid antivirus software for free from an unknown website and began distributing it among friends. This act violates: (a) Cyber security policy (b) Data Protection (c) Intellectual Property Rights (d) Privacy Rights	
Ans	Intellectual Property Rights	
Q20 and 21 are ASSERTION AND REASONING based questions. Mark the correct choice as:		
20	**Assertion (A): -** Social media are websites or applications that enable their users to participate in social networking but they cannot create and share content with others in the community. **Reasoning (R):-** We should not waste precious time in responding to unnecessary emails or comments unless they have some relevance for us. (a) Both A and R are true and R is the correct explanation of A. (b) Both A and R are true but R is not the correct explanation of A. (c) A is true R is false. (d) A is false but R is true.	1
Ans	**(d) In social networking, we can create and share content with others in the community. We must respect time and be precise. We should not waste precious time in responding to unnecessary emails.**	
21	**Assertion (A):-** Boolean indexing is a type of indexing. **Reasoning (R): -** Boolean vectors can be used to filter the data. (a) Both A and R are true and R is the correct explanation of A. (b) A is true but R is false. (c) A is false but R is true. (d) Both A and R are false.	1
Ans	**(a) Boolean indexing is a type of indexing. In Boolean indexing, Boolean**	

	vectors can be used to filter the data where multiple conditions can be grouped in brackets.	
	SECTION B	
22.	Differentiate between a Web Browser and Web Server. **OR** What is the purpose of using Router?	2
Ans	**A WWW client is called a web browser and WWW server is called a web server.** **A web browser navigates through the world wide web and displays web pages. The web browser requests a page from a web server. The web server makes available the desired page to web browser.** **OR** **A router can work like a bridge and can also handle different protocols. A router can locate the destination required by sending the traffic to another router, if the destination is unknown to itself.**	
23.	Shipra, a database administrator needs to display house wise total number of records of **'Blue'** and **'Green'** house. She is encountering an error while executing the following query: **SELECT HOUSE, COUNT (*) FROM STUDENT GROUP BY HOUSE WHERE HOUSE='RED' OR HOUSE= 'YELLOW';** Help her in identifying the reason of the error and write the correct query by suggesting the possible correction (s).	2
Ans	**The problem with the given SQL query is that WHERE clause should not be used with Group By clause.** **To correct the error, HAVING clause should be used instead of WHERE.** **Correct Query:** **SELECT HOUSE, COUNT(*) FROM STUDENT GROUP BY HOUSE HAVING HOUSE= 'BLUE' OR HOUSE= 'GREEN' ;**	
24.	The SQL SELECT provides clauses for sorting data and for summarizing results. Write the names of clauses for these.	2
Ans	**The ORDER BY clause of SQL SELECT statement allows to short the data of result set.** **The GROUP BY clause of SQL SELECT statement allows to create summarized results of grouped data from table.**	
25.	Write a program to create a series object using a dictionary that stores the number of students in each house of class 12A of your school. **Note: Assume four house names are Annpurna, Dhaulagiri, Kanchanjangua and Nandadevi having 14, 12, 8, 10 students respectively and pandas library has been imported as pd.**	2

<table>
<tr><td>Ans</td><td>import pandas as pd
st = {'Annpurna':14, 'Dhaulagiri':12, 'Kanchanjangua':8, 'Nandadevi':10}
s1=pd.Series(st)
print(s1)</td><td></td></tr>
<tr><td>26.</td><td>List any four benefits of e-waste management.
OR
Mention any four net etiquettes.</td><td>2</td></tr>
<tr><td>Ans</td><td>The e-waste management:
1. Saves the environment and natural resources
2. Allows for recovery of precious metals
3. Protects public health and water quality
4. Saves landfill space

OR

1. No copyright violation.
2. Share the expertise with others on the internet.
3. Avoid cyber bullying.
4. Respect other’s privacy and diversity.</td><td></td></tr>
<tr><td>27.</td><td>What will be the output of the following code:
import pandas as pd
import numpy as np
a1 = pd.Series(np.tile [3, 5], 2)
print(a1)</td><td>2</td></tr>
<tr><td>Ans</td><td>0 3
1 5
2 3
3 5
dtype: int32</td><td></td></tr>
<tr><td>28</td><td>Given a data frame namely data as shown:
<table><tr><th></th><th>Color</th><th>Count</th><th>Price</th></tr><tr><td>Apple</td><td>Red</td><td>3</td><td>120</td></tr><tr><td>Apple</td><td>Green</td><td>9</td><td>110</td></tr><tr><td>Pear</td><td>Red</td><td>25</td><td>125</td></tr><tr><td>Pear</td><td>Green</td><td>26</td><td>150</td></tr><tr><td>Lime</td><td>Green</td><td>99</td><td>70</td></tr></table>Answer the following:
i. Write statement to delete rows with labels ‘Apple’ and’Lime’.
ii. Write statement to delete columns with labels ‘Color’ and ‘Count’.</td><td>2</td></tr>
<tr><td>Ans</td><td>(i) data.drop([‘Apple’, ‘Lime’])
(ii) data.drop(‘Color’, ‘Count’], axis = 1)</td><td></td></tr>
<tr><td></td><td>SECTION C</td><td></td></tr>
<tr><td>29</td><td>Consider the table ‘HOTEL’ given below and write SQL queries for</td><td>3</td></tr>
</table>

(a), (b) and output of (c):

Table: Hotel

EMPID	CATEGORY	SALARY
E101	Manager	60000
E102	Executive	65000
E103	Clerk	40000
E104	Manager	62000
E105	Executive	50000
E106	Clerk	35000

(a) Display the category where average salary is less than 40000.
(b) Display total number of employees in each category.
(c) Give output for the following command:
SELECT MAX(SALARY) FROM HOTEL ;

Ans

(a) SELECT CATEGORY, AVG(SALARY) FROM HOTEL GROUP BY CATEGORY HAVING AVG(SALARY) < 40000;
(b) SELECT CATEGORY, COUNT(CATEGORY) FROM HOTEL GROUP BY CATEGORY ;
(c) **65000**

30. Write a program to create a Series object that stores the initial budget allocated (50000/-each) for the four quarters of the year: Qtr1, Qtr2, Qtr3 and Qtr4. 3

Ans

```
import pandas as pd
s1= pd.Series(50000, index = ['Qtr1', 'Qtr2', 'Qtr3', 'Qtr4'])
print(s1)
```

31. Consider the following DataFrame **dfn** that contain vegetables. 3

	Color	**Quantity**	**Price**
Capsicum	Red	12	60
Capsicum	Green	22	100
Chilli	Red	50	40
Chilli	Green	65	55
Lime	Green	20	35

Write the code statement to the following:
(i) Find all rows with the label "Chilli". Extract all columns.
(ii) List 2nd and 3rd and 4th rows.
(iii) List only the columns Quantity and Price using loc.

Ans

(i) dfn.loc['Chilli', :]
(ii) dfn. iloc [1 : 4, :]
(iii) dfn.loc[: , ['Quantity', 'Price']]

32. The school offers Wi-Fi to the students of class XII. For communication, the 3

network security-staff of the school is having a registered URL 'schoolwifi.edu'. On 17th September 2017, E-mails were received by all the students regarding expiry of their passwords. Instructions were also given renew their password within 24 hours by clicking on particular URL provided.

On the bases of the above information, answer the questions:

(i) Identify the name oc cyber crime which is done by given information.

(ii) Ideally, what characters should be used in a password to make it strong?

(iii) What are unsolicited E-mails called as?

OR

Explain thefeatures of IT Act 2000.

Ans

(i) Phishing is the fraudulent act of getting the confidential information of people like bank account ids, email ids, etc., by looking to be authentic phone calls, message, SMS, etc. The given situation is also a case of phishing that is trying to acquire personal information by prompting to click a link.

(ii) A combination of all types of characters, letters in mixed case, number and special characters would make it difficult to unauthentic users to guess the password.

(iii) Spam

OR

Some features of IT Act 2000 are as follows:

(i) It helps to promote E-commerce.

(ii) It includes high penalty for cyber crime.

(iii) It provides filling online forms.

(iv) It enhances the corporate business.

SECTION D

33. Consider the following table Bookhouse: 4

Table: Bookhouse

No	Title	Author	Subject	Publisher	Qty	Price
1	Data Structure	Lips	DS	McGraw	4	217.00
2	DOS Guide	Nortron	OS	PHI	3	175.00
3	Turbo C + +	Robort Lafore	Prog	Galgotia	5	270.00
4	Dbase Dummies	Palmer	DBMS	PustakM	7	130.00
5	Mastering Windows	Cowart	OS	BPB	1	225.00
6	Computer Studies	French	FND	Galgotia	2	75.00
7	COBOL	Stern	Prog	John W	4	1000.00

8	Guide Network	Freed	NET	Zpress	3	200.00
9	Basic for Bgeinners	Norton	Prog	BPB	3	40.00
10	Advanced Pascal	Schilat	Prog	McGraw	4	350.00

Write the SQL statements for the following:

(i) Display number of books and average Price for each type of Publisher.

(ii) Display Title, Price in descending order of Price.

(iii) Display total number of books available in stock published by BPB.

(iv)

OR

Differentiate between COUNT( ) and COUNT(DISTINCT) functions. Explain with the help of example.

Ans

(i) SELECT COUNT(*), AVG(PRICE), PUBLISHER FROM BOOKHOUSE GROUP BY PUBLISHER ;

(ii) SELECT TITLE, PRICE FROM BOOKHOUSE ORDER BY PRICE DESC ;

(iii) SELECT SUM(QTY) FROM BOOKHOUSE WHERE PUBLISHER = 'BPB' ;

OR

COUNT( ) Function	**COUNT(DISTINCT) Function**
This function returns the total number of records of a specified column.	This function returns the number of distinct rows in a specified table.
COUNT( ) will count the number of records	COUNT(DISTICNT) will count the number of records where column name is not null.
e.g. To count the total number of employees from table PAYMENTS SELECT COUNT(*) FROM PAYMENTS;	e.g. To count distinct values of column Department from PAYMENTS table. SELECT COUNT(DISTINCT, DEPARTMENT) FROM PAYMENTS;

34. Write the SQL functions which will perform the following operations: 4

(i) To display the name of the day of the current date.

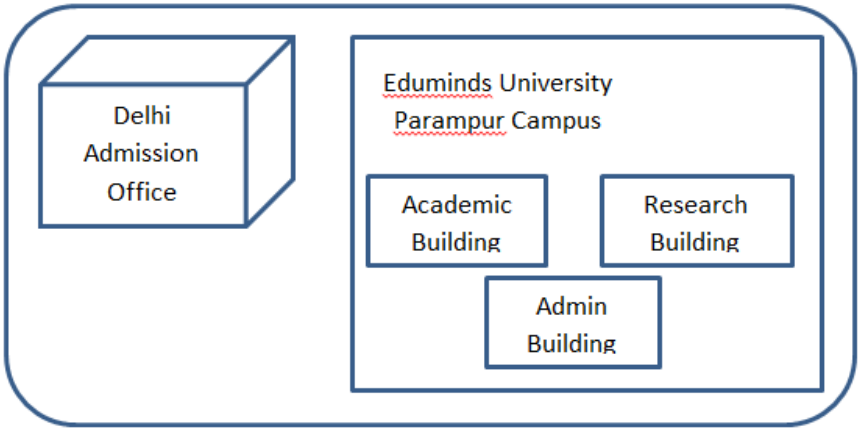
(ii) To remove space from the beginning of a string " Python".

(iii) To display the name of the month e.g. January or February from your date of birth (dob).

(iv) To display the starting position of word "Information" from "Information Technology".

OR

Explain the following SQL functions using suitable examples.

	(i) UCASE( ) (ii) TRIM( ) (iii) MID ( ) (iv) DAYNAME( )	
Ans	i. DAYNAME(DATE(CURDATE))) ii. LTRIM(“ Python”) ; iii. MONTHNAME(DATE(DOB)) ; iv. INSTR(“Information Technology”, “Information”) ; v. POW (a, b) ; OR (i) UCASE( ) – It converts the string into upper case. e.g. SELECT UCASE(‘Welcome world’) ; Output: WELCOME WORLD (ii) TRIM( ) – it removes the leading and trailing space from the given string. e.g. SELECT TRIM(‘ Welcome World ‘) ; Output: Welcome World (iii) MID( ) – It extracts the specified number of characters from given string. e.g. SELECT MID(‘Welcome world’ , 4 ,4) ; Output: come (iv) DAYNAME – It returns the weekday name for a given date. e.g. SELECT DAYNAME(‘2022- 07- 22) ; Output: Friday	
	SECTION E	
35	Eduminds University of India is starting its first campus in a small town Parampur of central India with its centre admission office in Delhi. The university has three major buildings comprising Admin Building, Academic Building and Research Building in the 5 km area campus. As a network expert, you need to suggest the network plan as per (i) to v) to the authorities keeping in mind the distances and other given parameters.  	5

Expected wire distance between various locations:

Research Building to Admin Building	90 km
Research Building to Academic Building	80 km
Academic Building to Admin Building	15 km
Delhi Admission office to Parampur Campus	1450 km

Expected number of computer to be installed at various locations in the university are as follows:

Research Building	20
Academic Building	150
Admin Building	35
Delhi Admission Office	5

(i) Suggest the authorities, the cable layout amongst various buildings inside the university campus for connecting the building.

(ii) Suggest the most suitable place (i.e building) to house the server of this organization with a suitable reason.

(iii) Suggest an efficient device to be installed in each of the buildings to connect all computers.

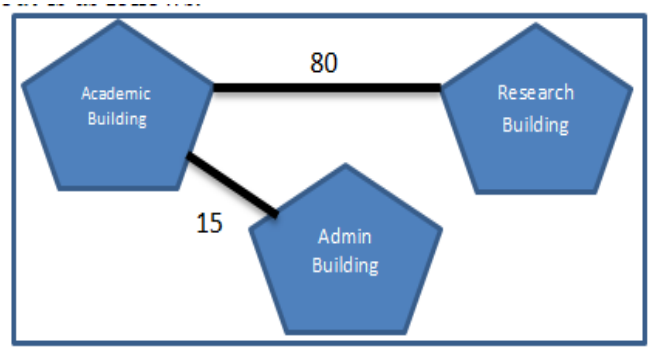
(iv) University is planning to provide online facility to students for clearing the doubts. Which of the following is the online textual or multimedia conversation will the use?

(a) VoIP (b) Chatting

(c) HTML (d) None to the above

(v) Which software will students use to connect to Internet, create websites and view sites on web?

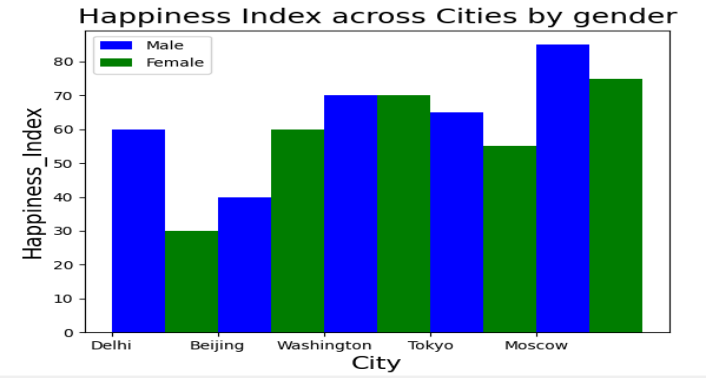
Ans (i) The Suggested cable layout is as follows:



(ii) The most suitable place(i.e. building) to house the server of this university is Academic Building, because there are maximum number of computers and according to 80-20 rules 80% of traffic in a network should be local.

(iii) The efficient device to be installed in each of the Building to connect all the computers is Switch.

(iv) (b) Chatting, i.e. a virtual means of communication that involves the sending

	and receiving of messages. (v) Web Browsers	
36.	Write the Python code to create a plot as given below:  **OR** Write a Python code to create a line graph for the data given below based on Games app rated by the users. Games = [“Subway Surfer”, “Temple Run”, “CandyCrush”, “Bottle Shot”, “Runner Bset”] Rating = [4.2, 4.8, 5.0, 3.8, 4.1]	5
Ans	import matplotlib.pyplot as plt City = ['Delhi', 'Beijing', 'Washington', 'Tokyo', 'Moscow'] Gender = ['Male', 'Female'] Happiness_Index_Male = [60,40, 70, 65, 85] Happiness_Index_Female = [30, 60, 70, 55, 75] plt.bar([0.25, 1.25, 2.25, 3.25, 4.25], Happiness_Index_Male, color = 'blue', label = 'Male', width = 0.5) plt.bar([0.75, 1.75, 2.75, 3.75, 4.75], Happiness_Index_Female, color = 'Green', label = 'Female', width = 0.5) pos = range(len(City)) print(pos) plt.xticks(pos, City, fontsize=10) plt.xlabel('City', fontsize=16)	

```
plt.ylabel("Happiness_Index", fontsize=16)
plt.title("Happiness Index across Cities by gender", fontsize=18)
plt.legend()
plt.show()
```

OR

```
import matplotlib.pyplot as plt
Games = ["Subway Surfer", "Temple Run", "CandyCrush", "Bottle Shot",
"Runner Best"]
Rating = [4.2, 4.8, 5.0, 3.8, 4.1]

plt.plot(Games, Rating)
plt.title("Games Apps")
plt.xlabel("Gaes")
plt.ylabel("Rating")
plt.show()
```

SECTION E

37 Consider the table Sports given below. Write commands in SQL for the following: 1+1+2

Table: Sports

StudentNo	Class	Name	Game1	Grade1	Game2	Grade2
10	7	Sammer	Cricket	B	Swimming	A
11	8	Sujit	Tennis	A	Skating	C
12	7	Kamal	Swimming	V	Football	B
13	7	Venna	Tennis	C	Tennis	A
14	9	Archana	Basketball	A	Cricket	A
15	10	Arpit	Cricket	A	Athletics	C

(i) Display the names of the students who have grade 'A' in either Game1 or Game2 or both.

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

(iii) Display the names of students who have same game for both Game1 and Game2.

OR (Option for part (iii) only)

Display the highest class of the students who has opted for swimming as Game1 or Game2.

Ans

(i) SELECT NAME FROM SPORTS WHERE GRADE1= 'A' OR GRADE2= 'A' ;

(ii) SELECT COUNT(*) FROM SPORTS WHERE GAME =

	'CRICKET' OR GAME2 = 'CRICKET' ; (iii) SELECT NAME FROM SPORTS WHERE GAME1=GAME2 ; OR SELECT MAX(CLASS) FROM SPORTS WHERE GAME1= 'SWIMMING' OR GAME2 = 'SWIMMING' ;	
37	Zeenat has created the following DataFrame dataframe1 to keep track of data Rollno, Name, Marks1 and Marks2 for various students of her class, where row indexes are taken as the default values: Rollno | Name | Marks1 | Marks2 1 | Swapnil sharma | 30 | 50 2 | Raj Batra | 75 | 45 3 | Bhoomi Singh | 82 | 95 4 | Jay Gupta | 90 | 95 (a) What will be the output of the following codes? (i) print(dataframe1.size) (ii) print(dataframe1['Rollno']= = 2) (b) Write the code to print the highest marks obtained in Marks1 and Marks2. ***OR (Option for part(b) only)*** Suppose a DataFrame contains information about students having columns : rollno, name, class and section. Write Python code to delete column section of DataFrame.	1+1+ 2
Ans	(a) (i) 16 (ii) 2 Raj Batra 75 45 (b) print((dataframe1.Marks1.max()), (dataframe1.Marks2.max())) **OR** Del df['section']	