केन्द्रीय विद्यालय संगठन , बेंगलुरू संभाग

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प्रथम प्री बोर्ड परीक्षा – 2023-24

FIRST PRE BOARD EXAMINATION – 2023-24

Subject: Computer Science (083)

Time: 3:00 Hrs Maximum Marks: 70

General Instructions:

- ***Please check this question paper contains 35 questions.***
- ***The paper is divided into 4 Sections- A, B, C, D and E.***
- ***Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.***
- ***Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.***
- ***Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.***
- ***Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.***
- ***Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.***
- ***All programming questions are to be answered using Python Language only.***

	SECTION - A	
1	State True or False "If a loop terminates using break statement, loop else will not execute"	1
2	BETWEEN clause in MySQL cannot be used for a) Integer Fields b) Varchar fields c) Date Fields d) None of these	1
3	What will be the output of the following code snippet? a=10 b=20 c=-5 a,b,a = a+c,b-c,b+c print(a,b,c) a) 5 25 -5 b) 5 25 25 c) 15 25 -5 d) 5 25 15	1
4	What is the result of the following code in python? S="ComputerExam" print(S[2]+S[-4]+S[1:-7]) a) mEomput b) mEompu c) MCompu d) mEerExam	1
5	_____ command is used to add a new column in an existing table in MySQL?	1
6	The IP (Internet Protocol) of TCP/IP transmits packets over Internet using _____ switching. a) Circuit b) Message c) Packet d) All of the above	1
7	Consider a list L = [5, 10, 15, 20], which of the following will result in an error. a) L[0] += 3 b) L += 3 c) L *= 3 d) L[1] = 45	1
8	Which of the following is not true about dictionary ? a) More than one key is not allowed b) Keys must be immutable	1

	c) Values must be immutable d) When duplicate keys encountered, the last assignment wins	
9	Which of the following statements 1 to 4 will give the same output? tup = (1,2,3,4,5) print(tup[:-1]) #Statement 1 print(tup[0:5]) #Statement 2 print(tup[0:4]) #Statement 3 print(tup[-4:]) #Statement 4 a) Statements 1 and 2 b) Statements 2 and 4 c) Statements 2 and 5 d) Statements 1 and 3	1
10	What possible outputs(s) will be obtained when the following code is executed? import random VALUES = [10, 20, 30, 40, 50, 60, 70, 80] BEGIN = random.randint(1,3) LAST = random.randint(BEGIN, 4) for x in range(BEGIN, LAST+1): print(VALUES[x], end = "-") a) 30-40-50- b) 10-20-30-40- c) 30-40-50-60- d) 30-40-50-60-70-	1
11	Which of the following command is used to move the file pointer 2 bytes ahead from the current position in the file stream named fp? a) fp.seek(2, 1) b) fp.seek(-2, 0) c) fp.seek(-2, 2) d) fp.seek(2, -2)	1
12	Predict the output of the following code: def ChangeLists(M , N): M[0] = 100 N = [2, 3] L1 = [-1, -2] L2 = [10, 20] ChangeLists(L1, L2) print(L1[0],"#", L2[0]) a) -1 # 10 b) 100 # 10 c) 100 # 2 c) -1 # 2	1
13	Which of the following is not a function of csv module? a) readline() b) writerow() c) reader() d) writer()	1
14	State True or False “A table in RDBMS can have more than one Primary Keys”	1
15	COUNT(*) function in MySQL counts the total number of _____ in a table. a) Rows b) Columns c) Null values of column d) Null values of a row	1
16	Which of the following is not a method for fetching records from MySQL table using Python interface? a) fetchone() b) fetchrows() c) fetchall() d) fetchmany()	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):- Text file stores information in ASCII or UNICODE characters. Reasoning (R):- In text file there is no delimiter(EOL) for a line.	1
18	Assertion (A):- HAVING clause is used with aggregate functions in SQL. Reasoning (R):- WHERE clause places condition on individual rows.	1
	SECTION – B	
19	Differentiate between Circuit Switching and Packet Switching. OR Write one similarity and one point of difference between HTML and XML	2

20	Rewrite the following code in python after removing all syntax error(s) and underline each correction made by you in the code.
	D = dict[]
	c = 1
	while c < 5:
	k = input("Name: ")
	v = int(input("Age: ")
	D(k) = v
	print(popitem())
	for a,b in D.item:
	print(a, b)
		2

21	Write the output of the following code: L1=[100,900,300,400,500] START=1 SUM=0 for C in range (START, 4): SUM=SUM+L1[C] print(C,":",SUM) SUM=SUM+L1[0]*10 print(SUM)	2
22	(a) Given is a Python string declaration: st = 'AMPLIFY&AMPLITUTE' Write the output of : print(st.count('PLI',2,12)) (b) Write the output of the code given below: D = {'A':'AJAY' , 'GRADE':'A'} print(list(D.values()))	1 1
23	Expand the following terms: (i) PPP (ii) SMTP (iii) VoIP (iv) TCP/IP	2
24	Explain the following: (i) Primary Key (ii) Foreign Key	2

25	Define constraint in context with Relational Database Management System. Explain any two constraints of MySQL.	2
	SECTION – C	

26	Predict the output of the Python code given below:
	x = 25
	def modify(s, c=2):
	  global x
	  for a in s:
	  if a in 'QWEiop':
	  x //= 5
	  print(a.upper(),'@',c*x)
	  else:
	  x += 5
	  print(a.lower(),'#',c+x)
	string = 'We'
	modify(string,10)
	print(x, '$', string)
		3

27	Write the output of the queries (i) to (iii) based on the table PRODUCTS given below:
	
	Table: PRODUCTS
	
	i) SELECT COUNT(TDATE) FROM PRODUCTS;
	ii) SELECT MAX(TDATE) FROM PRODUCTS WHERE PRICE BETWEEN 1000 AND 1400;
	iii) SELECT ITEM, QTY*PRICE AS TOTAL FROM PRODUCTS WHERE QTY > 200 AND ITEM LIKE '%tap%' ;	

28	Write a method COUNTWORDS() in Python to read data from text file 'ARTICLE.TXT' and display the count of words which ends with a vowel. For example, if the file content is as follows: An apple a day keeps you healthy and wise The COUNTWORDS() function should display the output as: Total words which ends with vowel = 4	3

CODE	ITEM	QTY	PRICE	TDATE
1001	Plastic Folder 14"	100	3400	2014-12-14
1004	Pen Stand Standard	200	4500	NULL
1005	Stapler Mini	250	1200	2015-02-28
1009	Punching Machine Small	NULL	1400	2015-03-12
1003	Stapler Big	100	1500	NULL

29 Consider the table TRAINER given below: 3

Table: TRAINER

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

Based on the given table, write SQL queries for the following:
(i) Display TNAME, CITY and HIREDATE of those trainers who were hired in the year 2001
(ii) Change the name of city as MUMBAI wherever name of city is BOMBAY
(iii) Add primary key constraint in the existing TRAINER table, to make TID as primary key.

30 Write separate user defined functions for the following : 3

(i) PUSH(N) This function accepts a list of names, N as parameter. It then pushes only those names in the stack named OnlyA which contain the letter 'A'.
(ii) POPA(OnlyA) This function pops each name from the stack OnlyA and displays it. When the stack is empty, the message "EMPTY" is displayed.
For example :
If the names in the list N are
['ANKITA', 'NITISH', 'ANWAR', 'DIMPLE', 'HARKIRAT']
Then the stack OnlyA should store
['ANKITA', 'ANWAR', 'HARKIRAT']
And the output should be displayed as
HARKIRAT ANWAR ANKITA EMPTY

SECTION – D

31 Consider PASSENGERS and TRAINS tables given below: 4

Table: PASSENGERS

PNR	TNO	PNAME	GENDER	AGE	TRAVELDATE
P001	13005	R N PANDEY	MALE	45	2020-12-25
P002	12015	P TIWARY	MALE	28	2020-11-10
P003	12015	S TIWARY	FEMALE	22	2020-11-10
P004	12030	S K SAXENA	MALE	51	2021-12-10
P005	12030	S SAXENA	FEMALE	35	2021-12-10
P006	12030	P SAXENA	FEMALE	12	2021-12-10
P007	13005	N S SINGH	MALE	52	2021-05-09
P008	12030	J K SHARMA	MALE	65	2022-01-28
P009	12030	R SHARMA	FEMALE	58	2022-01-28

Table: TRAINS

TNO	TNAME	START	END
11096	Ahimsa Express	Pune Junction	Ahmedabad Junction
12015	Ajmer Shatabdi	New Delhi	Ajmer Junction

10651	Pune Hublj Special	Pune Junction	Habibganj
13005	Amritsar Mail	Howrah Junction	Amritsar Junction
12002	Bhopal Shatabdi	New Delhi	Habibganj
12417	Prayag Raj Express	Allahabad Junction	New Delhi
14673	Shaheed Express	Jaynagar	Amritsar Junction
12314	Sealdah Rajdhani	New Delhi	Sealdah
12498	Shane Punjab	Amritsar Junction	New Delhi
12451	Shram Shakti Express	Kanpur Central	New Delhi
12030	Swarna Shatabdi	Amritsar Junction	New Delhi

Write SQL queries for the following:

(i) Display the passenger names (PNAME), travel date (TRAVELDATE) and train name (TNAME) from which each passenger has travelled from PASSENGERS and TRAINS tables.

(ii) Display the average age of all passengers gender wise.

(iii) Display the details of trains in ascending order of train numbers (TNO)

(iv) Display starting stations (START) of TRAINS table without repetition.

32 Deepali is creating a python program for a Library and created a csv file Books.csv to store the details of books. The structure of Books.csv is: 4

[BookID, Title, Author, Price]

Where

BookID stores Book ID (integer)

Title stores the title of book (string)

Author stores the author of the book (string)

Price stores the price of the book (float)

She wants to write code for the following user defined functions:

(i) AddBook() – to accept a record from the user and add it to the file Book.csv.

(ii) TotalCost() – to read the csv file Book.csv, convert the price of each book into float data type, find and display the sum of prices of all the books

As a Python expert, help her complete the task.

OR

Sanjay is working on a binary file, PRODUCTS.DAT, containing records of the following structure:

{'PID':Product ID, 'PNAME':Product Name , 'PRICE':Product Price}

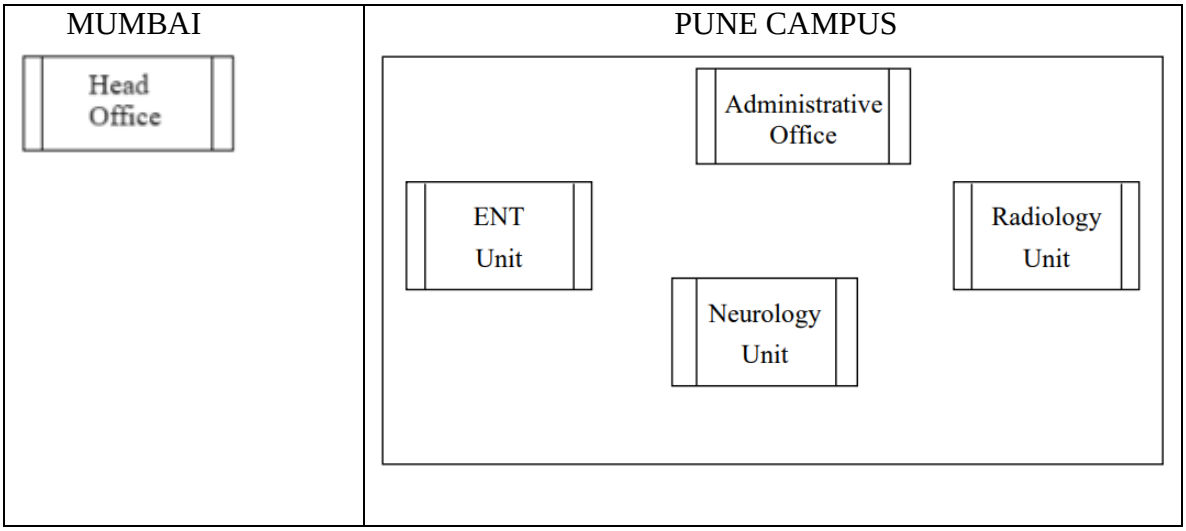
Help him to write the following user defined functions:

(i) appendData(), that reads the values of Product ID, Product Name and Product price from the user into a dictionary and append it into binary file PRODUCTS.DAT.

(ii) findProduct(product_id) that accepts product_id as argument to read binary file PRODUCTS.DAT and display the details of that product.

SECTION - E

33 Medico Group of hospitals is planning to set up its new campus at Pune with its head office at Mumbai. Pune campus will have specialised units for Radiology, Neurology and ENT alongwith an administrative office in separate buildings. The physical distances between these units and the number of computers to be installed in these units and administrative office as given as follows. You as a network expert have to answer the queries as raised by them in (i) to (v). 5



Distance between various units in metres :

Administrative Office to Radiology Unit	95 m
Neurology Unit to Administrative Office	40 m
Radiology Unit to Neurology Unit	90 m
ENT Unit to Neurology Unit	60 m
ENT Unit to Administrative Office	130 m
ENT Unit to Radiology Unit	150 m
Mumbai Head Office to Pune Campus	147 km

Number of Computers installed at various locations are as follows :

ENT Unit	50
Radiology Unit	70
Administrative Office	120
Neurology	40

	(i) Suggest the most suitable location to install the main server to get efficient connectivity in PUNE campus with justification. (ii) Suggest and draw the cable layout to efficiently connect various units within the PUNE campus for connecting the digital devices. (iii) Suggest the placement of the following device with justification (a) Repeater (b) Hub/Switch (iv) Suggest the topology of the network and network cable for efficiently connecting each computer installed in each of the unit out of the following : Topologies: Star Topology, Bus Topology Network Cable: Co-axial Cable, Ethernet Cable, Single Pair Telephone Cable. (v) If Mumbai head office is connected with Pune campus, out of the following which type of network will be formed? LAN, MAN, PAN, WAN	
34	(i) Differentiate between 'w' and 'a' file modes in Python. (ii) Consider a binary file, FASHION.DAT, containing records of the following structure: [GID, GNAME, FABRIC, PRICE] Where GID – Garment ID GNAME – Garment Name FABRIC – Type of fabric i.e. COTTON, SILK, SATIN etc. PRICE – Price of the garment Write a user defined function, searchFashion(cost), that accepts cost as parameter and displays all the records from the binary file FASHION.DAT, that have price more than 1500.	2 3
35	(i) What is meant by Degree of a table in RDBMS? (ii) Krishna wants to write a program in Python to insert the following record into STAFF table of COMPANY database using python interface. SID (Staff ID) – Integer SNAME (Name of staff member) - String DOJ (Date of Joining) – Date SALARY – Float Note the following to establish connectivity between Python and MySQL: • Username - root • Password - tiger • Host - localhost The values of fields SID, SNAME, DOJ and SALARY has to be accepted from the user. Help Krishna to write the program in Python.	1 4

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