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FIRST PRE-BOARD EXAMINATION (2024-25)

16/11/2024

CLASS - XII AGRA Region

Time : 3 Hrs

Subject : COMPUTER SCIENCE

MM : 70

Instructions:-

- This question paper contains 37 questions.
- All questions are compulsory. However, internal choices have been provided in some questions. Attempt only one of the choices in such questions
- The paper is divided into 5 Sections- A, B, C, D and E.
- 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 3 questions (29 to 31). Each question carries 3 Marks.
- Section D consists of 4 questions (32 to 35). Each question carries 4 Marks.
- Section E consists of 2 questions (36 to 37). Each question carries 5 Marks.
- All programming questions are to be answered using Python Language only.
- In case of MCQ, text of the correct answer should also be written.

Q. No.	Section-A (21 x 1 = 21 Marks)	Marks
1.	State True or False: As a Dictionary is mutable, both Key & Value are also mutable.	(1)
2.	Identify the output of the following code snippet: remark = "SQL - Structured Query Language" note = remark[2:18].split() print(note) (A) ['L', '-', 'Structured', 'Qu'] (B) ['L', '-', 'Structured', ' '] (C) ['L', '-', 'Structured', 'Q'] (D) 'L - Structured Q'	(1)
3.	Write the output of the following python expression:	(1)

	<p>print ((4>5) and (2!=1) or (4<9))</p> <p>(A) Run Time Error (B) Logical Error (C) False (D) True</p>	
4.	<p>What is the output of the expression?</p> <p>STR="trip@split" print(STR.rstrip("t"))</p> <p>(A) rip@spli (B) trip@spli (C) rip@split (D) rip@spli</p>	(1)
5.	<p>What will be the output of the following code snippet?</p> <p>gist="Old is Gold" X=gist.partition("s") print(X[-1:-3])</p> <p>(A) () (B) (' Gold') (C) (' Gold', 'is') (D) None of the above</p>	(1)
6.	<p>What will be the output of the following code?</p> <p>MainList = ["One", ["2", "3"], "4"] CheckList = [MainList[1]] print(CheckList)</p> <p>(A) ["2"] (B) ["2", "3"] (C) [["2","3"]] (D) Syntax Error</p>	(1)
7.	<p>If "dict" is a dictionary as defined below, then which of the following statements will raise an exception?</p> <p>dict = {'Rose': 10, 'Lily': 20, 'Sunflower': 30}</p> <p>(A) dict.get('Sunflower')</p>	(1)

	<p>(B) print(dict['Rose', 'Lily'])</p> <p>(C) dict['Rose']=40</p> <p>(D) print(str(dict))</p>	
8.	<p>Identify the invalid python statement from the following:</p> <p>(A) t=(100)</p> <p>(B) t=tuple()</p> <p>(C) t=(100,)</p> <p>(D) None of the above</p>	(1)
9.	<p>Choose the correct statement from the following about a primary key column:</p> <p>(A) Cannot have NULL values and can have UNIQUE values.</p> <p>(B) Can have NULL as well as UNIQUE values.</p> <p>(C) Cannot have NULL and cannot have UNIQUE values.</p> <p>(D) Can have NULL but not UNIQUE values.</p>	(1)
10.	<p>Consider the following python statement:</p> <p>F=open("TEST.txt")</p> <p>Which of the following is an invalid statement in python?</p> <p>(A) F.seek(0)</p> <p>(B) F.write("PASS")</p> <p>(C) F.read()</p> <p>(D) None of the above</p>	(1)
11.	<p>State whether the following statement is True or False:</p> <p>"More than one exception is not allowed in a single try block."</p>	(1)
12.	<p>What will be the output of the following code:</p> <pre> Local=100 def Update(Global=0): global Local Local += Global print(Local, "#", Global) Update(50) Update() </pre>	(1)

13.	Which SQL command can decrease Cardinality of a Relation?	(1)
14.	What will be the output of the query? “SELECT name FROM student WHERE name like ‘%ar%’; (A) Display name of students whose name ends with ‘ar’. (B) Display details of students whose name ends with ‘ar’. (C) Display name of students whose name has ‘ar’ anywhere in name. (D) Display details of students whose name has ‘ar’ anywhere in name.	(1)
15.	Ms. Meera(a database administrator) is thinking to create a column in a table in which she wants to give the DATA TYPE in such a manner that column contains maximum of 20 characters but memory of ONLY of the actual values/characters entered by the user is occupied. Which data type she should prefer for the column from the following? (A) LONG (B) CHAR (C) VARCHAR (D) DATE	(1)
16.	Which one of the following SQL clauses is always used in the end of any SQL query? (A) WHERE (B) ORDER BY (C) HAVING (D) GROUP BY	(1)
17.	Which protocol is used for downloading & uploading files over the Internet? (A) HTTP (B) VoIP (C) FTP (D) SMTP	(1)
18.	Which network device is used to make coming weak signals into strong and then forward? (A) HUB (B) SWITCH	(1)

	(C) MODEM (D) REPEATER	
19.	_____ is the structure/arrangement of computers connected in a network.	(1)
<p>Q20 and Q21 are Assertion (A) and Reason(R) based questions. Mark the correct choice as:</p> <p>(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.</p>		
20.	<p>Assertion(A): Default arguments in a function are used to assign values to such parameters in which values are not passed at the time of function call.</p> <p>Reason(R): It is mandatory to have default values to all parameters coming on right side of any default parameter in the function header.</p>	(1)
21.	<p>Assertion(A): A column size may be updated in an already created relation.</p> <p>Reason(R): The size of the column may be increased by using UPDATE SQL command.</p>	(1)
Q. No.	Section-B (7 x 2=14 Marks)	Marks
22.	<p>What is the use of "in" operator? Identify from the following in which "in" operator may be used:-</p> <p style="text-align: center;">"ONE", (1), [1,2,3], 23</p>	(2)
23.	<p>Consider the following python code snippet:</p> <pre> for C in range(1,10): # Statement-1 if C>5: # Statement-2 print(C ,end="") # Statement-3 break # Statement-4 </pre> <p>Write the output of the above code in the following 2 cases:</p> <ol style="list-style-type: none"> 1. Statement-4 is a comment & 2. Statement-4 is not a comment. 	(2)
24.	<p>Consider the given below Lists L1 & L2 and answer the following using built-in function only:</p>	(2)

L1 = [10, 10, 20, 10, 30, 20]

L2 = [0, 1, 2, 1, 2, 0, 1]

1. (a) Write python command to delete last element from list L2.

OR

(b) Write python command to count 20 from list L1.

2. (a) Write python command to add [1, 0, 2] in the end of list L2.

OR

(b) Write python command to sort list L1 in ascending order.

25. **What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the maximum values that can be assigned to each of the variables BEG and END.** (2)

```
import random
```

```
HEIGHTS=[10,20,30,40,50]
```

```
BEG=random.randint(0,2)
```

```
END=random.randint(2,4)
```

```
for X in range(BEG,END):
```

```
    print(HEIGHTS[X],end="@")
```

(A) 30@

(B) 10@20@30@40@50@

(C) 20@30

(D) 40@30@

26. **Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code.** (2)

```
Y=integer(input("Enter 1 or 10"))
```

```
if Y==10
```

```
    for Y in range(1,11):
```

```
        print(Y)
```

```
elseif Y<10:
```

```
    for m in range(5,0,-1):
```

```
        print(thank you)
```


27.	<p>1. (a) What constraint should be applied on a table column so that value entered by the user in that column must be in a specified range of values not outside it?</p> <p style="text-align: center;">OR</p> <p>(b) What constraint should be applied on a table column so that the column must not have NULL values & duplicate values?</p> <p>2. (a) Write the SQL command to list the names of all the tables already created in the database.</p> <p style="text-align: center;">OR</p> <p>(b) Write the SQL command to list the details(all column names, data type, size, constraint) of a table "PLAYER".</p>	(2)
28.	<p>(A) Expand MODEM. Write the use of MODEM in networking.</p> <p style="text-align: center;">OR</p> <p>(B) Expand XML. Write one benefit of XML over HTML.</p>	(2)
Q. No.	Section-C (3 x 3 = 9 Marks)	Marks
29.	<p>Write a function COUNTLINES_ET() in python to read lines from a text file REPORT.TXT and COUNT those lines which are starting either with 'E' and 'T' respectively. And display the Total count separately.</p> <p>For example: if REPORT.TXT consists of</p> <p>"ENTRY LEVEL OF PROGRAMMING CAN BE LEARNED FROM PYTHON. ALSO, IT IS VERY FLEXIBLE LANGUGAE. THIS WILL BE USEFUL FOR VARIETY OF USERS."</p> <p>Then, Output will be:</p> <p>No. of Lines with E: 1</p> <p>No. of Lines with T: 1</p> <p style="text-align: center;">OR</p> <p>Write a function SHOW_TODO() in python to read contents from a text file XYZ.TXT and display those lines which have occurrence of the word "TO" or "DO".</p>	(3)

For example : If the contents of the file are:

"THIS IS IMPORTANT TO NOTE THAT SUCCESS IS THE RESULT OF HARD WORK. WE ALL ARE EXPECTED TO DO HARD WORK. AFTER ALL, EXPERIENCE COMES FROM HARDWORK."

The function should display lines:

- THIS IS IMPORTANT TO NOTE THAT SUCCESS IS THE RESULT OF HARD WORK.
- WE ALL ARE EXPECTED TO DO HARD WORK.

30. (A) A stack named `Emp_Stack` that contains records of Employees. Each (3)

Employee record is represented as a list containing

[Emp_No, Emp_Name, Salary]

Write the following user-defined functions in Python to perform the specified operations on the stack `Emp_Stack`:

- (I) **Push_Emp(Emp_Stack, New_Emp)**: This function takes the stack `Emp_Stack` and a new employee record `New_Emp` as arguments and pushes the new employee record onto the stack.
- (II) **Pop_Emp(Emp_Stack)**: This function pops the topmost employee record from the stack and returns it. If the stack is already empty, the function should display "Underflow".
- (III) **Peep(Emp_Stack)**: This function displays the topmost element of the stack without deleting it. If the stack is empty, the function should display 'None'.

OR

(B) A dictionary named `D_STATE` contains the record in the following format:

{ Country : State }

Also, a stack name `STATE`(a list) will store the names of the states.

Define the following functions with the given specifications:

	<p>(I) Push_State(D_STATE): It takes the dictionary as an argument and pushes all the states in the stack STATE whose state name is less than 10 characters.</p> <p>(II) Pop_State(): This function pops the topmost state from the stack STATE and returns it. Also, if the stack is already empty, the function should display "Empty".</p> <p>(III) Disp_State(): To display all elements of the stack STATE without deleting them. If the stack is empty, the function should display 'None'.</p>	
31.	<p>Predict the output of the following code:</p> <pre> Msg="CompuTer" Msg1="" for l in range(0, len(Msg)): if Msg[l].isupper(): Msg1=Msg1+Msg[l].lower() elif l%2==0: Msg1=Msg1+'*' else: Msg1=Msg1+Msg[l].upper() print(Msg1) </pre> <p style="text-align: center;">OR</p> <pre> tuple1 = (11, 22, 33, 44, 55 ,66) list1 =list(tuple1) new_list = [] for i in list1: if i%2==0: new_list.append(i) new_tuple = tuple(new_list) print(new_tuple) </pre>	(3)
Q. No.	Section-D (4 x 4 = 16 Marks)	Marks

32.

Consider the table SURGERY as given below:

(4)

SID	SNAME	FEES	STARTDATE	OTNO
S301	HEART	15000	2021-11-15	302
S302	LIMBS	9000	2021-10-20	NULL
S303	LEVER	10000	2023-07-02	301
S304	KIDNEY	5000	2024-08-01	NULL
S305	STOMOCH	18000	2024-03-25	302

(A) Write SQL queries for the following:

- I. To display contents of SURGERY table sorted by STARTDATE in descending order.
- II. To display the sum of FEES of all the SURGERYs for which the OTNO is NULL.
- III. To display the SURGERY ID & FEES of SURGERYs whose name starts with "D".
- IV. To display the no. of SURGERYs whose FEES is less than 12000 and OTNO is not "301".

OR**(B) Write the output of the given below SQL queries:-**

- I. SELECT DISTINCT OTNO FROM SURGERY;
- II. SELECT OTNO, COUNT(*), MIN(FEES) FROM SURGERY GROUP BY OTNO HAVING COUNT(OTNO)>1;
- III. SELECT SNAME FROM SURGERY WHERE FEES>=15000 ORDER BY SNAME;
- IV. SELECT AVG(FEES) FROM SURGERY WHERE FEES BETWEEN 15000 AND 19000;

33.

A csv file "Population.csv" contains the population data of various cities. (4)

Each record of the file contains the following data:

- ID of the city
- Name of the city
- Population of the city
- Area(in sq. mtrs.) of the city

For example, a sample record of the file may be:

['C001', 'Jaipur', 697000, 5000]

Write the following Python functions to perform the specified operations on this file:

- (I) Read all the data from the file in the form of a list and display all those records for which the population is more than 200000.
- (II) Count & display the number of cities whose data is stored in the file.

34. Write SQL commands for the following queries (i) to (iv) based on the relations TRAINER & COURSE given below: (4)

TRAINER

TID	TNAME	CITY	HIREDATE	SALARY
101	SUNAINA	MUMBAI	1998-10-15	90000
102	ANAMIKA	DELHI	1994-12-24	80000
103	DEEPTI	CHANDIGARG	2001-12-21	82000
104	MEENAKSHI	DELHI	2002-12-25	78000
105	RICHA	MUMBAI	1996-01-12	95000
106	MANIPRABHA	CHENNAI	2001-12-12	69000

COURSE

CID	CNAME	FEES	STARTDATE	TID
C201	AGDCA	12000	2018-07-02	101
C202	ADCA	15000	2018-07-15	103
C203	DCA	10000	2018-10-01	102
C204	DDTP	9000	2018-09-15	104
C205	DHN	20000	2018-08-01	101
C206	O LEVEL	18000	2018-07-25	105

- I. Display all details of Trainers who are living in city CHENNAI.
- II. Count and Display the number of Trainers in each city.
- III. Display the Course details which have Fees more than 12000 and name ends with 'A'.
- IV. (A) Display the Trainer Name & Course Name from both tables where Course Fees is less than 10000.

OR

- (B) Display the Cartesian Product of above two tables.

35. A table, named **PRODUCT**, in **PRO_DB** database, has the following structure: (4)

Attribute Name	Data Type
----------------	-----------

PID	int(6)
PNAME	Varchar(20)
COMPANY	Varchar(20)
PRICE	Float

Write the following Python function to perform the specified operation:
AddNewProduct(): To input details of Product and store it in the table PRODUCT. The function should then retrieve and display all records from the PRODUCT table where the Price is less than 250.

Assume the following for Python-Database connectivity:
 (Host: localhost, User: root, Password: Time)

Q. No.	SECTION E (2 X 5 = 10 Marks)	Marks
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36. Manan, an Exam in-charge of a college is planning to keep record of various Tests which are going to be held. For this, he wants the following information of each Test to be stored:

- TestId – integer
- Subject – string
- MaxMarks – integer
- ScoredMarks – integer

You, as a programmer of the college, have been assigned to do this job for Manan. A binary file named “TEST.dat” has some records of the structure [TestId, Subject, MaxMarks, ScoredMarks]

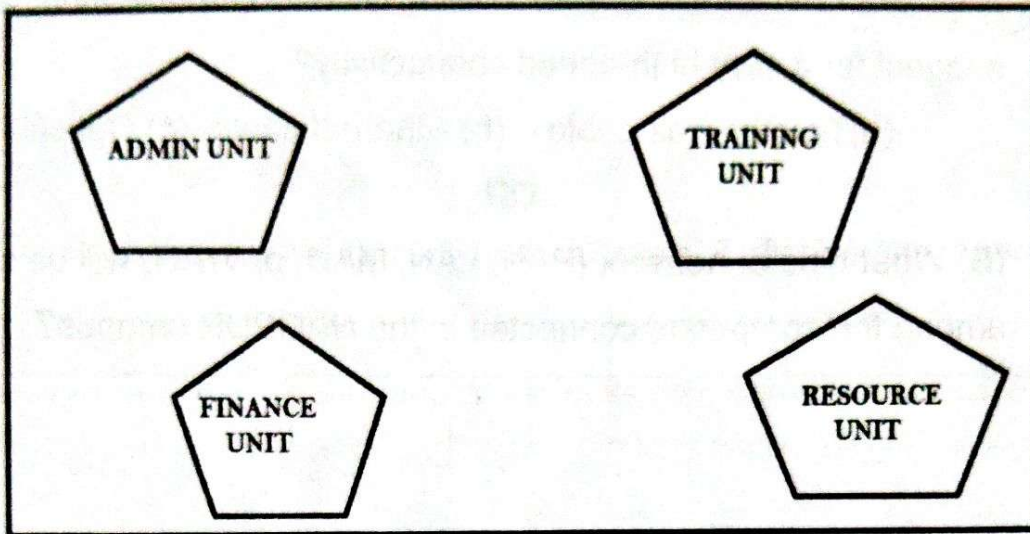
(I) Write a function named **NewTest()** to input the data of a TEST and append it in TEST.dat binary file.

(II) Write a function named **UpdateMM(Sub)** that will update the MaxMarks of Tests by 10 of Subject entered as argument in function.

(III) Write a function in Python named **DisplayAvgMarks(Sub)** that will accept a subject as an argument and read the contents of

TEST.dat. The function will calculate & display the Average of the ScoredMarks of the passed Subject on screen

37. "VidyaDaan" an NGO is planning to setup its new campus at Nagpur for its (5) web-based activities. The campus has four(04) UNITS as shown below:



→ Distances between above UNITS are given as under:

UNIT-1	UNIT-2	DISTANCE(In mtrs.)
ADMIN	TRAINING	65
ADMIN	RESOURCE	120
ADMIN	FINANCE	100
FINANCE	TRAINING	60
FINANCE	RESOURCE	40
TRAINING	RESOURCE	50

→ No. of Computers in various UNITS are:

UNIT	NO. OF COMPUTERS
ADMIN	150
FINANCE	25
TRAINING	90
RESOURCE	75

- I. Suggest an ideal cable layout for connecting the above UNITS.
- II. Suggest the most suitable place i.e. UNIT to install the server for the above NGO.

III. Which network device is used to connect the computers in all UNITS?

IV. Suggest the placement of Repeater in the UNITS of above network.

V. (A) NGO is planning to connect its Regional Office at Kota, Rajasthan. Which out of the following wired communication, will you suggest for a very high-speed connectivity?

(a) Twisted Pair cable (b) Ethernet cable (c) Optical Fiber

OR

(B) What type of network (PAN, LAN, MAN, or WAN) will be set up among the computers connected in the NAGPUR campus?