

CBSE Guess Paper

INFORMATICS PRACTICES (065)

CLASS 12

TIME: 03 HOURS

M.M.: 70

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 18 questions carrying 01 mark each.
4. Section B has 06 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 05 questions carrying 05 marks each.
7. All programming questions are to be answered using Python Language only.

SECTION A

(18 Questions, 01 Mark each.)

1. A _____ is a network device that can receive the data, analyse it and transmit it to other network
(a) Modem (b) Switch (c) Repeater (d) Router
2. We need to exhibit proper manners and etiquettes while being online. Pick up one such net etiquette from the following:
(a) Do not share the expertise (b) Respect privacy and diversity
(c) Feed the troll (d) Copyright violation
3. A patent protects an invention for _____ years, after which it can be freely used.
(a) 40 (b) 30 (c) 20 (d) 10
4. Write the output of the following SQL query :
Select Lcase(Substr('Project Management',9,6));
(a) Manag (b) Mango (c) MANAGE (d) manage
5. Write the output of the following SQL command:
Select pow (2,2*2);
(a) 16 (b) 2 (c) 2 (d) 8
6. E-waste contains _____ that causes respiratory disorders and brain damage.

(a) Cadmium (b) Beryllium (c) Lead (d) Mercury

7. In SQL, _____ returns the month name from the specified date.

(a) MONTH() (b) DATE() (c) MONTHNAME() (d) NOW()

8. Which of the following SQL function returns the number of values in the specified column ignoring the NULL values?

(a) COUNT() (b) COUNT(columnname) (c) LENGTH() (d) LENGTH(columnname)

9. _____ helps to fetch a group of rows based on common values in a column.

(a) ORDER BY (b) FILTER (c) GROUP BY (d) SELECT BY

(10) What will be the output of the Python program mentioned below?

```
import pandas as pd
df=pd.DataFrame(['Apple','Banana','Orange','Grapes','Guava'])
print(df[2:4:2])
```

- (a) 0
2 Banana
- (b) 0
2 Orange
- (c) 0
2 Banana
4 Grapes
- (d) Empty DataFrame
Columns:[0]
Index:[]

11. Which of the following is a one-dimensional array containing a sequence of values in Python?

(a) Relation (b) DataFrame (c) Series (d) Square

12. In Python Pandas, head(n) method returns the first n members of the series. What is the default value of n?

(a) 2 (b) 3 (c) 4 (d) 5

13. _____ is a service that allows to put a website or a web page on the Internet.

(a) Web Server (b) Web Browser (c) Web Hosting (d) Domain Name System

14. Find the output of the following SQL queries :

```
Select INSTR("Data Science","is");
```

(a) 8 (b) -5 (c) True (d) False

15. Rupam created an assistive device for the blind. The device is very helpful for the blind and people with low vision. Now, she wants that no one should copy her innovation. What should she do?

- (a) Get the trademark for her invention.
(b) Get the license for her invention.

(c) Get the patent for her invention.

(d) Get the copyright for her invention.

16. Presenting someone else's idea or work as one's own idea or work is called:

(a) Phishing (b) Stacking (c) Plagiarism (d) Bulling

17. Assertion (A):- MODEM stands for modulator-demodulator. Reasoning

(R): - It is a computer hardware device that converts data from a digital format to analog and vice versa.

i. Both A and R are true and R is the correct explanation for A

ii. Both A and R are true and R is not the correct explanation for A

iii. A is True but R is False iv. A is false but R is True

18. Assertion (A):- To use the Pandas library in a Python program, one must import it. Reasoning

(R): - The only alias name that can be used with the Pandas library is pd.

i. Both A and R are true and R is the correct explanation for A

ii. Both A and R are true and R is not the correct explanation for A

iii. A is True but R is False iv. A is false but R is True

SECTION B

(6 Questions, 02 Marks each.)

19. (a) Write any one main advantage and one main disadvantage of Star Topology.

Or

(b) With reference to browsing the websites, briefly explain the term cookie, Also mention any two points of significance of it.

20. Rashmi, a database administrator needs to display house wise total number of records of 'Red' and 'Yellow' 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).

Or

Ananya a database executive, needs to display a system's current date and time. Suggest to her a suitable SQL function name. Also write the query for the same.

21. Shobit needs to create the following two series named 'Eng' and 'Math'. Help him to create a DataFrame 'mydata' from the given series 'Eng' and 'Math'.

Eng		Math	
Aditi	25	Aditi	9
Bhavuk	21	Bhavuk	29
Chirag	23	Chirag	15
Deepak	24	Deepak	14
Gaurav	27	Gaurav	20
Dytype:	int64	Dytype:	int64

22. Differentiate between the active digital footprint and passive digital footprints.

Or

Mention any four net etiquettes.

23. Complete the given Python code to get the required output as: Rajasthan

```
import _____ as pd
di = {'Corbett': 'Uttarakhand', 'Sariska': 'Rajasthan', 'Kanha': 'Madhya Pradesh', 'Gir': 'Gujarat'}
NP = _____. Series( _____ )
print(NP[ _____ ])
```

24. Create a DataFrame in Python from the given list:

```
[['Divya', 'HR', 95000], ['Mamta', 'Marketing', 97000], ['Payal', 'IT', 980000], ['Deepak', 'Sales', 79000]]
```

Also give appropriate column headings.

SECTION C

(5 Questions, 03 Marks each.)

25. Write MySQL statements for the following:

- To create a database named FOOD.
- To create a table named Student based on the following specification:

Column Name	Data Type	Constraints
Roll_No	Integer	Primary Key
Name	Varchar(20)	
Marks	Integer	

26. Write a Python code to create a DataFrame-dfNew with the data given below also write the output of print(dfNew) statement :

```
{'One':[1001,'Barun',1200,'North'],
'Two':[1002,'Bimal',1300,'East'],
'Three':[1003,'Rituriva',1100],
'Four':[1004,'Munmi',1400,'West'] }
```

27. Based on table **STUDENT** given here, write suitable SQL queries for the following:

Student

Admn	Name	Stream	Optional	Average
1001	Shrishti	Science	CS	90
1002	Ashi	Humanities	Maths	80
1003	Aditya	Commerce	IP	60
1004	Ritu Raj	Science	IP	65
1005	Sonali	Commerce	Maths	60
1006	Saumya	Science	IP	65

- Display stream wise highest average .
- Display lowest marks of each optional subject.
- Display total number of students in each stream

28. Richa, recently started using her social media account. Within a few days, she befriends many people she knows and some that she does not know. After some time, she starts getting negative comments on her posts. She also finds that her pictures are being shared online without her permission. Based on the given information, answer the questions given below.

- Identify the type of cybercrime she is a victim of.
- Under which act, she can lodge a complaint to the relevant authorities?
- Suggest her any two precautionary measures which she should take in future while being online to avoid any such situations.

OR

Mention any three health hazards associated with inappropriate and excessive use of gadgets

29. Consider the given DataFrame 'Genre':

Type	Code
0	Fiction F
1	Non Fiction NF
2	Drama D
3	Poetry P

Write suitable Python statements for the following:

- Add a column called Num_Copies with the following data: [300,290,450,760].

- ii. Add a new row of type '5' having code as "FT" and 600 number of copies.
- iii. Drop the row number 2.

SECTION D
(5 Questions, 05 Marks each.)

30. Write the SQL queries which will perform the following operations:

- (a) To display the day part from your date of admission , which is '2023-12-13'
- (b) To convert your father's email id 'xyz@abc.com' to uppercase.
- (c) To count the number of characters in the string 'India'.
- (d) To display your height 5.41 after rounding off 1 decimal place.
- (e) To find the position of the substring 'cup' in the string "Preoccupied"

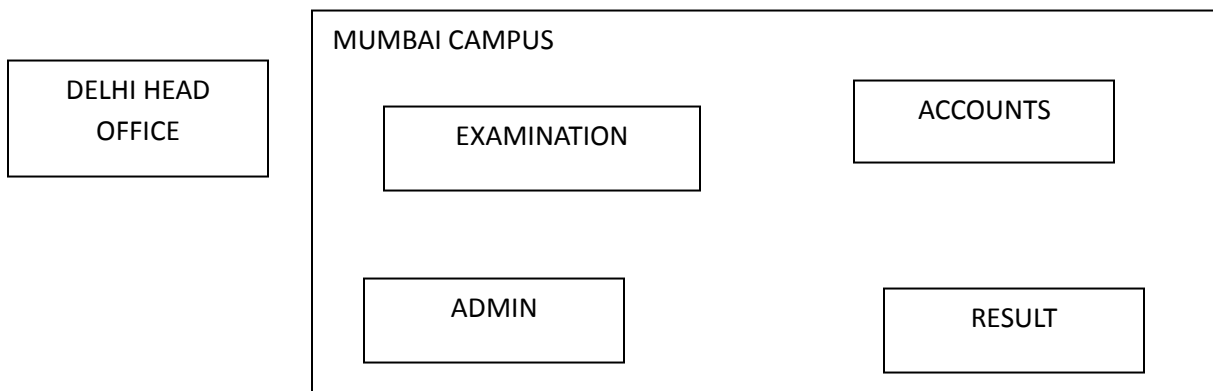
OR

Explain the following SQL functions using suitable examples :

- (a) LTRIM()
- (b) RTRIM()
- (c) INSTR()
- (d) MOD()
- (e) TRIM()

31. Prime Computer services Ltd. is an international educational organization. It is planning to set up its India campus at Mumbai with its head office in Delhi. The Mumbai office campus has four main buildings-ADMIN, ACCOUNTS, EXAMINATION and RESULT.

You as a network expert have to suggest the best network related solutions for their problems raised in (i) to (v), keeping in mind the distances between the buildings and other given parameters.



Shortest distances between various buildings:

ADMIN TO ACCOUNTS 55 m ADMIN TO EXAMINATION 90 m ADMIN TO RESULT 50 m
ACCOUNTS TO EXAMINATION 55 m

ACCOUNTS TO RESULT 50 m
EXAMINATION TO RESULT 45 m
DELHI Head Office to MUMBAI campus 2150m

Number of computers installed at various buildings are as follows:

ADMIN	110
ACCOUNTS	75
EXAMINATION	40
RESULT	12
DELHI HEAD OFFICE	20

- (i) Suggest the most appropriate location of the server inside the MUMBAI campus (out of the four buildings) to get the best connectivity for maximum number of computers. Justify your answer.
- (ii) Suggest and draw cable layout to efficiently connect various buildings within the MUMBAI campus for a wired connectivity.
- (iii) Which networking device will you suggest to be procured by the company to interconnect all the computers of various buildings of MUMBAI campus?
- (iv) Company is planning to get its website designed which will allow students to see their results after registering themselves on its server. Out of the static or dynamic, which type of website will you suggest?
- (v) Which of the following will you suggest to establish the online face to face communication between the people in the ADMIN office of Mumbai campus and Delhi head office?
a) Cable TV b) Email c) Video conferencing d) Text chat

32. Mr. Som, a data analyst has designed the DataFrame df that contains data about Computer Olympiad with 'CO1', 'CO2', 'CO3', 'CO4', 'CO5' as indexes shown below. Answer the following questions:

	School	Tot_students	Topper	First_Runnerup
CO1	SPS	70	34	18
CO2	DPS	79	39	23
CO3	MVM	65	32	16
CO4	NPS	90	27	42
CO5	MPS	78	42	16

Predict the output of the following python statement:

- (I) `print(df['Tot_syudents'])`

- (II) `print(df.loc[['C02','C05']])`
 (III) `print(df.loc['C01':'C03','Topper'])`
 (IV) `print(df.iloc[1: ,1:3])`
 (V) `print(df.loc['C04','First_Runnerup'])`

33. Consider a table Teacher and Subject that contains the following data:

Table-Teacher

EmpNo	FName	LName	Qualification	Salary	Post
11111	Sandeep	Verma	B.Ed	25409.789	TGT
22222	Sonia	Kumari	BCA	21200.456	TGT
33333	Nirmal	Sharma	B.Ed	38274.657	PGT
44444	Sanjeev	Shastri	B.Ed.	28782.228	TGT
55555	Rakesh	Sharma	B.Ed.	32892.487	PGT

Table- Subject

SLNo	Subject	Employee_No	Duration
1001	S.St.	33333	3 Hours
1002	Computer	44444	2.5 Hours
1003	Hindi	11111	4 Hours
1004	Sanskrit	55555	4.5 Hours
1005	English	22222	3.5 Hours

Write SQL queries using SQL functions to perform the following operations:

- (a) Display the First Names , Salaries and Subjects of all teachers whose teaching duration is 4 Hours.
 (b) Display the FName,Qualification,Subject and Duration of all TGT.
 (c) Display FName ,Duration and Salary in order of LName.
 (d) Display FName and corresponding Subject of all teachers whose LName ending with 'a'
 (e) Display the first three letters of FName and last two letters of Subject.

34. Write a program in Python Pandas to create the following DataFrame- df1 from Dictionaries of Dictionary :

	A	B	C	D	E
0	10	20.0	NaN	31	56.0
1	50	40.0	50.0	59	NaN
2	70	NaN	90.0	53	71.0

Perform the following operations on the DataFrame :

A. Predict the output of the following python statement:

- i. `print(df1.shape)`
- ii. `print(df1.size)`
- iii. `print(df1.empty)`
- iv. `print(df1.ndim)`