


```
d_hw1.update(d_hw2)
print(d_hw1['Ram'])
```

- a. 8GB b. 4GB c. KeyError d. IndexError

10. Which of the following is an example of smart home device? 1
a. Google's NEST b. Siri c. Tesla d. Alien Isolation
11. Ms. Nidhi works as a cloud computing engineer. She is working on a project which provides computing infrastructure, physical or virtual machines, IP addresses and firewalls. Suggest the type of cloud service required for her project along with the service provider. 1
a. IaaS and Amazon EC2 b. PaaS and Heroku
c. SaaS and Google Apps d. IaaS and Zoho One
12. Equivalent exponent form of 0.00002404 is 1
a. 24.04E-5 b. 24.04E6 c. 24.04E5 d. 24.04E-6
13. Which of the following is a DDL command? 1
a. SELECT b. INSERT c. UPDATE d. CREATE
14. Consider the following python code given below: 1
s, p = 0, 1
for x in range(1, 7, 2):
 s += x
 p *= x
print(s, end= "--")
print(p, end= "5")
a. 9--20 b. 9--155 c. 16--1055 d. 16--110
15. Which of the following is **NOT** an advantage of using databases? 1
a. Data Redundancy b. Data Security c. Data Dependence d. Sharing of data
16. What is a collection of data items which represents a complete unit of information? 1
a. Data item b. Record c. Relation d. Attribute

Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as:

- a. Both A and R are true and R is the correct explanation for A
b. Both A and R are true and R is not the correct explanation for A
c. A is True but R is False
d. A is False but R is True
17. **Assertion (A):-** A dictionary is not a sequence. 1
Reasoning (R):- It is an unordered set of key:value pairs.
18. **Assertion (A):-** A default value can be specified for an attribute in SQL using UNIQUE constraint. 1
Reasoning (R):- If a value is not given while inserting a record then automatically defined default value is inserted in the field.

SECTION – B

19. Explain the disk cleanup and backup utilities. 2
OR
Explain customized software with an appropriate example.
20. A school has a rule that all the students must participate in a sport activity. Each student in the class must select only one sport. Assume that there are five students in the class, each having 2

unique roll number. Ms. Mansi, P.E. teacher has created a **SPORTS** table to maintain the details of the students as shown below:

Roll_No	Sport
4	Basketball
9	Volleyball
5	Cricket
9	Basketball
12	NULL
7	Badminton

Find the error(s) in the **SPORTS** table and justify the answer.

21. Different between AR and VR. 2
22. Rohan, a database programmer has designed a **STUDENT** table as given below: 2

Table: STUDENT

No	Class	Name	Game1	Grade1	Game2	Grade2
14	7	Sameer	Cricket	B	Swimming	B
12	8	Kamal	Tennis	A	Skating	C
15	7	Riya	Swimming	C	Football	B
11	7	Taral	Tennis	C	NULL	A
13	9	Ryan	NULL	A	Cricket	A
16	8	Sheetal	Volleyball	B	Athletics	C

Write SQL queries for the following:

- i. Display the student details who got 'A' grade in either Game1 or Game2 or both.
- ii. Display the student details whose name has 'A' as the second character and ends with 'L' and Game2 is not mentioned.

23. Explain PRIMARY KEY constraint with an appropriate example. 2

OR

Explain column alias with an appropriate example.

24. What will be the output of the following code? 2

```
lval = [12, 5, 9, 7, 14, 6]
lval.sort()
s = len(lval)
x = s//2
```

if s % 2 == 0:

y, z = x - 1, x

p = (lval[y] + lval[z])/2

else:

p = lval[x]

print('Result: ', p)

25. Write the equivalent python expression for the following: 2

i. $\frac{3\pi D^4}{2x^2y^2}$

ii. $\sqrt{(5a + 3b^2) - 4a^3}$

SECTION – C

26. Define the following terms: 3
i. NLP ii. IoT iii. Sensors
27. Write outputs for SQL queries (i) to (iii) which are based on the given table **PHARMA**. 3

Table: PHARMA

RxID	DrugID	DrugName	Price	PharmNm	PharmLoc
R1000	5476	AMLODIPINE	100	RX PHARMA	DELHI
R1001	2345	PARACETAMOL	25	RAJ MEDICOS	HARYANA
R1002	1236	NEBISTAR	65	LIFE CHEMIST	DELHI
R1003	6512	VITAL PLUS	150	LIFE CHEMIST	HARYANA
R1004	5631	LEVOCITRIZINE	130	RX PHARMA	DELHI

- i. SELECT RxID, DrugName, Price from Pharma where PharmNm in ('RX PHARMA', 'Raj Medicos') and price<100;
ii. SELECT PharmNm, DrugID FROM Pharma where RxID not in('R1002','R1003','R1004');
iii. SELECT * from Pharma where DrugName like "%n_";
28. Ms. Prerna wants to write a program for currency conversion. The rate of conversion for different currency to Indian Rupees is given as below: 3

1 Omani Rial	214.47 Rupees
1 US Dollar	81.29 Rupees
1 Japanese Yen	0.64 Rupees

Write a python program that takes user input for currency name and amount to be converted and displays the amount in Indian Rupees. Also display appropriate error message in case invalid currency is entered by the user.

For eg. 5 OMR = 1072.35 INR

29. Write a python program to find the sum of the following series: 3
 $1 + x + x^2/2 + x^3/3 + \dots + x^n/n$

OR

Write a python program to display the terms of the following series:

1 -4 7 -10 13 -16 n terms

30. Explain candidate key and alternate key. Consider the table **TRAVELLERS** given below. Identify the candidate key(s) and alternate key(s) of the **TRAVELLERS** table. 3

Table: TRAVELLERS

PNR	FLIGHTNO	AADHARNO	NAME	PASSPORTNO	TRAVELDT
5155	AI1883	1122	Arnav	Y0065	15/02/2023
4289	SJ2107	2233	Roshini	X3409	24/04/2023
3705	AV0069	3443	Kuldeep	D1120	24/04/2023
2404	AI1883	5656	Shami	Y0014	05/05/2023

OR

Explain degree and cardinality with respect to the relation in SQL. Consider the table **TRAVELLERS** given above. If three more attributes and four more tuples are added. And later one attribute and one tuple are deleted from **TRAVELLERS** table. Determine the degree and cardinality of the **TRAVELLERS** table.

SECTION – D

31. Consider the table **EMPLOYEES** as given below:

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Tables: EMPLOYEES

Ecode	Ename	Address	Dojoin	Amount
100	Amit	Delhi	2017/09/29	5000.90
101	Sushant	Gurgaon	2018/01/01	7000.75
102	Priya	Noida	2018/04/25	3450.45
103	Mohit	Delhi	2018/11/03	6000.50
104	Priyanshi	Delhi	2019/12/15	8000.62

Write SQL queries for the following:

- i. Generate a SQL report for all the records whose Address is not Delhi, as given below:
<Ename> who joined on <Dojoin> is paid amount of Rs. <Amount>
- ii. Display all the unique address in the EMPLOYEES table.
- iii. Display all the employee details whose amount is in the range of 3000 to 6000.
- iv. Display the employee details whose name does not start with 'P'.
- v. Insert a new record for Ecode, Ename, Dojoin and Amount with values 105, Alia, 2019/04/24, 4400.83

OR

Explain the following terms with suitable example:

- i. DISTINCT
- ii. CHECK
- iii. IFNULL()
- iv. BETWEEN
- v. ORDER BY

32. Mr. George is an IT engineer in a MNC and has created a database table **GAMES**. Based on the table **GAMES** given below, write suitable SQL queries for the following:

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Table: GAMES

GCODE	PLAYER	GENDER	GAME	COURTNO	FEES	STARTDT
101	Khushi	F	CARROM BOARD	2	5000	2004-01-26
102	Kiran	M	BADMINTON	4	12000	2003-11-15
103	Shubham	M	TABLE TENNIS	4	NULL	2004-02-14
104	Dakshesh	M	CHESS	2	9000	2004-03-01
105	Ria	F	LAWN TENNIS	5	25000	2004-03-18

- i. Display the player name, game and start date of the games which are played on court 4.
- ii. Display the game code, name of the game and fees of the games which starts in March-2004.
- iii. Display the game and fee value as 'Not Decided Yet' for the games whose fees is not specified.
- iv. Display the player name and game whose player name is of exactly three characters.
- v. Display the details of the games table in descending order of fees.

33. Consider the following dictionary **TEACHER** = {'Prerna':'Computer', 'Rakesh':'Python', 'Rahul':'C++', 'Jaimini':'Java', 'Tarak':'AI'}

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Write python code for the following using dictionary functions:

- i. Display the number of key:value pairs in the dictionary
- ii. Display the subject taught by the teacher Rakesh
- iii. Display the dictionary with indent=3
- iv. Update dictionary **TEACHER** with **tmp = {'Prerna':'Tally', 'Sonali':'C'}**

v. Delete all items from the dictionary

OR

Consider the following list **lst_marks** = [82, 78, 61, 69]

Write python code for the following using list functions:

- i. Add value 93 at index position 2
- ii. Find the maximum mark
- iii. Display the list in the reverse order
- iv. Delete mark 78 from the list
- v. Add list of marks of two students **tmp** = [32, 45] to the **lst_marks**

SECTION – E

34. Jai Ambe school created a result sheet named **XI_Result** to store name of the stream and number of students passed, as shown: 1+1+2

Stream	Students Passed
Science	137
Commerce	71
Humanities	40
Arts	37

- i. Write a python code to create and display a dictionary with name of the stream as key and number of students passed as their respective value.
- ii. Write a python code to add new key:value pair as Total as key and 248 as value
- iii. Consider the list **no_users** = [144, 189, 257, 202, 160] and write a python program to sort it in the descending order and store the sorted data in a new list **Final**.

OR (OPTION FOR PART iii ONLY)

Consider the list **no_users** = [144, 189, 257, 202, 160] and write a python program to find the average number of users.

35. A database table **TRAVEL** is created as given below: 1+1+2

Table: TRAVEL

NO	NAME	TDATE	KM	NOPGR	TKTPRICE
101	Danish	2015-11-13	200	5	78.00
103	Vedika	2016-04-21	100	14	35.00
105	Tarun	2016-03-23	NULL	4	102.00
102	John	2016-02-13	90	3	60.00
107	Ahmed	2015-01-10	NULL	8	57.00
104	Raveena	2016-04-28	400	12	165.00

- A. Write SQL query for the following:
- i. Display the name of the passenger, number of passengers and total price of the tickets whose number of passengers exceeds 10. (**NOTE: Total Price = NOPGR * TKTPRICE**)
 - ii. Display the name of the passenger, distance travelled and ticket price whose KM is not mentioned.
- B. Create table **TRAVEL** with appropriate datatype and primary key constraint.

OR (OPTION FOR PART B ONLY)

Display the name of the passenger, travel date and number of passengers who travelled before March 2016 and with less than five passengers