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SAMPLE PAPER - 4 (2023-24)

XII - COMPUTER SCIENCE (083)

TIME : 3 hrs **Max Marks: 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 (1 to 18) carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions (19 to 25) carrying 02 marks each.
5. Section C has 05 Short Answer type questions (26 to 30) carrying 03 marks each.
6. Section D has 02 Long Answer type questions (31 to 32) carrying 04 marks each.
7. Section E has 03 questions (33 to 35) carrying 05 marks each.
8. All programming questions are to be answered using Python Language only.

SECTION-A		
Q. No.	**Question**	Marks
1.	State True or False " continue keyword is not a jump statement in a loop."	1
2.	Fill in the blank: _____command is used to remove a column from a table in SQL. (a)update (b)remove (c) alter (d)drop	1
3.	Given the following dictionaries dict_stud = {"rno" : "53", "name" : 'Rajveer Singh'} dict_mark = {"Accts" : 87, "English" : 65} Which statement will merge the contents of both dictionaries in dict_stud? (a) dict_stud + dict_mark (b) dict_stud.add(dict_mark) (c) dict_stud.merge(dict_mark) (d) dict_stud.update(dict_mark)	1
4.	print(True or not True and False) Choose one option from the following that will be the correct output after executing the above python expression. a) False b) True c) or d) not	1
5.	Which of the following commands will delete the rows of table? (a) DROP command (b) DELETE Command (c) REMOVE Command (d) ALTER Command	1
6.	Fill in the blank: _____is the first page that normally view at a website. (a) First Page (b) Master Page (c) Home Page (d) Login Page	1
7.	When a Python function does not have return statement then what it returns? (a) int (b) float (c) None (d)Give Error	1

8.	Select the correct output of the code:
	>>> a= "Year 2022 at All the best"
	>>> a = a.split('2')
	>>> a = a[0] + ". " + a[1] + ". " + a[3]
		1

	>>> print (a) (a) Year . 0. at All the best (b) Year 0. at All the best (c) Year . 022. at All the best (d) Year . 0. at all the best	

9.	Which of the following statement(s) would give an error after executing the following code?
	S="Welcome to class XII" # Statement 1
	print(S) #Statement 2
	S="Thank you" # Statement 3
	S[0]= '@' # Statement 4
	S=S+"Thank you" # Statement 5
	
	(a) Statement 3 (b) Statement 4
	(c) Statement 5 (d) Statement 4 and 5
		1

10.	What will the following expression be evaluated to in Python? print(2**3**2) a) 64 b) 256 c) 512 d) 32	1
11.	Which is the smallest network? a) WAN (b) LAN c) MAN (d) PAN	1
12.	Write the possible outputs(s) when this code is executed? import random n=random.randint(0,3) color=["Y","W","B","R"] for i in range (1,n): print(color[i], end="*") print( ) a) R * b) W* W* B* B* c) W* W* d) Y* B* B* W* W* B* B* B*	1
13.	Which Python approach is used for object serialization in handling of Binary File? (a) Pickling (b) Un-pickling (c) Merging (d) None of these	1
14.	Fill in the blank: _____Keyword is used to obtain Non-duplicated values in a SELECT query. (a) ALL (b) DISTINCT (c) SET (d) HAVING	1
15.	Fill in the blank: _____ is the way of connecting the networking devices.	1
16.	Which of the following is not valid cursor function while performing database operations using python. Here Mycur is the cursor object? (a) Mycur.fetch() (b) Mycur.fetchone() (c) Mycur.fetchmany(n) (d) Mycur.fetchall()	1
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 variable declared as global inside a function is visible with changes made to it outside the function.	1

	Reasoning (R): All variables declared outside are not visible inside a function till they are redeclared with global keyword.	
18.	Assertion (A): A binary file in python is used to store collection objects like lists and dictionaries that can be later retrieved in their original form using pickle module. Reasoning (R): A binary files are just like normal text files and can be read using a text editor like notepad.	1
	SECTION-B	
19.	(i) Write the full forms of the following: (a) IP (b) URL (ii) What is the use of VoIP? **OR** (i) Mention one advantage of Star Topology. **(ii)** Mention one difference between a Hub and switch in networking.	1+1=2
20.	Observe the following Python code very carefully and rewrite it after removing all syntactical errors with each correction underlined. Define reverse(num): rev = 0 While num > 0: rem == num %10 rev = rev*10 + rem num = num//10 return rev print(reverse(1234))	2
21.	Write a function INDEX_LIST(L), where L is the list of elements passed as argument to the function. The function returns another list named 'indexList' that stores the indices of all Non-Zero Elements of L. **For example:** If L contains: [2, 0, 5, 0, 1, 0, 0] The indexList will have: [0,2,4] **OR** Write definition of a function Count_How_Many(Data, item) to count and display number of times the value of item is present in the list Data. (Note: don't use the count() function) For example : **If the Data contains [101,102,107,105,102,103,104,102] and item contains 102** **The function should display 102 found 3 Times.**	2

22.	Predict the output of the Python code given below:
	def foo(s1,s2):
	l1=[ ]
	l2=[ ]
	for x in s1:
	l1.append(x)
	for x in s2:
	l2.append(x)
	return l1,l2
	a,b=foo("HAPPY",'BIRTHDAY')
	print(a,b)
		2

23.	Write the Python statement for each of the following tasks: (i) str="PYTHON@LANGUAGE" To print the above string from index 2 onwards using a single statement. (ii) To initialize an empty dictionary named as d using BUILT_IN fuctions/ methods only. **OR** Write the Python statement for each of the following tasks using BUILT_IN fuctions/ methods only:	1+1=2

(i) s="LANGUAGE"
To convert the above string into list.
(ii)To initialize an empty tuple named as t.

24. A MySQL table, sales have 10 rows with many columns, one column name is DISCOUNT. Following queries were executed on sales table. (2)

SELECT COUNT(*) FROM sales;

COUNT(*)
10

SELECT COUNT(DISCOUNT) FROM sales;

COUNT(DISCOUNT)
6

Write a statement to explain as to why there is a difference in result of both queries.

OR

Write commands to open database 'KVS' and show all tables in this database. And display design/schema/structure of the table EMPLOYEE which is inside this database. And display all the records of table EMPLOYEE.

25. Predict the output of the Python code given below: (2)

```
data = [20,19,19,17,20,19,17,20]
d = {}
for x in data:
    if x in d:
        d[x]=d[x]+1
    else:
        d[x]=1
print(d)
```

SECTION-C

26. Write the output of the code given below: (3)

```
def change(Line):
    alpha=str()
    digi=str()
    for ch in Line:
        if(ch.isalpha()):
            if(ch.islower()):
                alpha=alpha+ch.upper()
            elif(ch.isupper()):
                alpha=alpha+ch.lower()
        elif(ch.isdigit()):
            alpha=alpha+ch+ch
    print(Line)
    print(alpha)
change("Vande 0 Bharat 9 Train 1")
```

27. Write the output of queries (i) to (iii) based on the table Sportsclub given below: (1*3=3)

Table: Sportsclub

playerid	pname	sports	country	rating	salary
10001	PELE	SOCCER	BRAZIL	A	50000
10002	FEDERER	TENNIS	SWEDEN	A	20000
10003	VIRAT	CRICKET	INDIA	A	15000
10004	SANIA	TENNIS	INDIA	B	5000
10005	NEERAJ	ATHLETICS	INDIA	A	12000
10006	BOLT	ATHLETICS	JAMAICA	A	8000
10007	PAUL	SNOOKER	USA	B	10000

(i) SELECT DISTINCT sports FROM Sportsclub;

(ii) SELECT sports, MAX(salary) FROM Sportsclub GROUP BY sports

	HAVING sports<>'SNOOKER'; (iii) SELECT pname, sports, salary FROM Sportsclub WHERE country='INDIA' ORDER BY salary DESC;	
28.	A pre-existing text file data.txt has some words written in it. Write a python function **displaywords( )** that will print all the words that are having length greater than 3. **If the contents of file is :** A man always wants to strive higher in his life He wants to be perfect. **The output should be:** always wants strive higher life wants perfect. **OR** Write a method count_lines( ) in Python to read lines from text file 'student.txt' and display the total number of line in file and lines which are ending with 'y' alphabet and not ending with 'y' separately. **Example: If the file content is as follows:** An apple in a day keeps the doctor away. We should aware for everyone's safety and security. India is one of the biggest country in word. **The count_lines( ) function should display the output as:** The number of lines in file are: 3 The number of lines ending with alphabet 'y' are: 2 The number of lines not ending with alphabet 'y' are: 1	3
29.	Monika is a senior clerk in a MNC. She created a table 'Salary' with a set of records to keep ready for tax calculation. After creation of the table, she has entered data of 5 employees in the table. +--------+---------------+--------------------+-------+-------+-------+------+ | emp_id | emp_name | emp_desig | basic | da | hra | nps | +--------+---------------+--------------------+-------+-------+-------+------+ | E01 | Naveen Roy | Manager | 70000 | 20000 | 8000 | 7000 | | E02 | Pawan Ahuja | Junior Clerk | 20000 | 2000 | 2500 | 2000 | | E03 | Kalpana Rani | Public Expert | 50000 | 5000 | 4500 | 2500 | | E04 | Govind Mishra | Director | 90000 | 40000 | 11500 | 900 | | E05 | Seeta Johar | Production Manager | 80000 | 35000 | 10500 | 850 | +--------+---------------+--------------------+-------+-------+-------+------+ Based on the table given above write the SQL Queries: **(i)** Display the Emp_Name and Gross salary of each employee. (Gross= basic+da+hra+nps) **(ii)** Increase the DA by 3% of respective basic salary of all employees. **(iii)** Delete the Attribute emp_desig from the table.	1*3= 3
30.	A list of numbers is used to populate the contents of a stack using a function **push(stack, data)** where stack is an empty list and data is the list of numbers.The function should push all the numbers that are even to the stack. Also write the function **pop(stack)** that removes and returns the top element of the stack on its each call. Also write the function calls.	3

SECTION-D

31. Write the SQL queries (i) to (iv) based on the relations SCHOOL and ADMIN given below: 1*4=4

TABLE: SCHOOL

CODE	TEACHERNAME	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI SHANKAR	ENGLISH	12/03/2000	24	10
1009	PRIYA RAI	PHYSICS	03/09/1998	26	12
1203	LISA ANAND	ENGLISH	09/04/2000	27	5
1045	YASHRAJ	MATHS	24/08/2000	24	15
1123	GANAN	PHYSICS	16/07/1999	28	3
1167	HARISH B	CHEMISTRY	19/10/1999	27	5
1215	UMESH	PHYSICS	11/05/1998	22	16

TABLE: ADMIN

CODE	GENDER	DESIGNATION
1001	MALE	VICE PRINCIPAL
1009	FEMALE	COORDINATOR
1203	FEMALE	COORDINATOR
1045	MALE	HOD
1123	MALE	SENIOR TEACHER
1167	MALE	SENIOR TEACHER
1215	MALE	HOD

Write SQL queries for the following:

i) Display total periods subjectwise.

ii) Display minimum experience and maximum code from relation SCHOOL.

iii)Display teachername, gender by joining both tables on the basis of CODE attribute for the designation "COORDINATOR.

iv) Display the total number of different subjects in school relation.

32. Write a Program in Python that defines and calls the following user defined functions: 4

Add_New():

To accept record of Player and add to 'playerdata.csv' file. The record of player consists P_id, P_name and P_runs in form of python list.

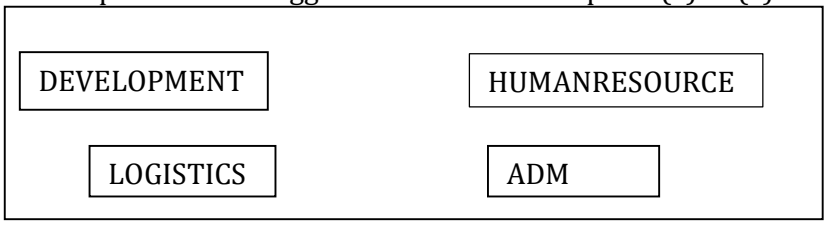
Display_Record():

To read the records of Player from 'playerdata.csv' file and display the record of player whose runs are more than 5000.

SECTION-E

33. Hitech Info Limited wants to set up their computer network in Bangalore based campus having four buildings. Each block has a number of computers that are required to be connected for ease of communication, resource sharing and data security. 1*5=5

You as a network expert have to suggest answers to these parts (a) to (e) raised by them.



Shortest distances between various blocks

Block DEVELOPMENT to Block HUMANRESOURCE -- 50 m

Block DEVELOPMENT to Block ADM-- 75 m

	Block DEVELOPMENT to Block LOGISTICS-- 80 m Block HUMANRESOURCE to Block ADM-- 110 m Block ADM to Block LOGISTICS 140 m **Number of computers installed at various blocks** **Block Number of Computers** DEVELOPMENT -- 105 HUMANRESOURCE-- 130 ADM-- 190 LOGISTICS-- 55 a) Suggest the most suitable block to host the server. Justify your answer. b) Suggest the wired medium and Draw the cable layout (Block to Block) to economically connect various blocks. c)Suggest the placement of the following devices with justification: (i) Hub/Switch (ii)Repeater d)Suggest the device that should be placed in the Server building so that they can connect to Internet Service Provider to avail Internet Services. e) Suggest the high-speed wired communication medium between Bangalore Campus and Mysore campus to establish a data network.	
34.	(i) What is CSV means? Which packages/modules are imported for using Binary Files and CSV files in Python? (ii) Abhay have a binary file called library.dat containing book information- B_id, B_name and B_price of each book. [[B_id, B_name, B_price],[B_id, B_name, B_price],...] Write the user defined function **Trace_Book()** to show the records of books having the price less than 1000. In case there is no book having price <1000 the function displays message "Such Record not found". **OR** (i) Write any two difference between text file and binary file. (ii)Mayur is a student, who have a binary file called STUDENT.DAT containing employee information- sid, name and age of each student. [sid, name , age] Write the user defined function **Get_Stud()** to display the name and age of those student who have a age greater than 18 year. In case there is no student having age >18 the function displays message "There is no student who is greater than 18 year".	2+3= 5
35.	(i) What is the difference between a Candidate Key and an Alternate Key. (ii) Virat has created a table named TRAVELS in MySQL: Tour_ID – string Destination – String Geo_Cond– String Distance – integer (In KM) Note the following to establish connectivity between Python and MYSQL: • Username is root • Password is bharat • The table TRAVELS exists in a MYSQL database named TOUR. • The details Tour_ID, Destination, Geo_Cond and Distance are to be accepted from the user. Virat wants to display All Records of TRAVELS relation whose Geographical condition	1+4=5

is hilly area and distance less than 1000 KM. Help Virat to write program in python.

OR

(i) Write one point of difference between PRIMARY KEY and UNIQUE KEY in SQL.

(ii) Aarya has created a table named Emp in MySQL:

EmpNo – integer
EmpName – string
Age– integer
Salary – integer

Note the following to establish connectivity between Python andMYSQL:

- Username - root
- Password - tiger
- Host - localhost
- The Emp table exists in a MYSQL database named **company.**
- The details of Emp table (EmpNo, EmpName, Age and Salary)

Aarya wants to display All Records of Emp relation whose age is greater than 55. Help Aarya to write program in python.

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