Self Assessment Paper

1

Solved _____

General Instructions :

(i)   This question paper contains two parts A and B. Each part is compulsory.

(ii) Both Part A and Part B have choices.

(iii) Part-A has 2 sections :

    (a) Section-I is short answer questions, to be answered in one word or one line.

    (b) 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.

(iv) Part-B is Descriptive Paper.

(v) Part-B has three sections.

    (a) Section-I is short answer questions of 2 marks each in which two questions have internal options.

    (b) Section-II is long answer questions of 3 marks each in which two questions have internal options.

    (c) Section-III is very long answer questions of 5 marks each in which one question has internal option.

(vi) All programming questions are to be answered using Python Language only.

PART-A
Section-I

Select the most appropriate option out of the options given for each question. Attempt any 15 questions from question no 1 to 21.

Question 1.

🅰🅸 What is an atom ?   **1**

Question 2.

    What is Dynamic Typing ?   **1**

Question 3.

    Which statement will check if a is equal to b?

    (a) `if a = b:`   **(b)** `if a == b:`

    (c) `if a === c:`   **(d)** `if a == b`   **1**

Question 4.

    What are membership operators ?   **1**

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Question 5.

AI Which is the correct form of declaration of dictionary?

    (i) `Day={1:'monday',2:'tuesday',3:'wednesday'}`

    (ii) `Day=(1;'monday',2;'tuesday',3;'wednesday')`

    (iii) `Day=[1:'monday',2:'tuesday',3:'wednesday']`

    (iv) `Day={1'monday',2'tuesday',3'wednesday']`   **1**

Question 6.

    Show the contents of the following array after the second iteration of the Bubble sort.

    6,11,8,9,7,15,22,25,41,65   **1**

Question 7.

AI Which type of elements are accepted by random. Shuffle()?

    (a) tuples   **(b)** dictionaries

    (c) lists   **(d)** strings   **1**

Question 8.

AI What is the use of lambda keyword in Python ?   **1**

Question 9.

    What is the use of return statement?   **1**

Question 10.

    Write a statement to write the string "Welcome! Please have a seat" in a file wel.txt, that has not yet been opened.   **1**

Question 11.

    Which module is used to rename or delete/remove a file from within a program?   **1**

Question 12.

    How can you write output to the monitor?   **1**

Question 13.

AI What is a setup script ?   **1**

Question 14.

    _____ are container which store the heterogeneous elements of any type.

    (a) Lists   **(b)** stacks

    (c) Queues   **(d)** Arrays   **1**

Question 15.

AI Which of the following is not an inherent application of stack?

    (a) Reversing a string   **(b)** Evaluation of postfix expression

    (c) Implementation of recursion   **(d)** Job scheduling   **1**

Question 16.

    Give one example of infix expression.   **1**

Question 17.

AI Expand the following:

    (i) GSM   **(ii)** GPRS   **1**

Question 18.

    What is the difference between HTTP and FTP?   **1**

Question 19.

    The design of the database is known as what?

    (a) Attribute   **(b)** database scheme

    (c) obstruction   **(d)** database oriented   **1**

Question 20.

    Which of the following is/are DML commands?

    (a) Insert   **(b)** Delete

    (c) Update   **(d)** All of these   **1**

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Question 21.

Differentiate between fetchone() and fetchall() methods.   **1**

Section-II

Both the Case study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark.

Question 22.

Consider the following tables ACTIVITY and COACH and answer (a) and (b) parts of this question :

Table : ACTIVITY

ACode	Activity Name	Stadium	Participants Num	Prize Money	Schedule Date
1001	Relay 100×4	Star Annex	16	10,000	23-Jan-2004
1002	High Jump	Star Annex	10	12,000	23-Dec-2003
1003	Shot Put	Super Power	12	9,000	01-Jan-2004
1005	Long Jump	Star Annex	12	9,000	01-Jan-2004
1008	Discuss Throw	Super Power	10	15,000	19-Mar-2004

Table : COACH

PCode	Name	ACode
1	Ahmad Hussain	1001
2	Ravinder	1008
3	Janila	1001
4	Naaz	1003

(a) Write SQL commands for the following statements :

(i) To display the names of all activities with their Acodes in descending order.

(ii) To display sum of PrizeMoney for the Activities played in each of the Stadium separately.

(iii) To display the coach's name and acodes in ascending order of Acode from the table Coach.

(b) Give the output of the following SQL queries :

(i) `SELECT Name, Activity Name FROM ACTIVITY A, COACH C WHERE A.ACode=C. ACode AND A.ParticipantsNum=10;`

(ii) `SELECT DISTINCT ACode FROM COACH;`   **4**

Question 23.

🆔 ABC Pvt. Ltd. is setting up the network in the Bengaluru. There are four departments named as Market, Finance, legal, and Sales.

Distance between various buildings is as follows:

Market to Finance	80mt
Market to Legal	180mt
Market to Sales	100mt
Legal to Finance	100mt
Finance to Sales	50mt

Number of computers in the building:

Market	20
Legal	10
Finance	08
Sales	42

(i) Suggest a cable layout of connections between the Departments and specify the topology.

(ii) Suggest the most suitable building to place the server by giving suitable reason.

(iii) Suggest the placement of (i) modem (ii) hub/switch in the network.

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(iv) The organization is planning to link its sale counter situated in various part of the same city. Which type of network out of LAN, WAN, MAN will be formed? Justify.

(v) Which hardware device will you suggest to be procured by the company to be installed to protect and control the internet uses within the campus?   **4**

PART-B
Section-I

Question 24.

What does the following code print?

```
for i in range ( 1 , 10 ):
    for j in range ( 1 , 10 )
        print(i * j)
```
     2

Question 25.

AI What are mutable and immutable objects ?   **2**

OR

Write a program to display a menu for calculating area of a circle and perimeter of a circle.   **2**

Question 26.

What are the possible outcome(s) after executed from the following code? Also, specify the maximum and the minimum value.

```
import random
PICK=random.randint (0, 3)
CITY=["DELHI", "MUMBAI", "CHENNAI", "KOLKATA"] ;
for I in CITY :
    for J in range (1, PICK):
        print(I, end = " ")
    print( )
```

(i)	(ii)	(iii)	(iv)
DELHIDELHI MUMBAIMUMBAI CHENNAICHENNAI KOLKATAKOLKATA	DELHI DELHIMUMBAI DELHIMUMBAICHENNAI	DELHI MUMBAI CHENNAI KOLKATA	DELHI MUMBAIMUMBAI KOLKATAKOLKATAKOLKATA

     2

Question 27.

AI What is name resolution rule? Explain it.   **2**

OR

What will be the output of the following code sinppet and why?

```
#module calculate.py
"""This module will be imported"""
def sum ():
    """Prints sum of 10 and 5"""
    b=5
    a=10
    print ("sum=",a+b)
    return
def diff():
    """prints difference of 20 and 5"""
    a=30
```

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```
    b=5
    print (Difference",a-b)
    return
    print ("This will print something")
    greet="Hello!"
#Fun.py import calculate print calculate.gra                                      2
```

Question 28.

Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code.

STRING = " WELCOME"

NOTE " "

for S in range[0, 8]:

    print (STRING(S))

print (S STRING)   **2**

Question 29.

Write a function to count the number of lines starting with uppercase characters in a text file "Help. doc".   **2**

Question 30.

[AI] How can modules of a package imported without explicitly importing them with import <package>.<module_name> in function or module definition?   **2**

Question 31.

How can the member of a list accessed in Python?   **2**

Question 32.

[AI] Name some cyber offences under the IT Act.   **2**

Question 33.

Differentiate between cardinality and degree of a table with the help of an example. **2**

Section-II

Question 34.

Write a function to write numbers into a binary file and read the same.   **3**

Question 35.

Write a program that reads three numbers and prints them in ascending order.   **3**

OR

[AI] Write a program for nth multiple of Fibonacci Series. Also show proper documentation. **3**

Question 36.

Write a program to find the union of two lists which are entered by user.   **3**

Question 37.

What is Hierarchical model?   **3**

OR

Following table represents information on sales representatives for Premiere Products and contains the following data fields for sales representations.

Sales representative's number	→	SLSRNUMB
Sales representative's name	→	SLSRNAME
Sales representative's address	→	SLSRADDR
Total commission paid to the sales representatives	→	TOTCOMM
Sales representative's commission rate	→	COMMRATE

[AI] Write Python code to create the above table   **3**

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Section-III

Question 38.

AI Given an array: 89,20,31,56,20. Sort this array in ascending order using

(i) Bubble Sort **(ii)** Insertion sort **5**

Question 39.

Perfect Edu Services Ltd. is an educational organization. It is planning to setup its India campus at Karnataka with its head office at Delhi. The Karnataka Campus has 4 main buildings – ADMIN, ENGINEERING, BUSINESS and MEDIA. 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 Engineering	55mt
Admin to Business	90mt
Admin to Media	90mt
Engineering to Business	55mt
Engineering to Media	90mt
Business to Media	45mt
Delhi head office to Karnataka campus	2175km

Number of computers installed at various buildings are as follows:

Admin	110
Engineering	75
Business	40
Media	12
Delhi Head office	20

(i) Suggest the most appropriate location of the server inside the Karnataka campus to get the best connectivity for maximum no. of computers.

(ii) Draw the cable layout to efficiently connect various buildings within the Karnataka campus for connecting the computers.

(iii) Which hardware device will you suggest to be procured by the company to be installed to protect and control the internet uses within the campus?

(iv) Which of the following will you suggest to establish the online face to face communication between the people in the admin office of Karnataka campus and Delhi head office.

(v) The organization is planning to link its sale counter situated in various part of the same city. Which type of network out of LAN, WAN, MAN will be formed? **5**

Question 40.

AI Write Python code to increase age of all employees by 1 year in the Employee table of database HTMdb with userid HRMan and password HRMANexe@pwd. **5**

OR

Consider table 'Faculty' in database EngColl with following structure.

Id	→	Faculty id. (Primary Key)
lastname	→	Lastname of the faculty member
Firstname	→	Firstname of the faculty member
locationid	→	Location id of the member
phone	→	Phone Number of the member
rank	→	It can be either 'ASSO', 'FULL', 'ASST', 'INST'
startdate	→	date of joining of the member

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Write a Python code to update the rank of the member as 'FULL' for all the records whose data of joining is before 31/3/1998.

Password of database is pwdfac, and userid is Fac_dep

5

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