KENDRIYA VIDYALAYA SANGATHAN AGRA REGION

SECOND PRE BOARD EXAMINATION (Session 2023-24)

Class : XII   **Time Allowed** : 03:00 Hours
Subject : (083) Computer Science   **Maximum Marks : 70**

General Instructions:

Please check this question paper which 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.

Que No	Question	Marks
	SECTION A	

1	Which of the following functions print the output to the console?
	    A. Output( )
	    B. Print( )
	    C. Echo( )
	    D. print( )
		1

2	State True or False: "A special value "NULL" is used to represent values that are unknown to certain attributes."	1

3	What is the result after executing the following?
	>>>print(20/4 *5+8-10)
	    A. 1
	    B. 23
	    C. 23.0
	    D. 24
		1

4	Which one of the following is False regarding data types in Python?
	    A. In python, explicit data type conversion is possible
	    B. Mutable data types are those that can be changed.
	    C. Immutable data types are those that cannot be changed.
	    D. None of the above
		1

5	If you want to add a new column in an existing table, which command is used. For example, to add a column bonus in a table emp, the statement will be given as:
	    A. ALTER table bonus ADD (emp Integer);
	    B. CHANGE table emp ADD bonus int;
	    C. ALTER table emp ADD bonus int;
	    D. UPDATE table emp ADD bonus int;
		1

6	What is the size of IPv4 address?
	    A. 32 bits
	    B. 64 bits
	    C. 64 bytes
	    D. 32 bytes
			1

7	What will be the output of the following python statement?
	L=[3,6,9,12]
	L=L+15
	print(L)
	    A. [3,6,9,12,15]
	    B. [18,21,24,27]
	    C. [5,3,6,9,12,15]
	    D. error
			1

8	The return type of string.split() is a
	    A. string
	    B. List
	    C. Tuple
	    D. Dictionary
			1

9	Given the following dictionary
	Emp1={"salary":10000,"dept":"sales","age":24,"name":"john"}
	Emp1.keys() can give the output as
	    A. ("salary","dept","age","name")
	    B. (['salary', 'dept', 'age', 'name'])
	    C. [10000,"sales",24,"john"]
	    D. {„salary","dept","age","name"}
			1

10	import random
	AR=[20,30,40,50,60,70]
	START=random.randint(1,3)
	END=random.randint(2,4)
	for P in range(START, END+1):
	       print (AR[P],end="#")
	
	Based on the above code what will Be the maximum value of the variables START and END ?
	    A. 3,4
	    B. 4,3
	    C. 2,4
	    D. 4,2
			1

11	____is the device which is used to convert digital signal into analog signal and vice-versa.
	    A. Modulator
	    B. B) Modem
	    C. Mixture
	    D. Multiplexer
			1

12	Which keyword is used to abandon the current iteration of the loop? A. continue		1

		B. break C. stop D. infinite	

13		It is raised when the result of a calculation exceeds the maximum limit for numeric data type.
		    A. OverFlowError
		    B. TypeError
		    C. ZeroDivisionError
		    D. NameError
			1

14		The data types CHAR (n) and VARCHAR (n) are used to create _____ and _____ length types of string/text fields in a database.
		    A. Fixed, Variable
		    B. Equal, Variable
		    C. Fixed, Equal
		    D. Variable, Equal
			1

15		_____ is a standard mail protocol used to receive emails from a remote server to a local email client.
		    A. SMTP
		    B. POP
		    C. HTTP
		    D. FTP
			1

16		How do you change the file position to an offset value from the start?
		    A. fp.seek(offset, 0)
		    B. fp.seek(offset, 1)
		    C. fp.seek(offset, 2)
		    D. none of the mentioned
			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: The function header 'def read (a=2, b=5, c):' is not correct. Reason: Non default arguments can't follow default arguments.	1
18		a=(1,2,3) a[0]=4 Assertion(A):The above code will result in error Reason(R): a is a list, So we can change it.	1
		SECTION B	
19		(a) Write the full forms of the following: (i) TCP/IP (ii) VoIP (b) What is the use of FTP? **OR** Write any one point of difference between:	2

	a) Circuit Switching and Packet Switching. b) Co-axial cable and Fiber – optic cable .	

20	Preety has written a code to add two numbers. Her code is having errors. Rewrite the corrected code and underline the corrections made.
	def sum(arg1,arg2):
	       total=arg1+arg2;
	       print("Total:",total)
	return total;
	sum(10,20)
		2

21	Predict the output of the Python code given below:
	List1 = list("Examination")
	List2 =List1[1:-1]
	new_list = []
	for i in List2:
	    j=List2.index(i)
	    if j%2==0:
	       List1.remove(i)
	print(List1)
		2

22	Write a function change(L), where L is the list of elements passed as argument to the function. The function arranges odd numbers and even numbers separately in two lists and displays them. For example: If L = [10, 20, 30, 40, 12, 11,13,15] Then function will create and display two lists: List of even elements: [10, 20, 30, 40, 12] List of odd elements: [11, 13, 15] **OR** Write a function INDEX_LIST(S), where S is a string. The function returns a list named 'indexList' that stores the indices of all vowels of S. For example: If S is "Computer", then indexList should be [1,4,6]	2
23	Write the Python statement for each of the following tasks using BUILT IN functions/methods only : (i) To insert an element 150 at the Second position, in the list L1. (ii) To convert a string named, message in upper case. **OR** Write the Python command to import the required module and (using built-in function) find out the factorial of a given no i.e 5.	2

24	An organization SoftSolutions is considering to maintain their employees records using SQL to store the data. As a database administrator, Murthy has decided that : • Name of the table - HRDATA • The attributes of HRDATA are as follows: ECode – Numeric EName – character of size 30 Desig – Character of size 15 Remn – numeric Now help Murthy to create table and insert one record (80008,Arjun,Admin, 55000) into the table. **OR** City Hospital is considering to maintain their inventory using SQL to store the data. As a database administer, Ritika has decided that : • Name of the database - CH • Name of the table - CHStore • The attributes of CHStore are as follows: ItemNo - numeric ItemName – character of size 20 Scode - numeric Quantity – numeric Now Ritika wants to remove the column Quantity from the table CHStore . And she also wants to display the structure of the table CHStore, i.e, name of the attributes and their respective data types that she has used in the table. Help her to write the correct command .	2

25	Predict the output of the Python code given below:
	
	def Diff(N1,N2):
	    if N1>N2:
	        return N1-N2
	    else:
	        return N2-N1
	NUM= [10,23, 14,54,32]
	for CNT in range (4,0,-1):
		2

	A=NUM[CNT] B=NUM[CNT- 1] print(Diff(A,B), "#", end=" ")	

	SECTION C	

26	Predict the output of the code given below:
	
	``python
	def convert(Old):
	    l=len(Old)
	    New=" "
	    for i in range(0,l):
	        if Old[i].isupper():
	            New=New+Old[i].lower()
	        elif Old[i].islower():
	            New=New+Old[i].upper()
	        elif Old[i].isdigit():
	            New=New+"*"
	        else:
	            New=New+"%"
	    return New
	Older="InDIa@2022"
	Newer=convert(Older)
	print("New String is: ", Newer)
	``
		3

27	Consider the table EXAM given below and write the output of the following SQL queries: | No.	Name	Stipend	Subject	Average	Division
---	---	---	---	---	---
1	Karan	400	English	68	First
2	Aman	680	Mathematics	72	First
3	Javed	500	Accounts	67	First
4	Bishakh	200	Informatics	55	Second
5	Sugandha	400	History	35	Third
6	Suparna	550	Geography	45	Third | a) SELECT AVG(Stipend) FROM EXAM WHERE DIVISION="Third" b) SELECT COUNT(DISTINCT Subject) FROM EXAM;	3

		c) SELECT MIN(Average) FROM EXAM WHERE Subject="English";	
28		Write a function in python to count the number of lines in a text file 'Country.txt' which are starting with an alphabet 'W' or 'H'. For example, If the file contents are as follows...............: Whose woods these are I think I know. His house is in the village though; He will not see me stopping here To watch his woods fill up with snow. The output of the function should be: W or w : 1 H or h : 2 **OR** Write a user defined function to display the total number of words present in a text file 'Quotes.txt'. For example: if the file contents are as follows: Living a life you can be proud of doing your best Spending your time with people and activities that are important to you Standing up for things that are right even when it's hard Becoming the best version of you. The countwords() function should display the output as: Total number of words : 40	3

29		Consider a table EMPLOYEE with the following data:
		
		TABLE_PLACEHOLDER
		
		Based on the given table, write SQL queries for the following:
		
		    a) Write a query to increase the salary of the Clerk by 5%.
		
		    b) Write down a query to display the information of those employees
			3

Table for question 29:

ENO	ENAME	SALARY	BONUS	DATE OF JOIN	JOB TYPE
A01	Piya	30000	45.23	29-10-2019	Clerk
A02	Rahul	50000	25.34	13-03-2018	Analyst
B03	Nishu	30000	35.00	18-03-2017	Salesman
B04	Tanu	80000	23.45	31-12-2018	Manager
C05	Gautam	20000	32.05	23-01-1989	Clerk
C06	Julie	70000	12.37	15-06-1987	Analyst
D07	Neha	50000	27.89	18-03-1999	Manager

		whose joining is in between 01/01/1985 and 31/03/2000. c) Write a query to delete the details of Managers.	
30	A list contains following record of a customer: [Customer_name, Phone_number, City] Write the following user defined functions to perform given operations on the stack named 'status': (i) Push_element() - To Push an object containing name and Phone number of customers who live in Goa to the stack (ii) Pop_element() - To Pop the objects from the stack and display them. Also, display "Stack Empty" when there are no elements in the stack. For example: If the lists of customer details are: ["Ashok", "9999999999","Goa"] ["Avinash", "8888888888","Mumbai"] ["Mahesh","77777777777","Cochin"] ["Rakesh", "66666666666","Goa"] The stack should contain: ["Rakesh","66666666666"] ["Ashok"," 99999999999"] The output should be: ["Rakesh","66666666666"] ["Ashok","99999999999"] Stack Empty	3

SECTION D

31	Consider the relations/tables EMP and DEPT and give the correct answer of following queries. Relation: EMP	4

EMPNO	ENAME	JOB	MGR	SAL	COMM	DEPTNO
7369	SMITH	CLERK	7902	800.00	NULL	20
7499	ALLEN	SALESMAN	7698	1600.00	300.00	30
7521	WARD	SALESMAN	7698	1250.00	500.00	30
7566	JONES	MANAGER	7839	2975.00	NULL	20
7654	MARTIN	SALESMAN	7698	1250.00	1400.00	30
7698	BLAKE	MANAGER	7839	2850.00	NULL	30
7782	CLARK	MANAGER	7839	2450.00	NULL	10
7788	SCOTT	ANALYST	7566	3000.00	NULL	20
7839	KING	PRESIDENT	NULL	5000.00	NULL	10
7844	TURNER	SALESMAN	7698	1500.00	0.00	30

Relation: DEPT

DEPTNO	DNAME	LOC
10	ACCOUNTING	NEWYORK
20	RESEARCH	DALLAS
30	SALES	CHICAGO
40	OPERATIONS	BOSTON

Write SQL queries for the following:

    a) Display the total no. of employees in each department?

    b) Display the jobs where the number of employees is less than 3.

    c) Display the name of the employee & their department name.

    d) Display the maximum salary of the manager.

32	Write a Program in Python that defines and calls the following user defined functions:
	
	   a) ADDPROD() – To accept and add data of a product to a CSV file product.csv'.
	
	 Each record consists of a list with field elements as prodid, name and price to store product id, employee name and product price respectively.
	
	   b) COUNTPROD() – To count the number of records present in the CSV file named 'product.csv'.
		4

<p align="center">SECTION E</p>

33	Quick Learn University is setting up its academic blocks at Prayag Nagar and planning to set up a network. The university has 3 academic blocks and one human resource Centre as shown in the diagram given below:	5
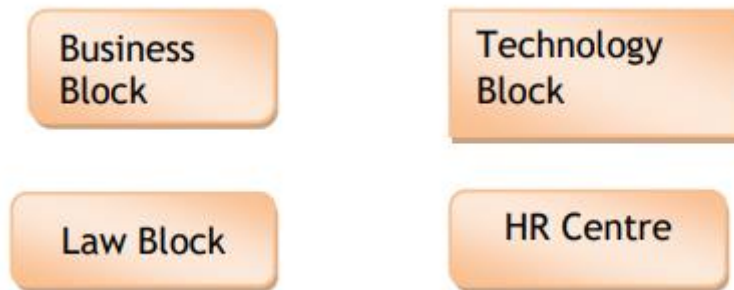
Centre-to-Centre distance between various blocks is as follows:

Block	Distance
Law block to business block	40 m
Law block to technology block	80 m

Law block to HR block	105 m
Business block to technology block	30 m
Business block to HR block	35 m
Technology block to HR block	15 m

Number of computers in each of the buildings is as follows:

Law block	15
Technology block	40
HR Centre	115
Business block	25

(a) Suggest a cable layout of connection between the blocks.

(b) Suggest the most suitable place to house the server of the organization with suitable reason.

(c) Which device should be placed/installed in each of these blocks to efficiently connect all the computers within these blocks?

(d) The university is planning to link its sales counters situated in various parts of the CITY. Which type of network out of LAN, MAN or WAN will be formed?

(e) Which network topology may be preferred between these blocks?

34	(i)Differentiate between Binary File and CSV File.	5
	(ii)write a python code to perform the following binary file operations with the help of two user defined functions/modules:	

a. AddStudents() to create a binary file called STUDENT.DAT containing student information – roll number, name and marks (out of 100) of each student.

b. GetStudents() to display the name and percentage of those students who have a percentage greater than 75. In case there is no student having percentage > 75 the function displays an appropriate message. The function should also display the average percent.

OR

(i) Write one advantage and one disadvantage of using a binary file for permanent storage?

(ii) A binary file "Book.dat" has structure [BookNo, Book_Name, Author, Price].
(a)Write a user defined function CreateFile() to input data for a record and add to Book.dat .
(b) Write a function CountRec(Author) in Python which accepts the Author

		name as parameter and count and return number of books by the given Author are stored in the binary file "Book.dat"	
35		(i) Define the term Domain with respect to RDBMS. Give one example to support your answer.	5
		(ii)Preety wants to write a program in Python to read the records from the table named employee and displays only those records who have salary greater than 53500.	
		Empcode – integer	
		EmpName – string	
		EmpSalary – integer	
		Note the following to establish connectivity between Python and MYSQL:	
		• Host is localhost	
		• Username is root	
		• Password is root@123	
		• The table exists in a MYSQL database named management.	
		OR	
		(i)Give the difference between degree and cardinality of a relation.	
		(ii)Ravi wants to write a program in Python to read the records from a table named TRAINER and increase the salary of Trainer SUNAINA by 2000.	
		TID -integer	
		TNAME -string	
		CITY-string	
		SALARY-integer	
		Note the following to establish connectivity between Python and MYSQL:	
		• Host is localhost	
		• Username is root	
		• Password is system	
		• The table exists in a MYSQL database named Admin.	

************************END OF PAPER ************** **************** ****