KENDRIYA VIDYALAYA SANGTHAN, CHANDIGARH REGION

PRE-BOARD EXAMINATION - 2023-24

Class: XII

Computer Science (083)

Time allowed: 3 Hours **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 3 questions (31 to 32). Each question carries 4 Marks.**
- **Section E, consists of 2 questions (33 to 35). Each question carries 5 Marks.**
- **All programming questions are to be answered using Python Language only.**

Ques. No.	Question	Marks
	SECTION A	
1	State True or False: "Python is a case sensitive language i.e. upper and lower cases are treated differently."	1
2	In a table in MYSQL database, an attribute Aof datatype char(20)has the value "Rehaan". The attribute B of datatype varchar(20) has value "Fatima". How many characters are occupied by attribute A and attribute B? a. 20,6 b. 6,20 c. 9,6 d. 6,9	1
3	What will be the output of the following statement: print(5-2**2**2+99//11) a. -20 b. -2.0 c. -2 d. Error	1
4	Select the correct output of the code: for i in "QUITE": print(i.lower(), end="#") a. q#u#i#t#e# b. ['quite#'] c. ['quite'] # d. ['q']#['u']#['i']#['t']#['e']#	1
5	In MYSQL database, if a table, **Works**has degree 3 and cardinality 3, andanother table, **Jobs** has degree 3 and cardinality 3, what will be the degree and cardinality of the Cartesian product of **Works**and **Jobs**? a. 9,9 b. 6,6 c. 9,6 d. 6,9 [1]	1

6	A set of rules that governs data communication in computer networks is called … a. Standard b. protocol c. Stack d. none of these	1
7	**Given the followingdictionaries** dict_exam={"Exam":"AISSCE", "Year":2023} dict_result={"Total":500, "Pass_Marks":165} Which statement will merge the contents of both dictionaries? a. dict_exam.update(dict_result) b. dict_exam + dict_result c. dict_exam.add(dict_result) d. dict_exam.merge(dict_result)	1
8	Consider the statements given below and then choose the correct outputfrom the given options: pride="#Azadi Ka Amrut@75" print(pride[-2:2:-2]) Options a. 7TRAa d b. 7tRAa d c. 7TrAa d d. 7trAa d	1

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 be the output of the following code?
	`import random`
	`List=["Delhi","Mumbai","Chennai","Kolkata"]`
	`for y in range(4):`
	`  x = random.randint(1,3)`
	`  print(List[x],end="#")`
	a. Delhi#Mumbai#Chennai#Kolkata# b. Mumbai#Chennai#Kolkata#Mumbai#
	c. Mumbai# Mumbai #Mumbai # Delhi# d. Mumbai# Mumbai #Chennai # Mumbai
		1

11	Fill in the blank: The modem at the received computer end acts as a_____. a. Model b. Modulator c. Demodulator d. Convertor	1

12	Consider the code given below:
	`b=100`
	`def test(a):`
	`    _____  # missing statement`
	`    b=b+a`
	`    print(a,b)`
	`test(10)`
	`print(b)`
	Which of the following statements should be given in the blank for#Missing Statement, if the output produced is 110?
	Options:
	a. global a
	b. global b=100
	c. global b
	d. global a=100
		1

13	State whether True or False : When you connect your mobile phone with your laptop, the network formed is called as LAN.	1
14	Fill in the blank: _____is a candidate key which is not selected as a primary key. a. Primary Key b. Foreign Key c. Candidate Key d. Alternate Key	1
15	Fill in the blank: _____is the transfer of small pieces of data across various networks.	1
16	The correct syntax of seek()is: a. file_object.seek(offset [, reference_point]) b. seek(offset [, reference_point]) c. seek(offset, file_object) d. seek.file_object(offset)	1

	Q17 and 18 are ASSERTION AND REASONING based questions. Markthe 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):- Dictionaries are mutables.. Reasoning (R):- The contents of the dictionary can be changed after it has been created	1
18	Assertion (A):- If the arguments in a function call statement match the number and order of arguments as defined in the function definition, such argumentsare called positional arguments. Reasoning (R):- During a function call, the argument list first contains default argument(s) followed by positional argument(s).	1
	SECTION B	
19	Expand the following terms related to Computer Networks: (i) a. SMTP b. POP (ii) Out of the following, which is the fastest wired and wireless medium of transmission? **Infrared, coaxial cable, optical fiber, microwave, Ethernet cable** **OR** (i) Differentiate between web server and web browser. (ii) Give one advantages and two disadvantages of star topology.	1+1=2
20	The code given below accepts a number as an argument and returns the reverse number. Observe the following code carefully and rewrite it after removing all syntax and logical errors. Underline all the corrections made. **Def oddtoeven(L)** **For i in range(len(L)):** **if(L[i]%2 !=0):** **L[i] = L[i]*2** **print(L)**	2
21	Write a function count (city) in Python, that takes the dictionary, PLACES as an argument and displays the names (in lowercase) of the places whose names are less than 7 characters. For example, Consider the following dictionary City ={1:"Delhi",2:"London",3:"Kolkata",4:"NewYork",5:"Moscow"} The output should be: “Delhi”, ”London”, ”Moscow” OR Write a function, Words_Length(STRING), that takes a string as an argument and returns a tuple containing length of each word of a string.For example, if the string is "this too shall pass", the tuple will have (4, 3, 5,4)	2

22	Predict the output of the following code:
	`K = "FIFA"`
	`P = [12,23,31,4]`
	`S = {}`
	`for i in range(len(K)):`
	`  if i%2==0:`
	`  S[P.pop()]=K[i]`
	`  else:`
	`  S[P.pop()]=i+1`
	`for x,y in S.items():`
	`  print(x,y,sep="#")`
		2

23	Predict the output of the Python code given below:
	`def Diff(N1,N2):`
	`  if N1>N2:`
	`  return N1-N2`
	`  else:`
	`  return N2-N1`
	`NUM= [20,33,4,44,52]`
	`for CNT in range (4,0,-1):`
	`  A=NUM[CNT]`
	`  B=NUM[CNT-1]`
	`  print(Diff(A,B),'#', end=' ')`
	OR
	Predict the output of the Python code given below:
	`def Swap (a,b ) :`
	`  if a>b:`
	`  print("changed",end="")`
	`  return b,a`
	`  else:`
	`  print("unchanged",end="")`
	`  return a,b`
	`data=[11,22,16,50,30]`
	`for i in range (4,0,-1):`
	`  print(Swap(data[i],data[i-1]))`
		1+1=2

24	Ms. Shweta has just created a table named “Employee” containing columns Empno, Ename,Department and Salary. After creating the table, she realized that she has forgotten to apply primary key constraint in Empno column. Help her in writing an SQL command toadd a primary key constraint to Empno column to the table Employee. OR Angel has created table School with column sid,Student_name,DOB,Fee,City. Later she realized that she has forgotten to apply primary key in sid, also she wants to change the column name from sid to student_id. Help her to change the column name to student_id from sid and also apply primary key in it.	2

25 | Predict the output of the following code: | 2

```
def fun1():
    x = 100
    def fun2():
        x = 200
        print("x in func()2",x)
    print("Before calling fun2: " + str(x))
    fun2()
    print("After calling fun2: " + str(x))
global x
x = 50
fun1()
print("x in main: " + str(x))
```

SECTION C

26 | Predict the output of the Python code given below: | 3

```
Name="PythoN@3.11"
R=""
for x in range(len(Name)):
    if Name[x].isupper():
        R=R+Name[x].lower()
    elif Name[x].islower():
        R=R+Name[x].upper()
    elif Name[x].isdigit():
        R=R+Name[x-1]
    else:
        R=R+"#"
print(R)
```

27 | Consider the table MEMBER given below and write the output of the SQLqueries that follow. | 1*3=3

MID	MNAME	AGE	GENDER	GAME	PAY	DOAPP
5246	AMRITA	35	FEMALE	CHESS	900	2006- 03-27
4687	SHYAM	37	MALE	CRICKET	1300	2004- 04-15
1245	MEENA	23	FEMALE	VOLLEYBALL	1000	2007- 06-18
1622	AMRIT	28	MALE	KARATE	1000	2007- 09-05
1256	AMINA	36	FEMALE	CHESS	1100	2003- 08-15
1720	MANJU	33	FEMALE	KARATE	1250	2004- 04-10
2321	VIRAT	35	MALE	CRICKET	1050	2005- 04-30

(i) SELECT COUNT(DISTINCT GAME) FROM MEMBER;

(ii) SELECT MNAME, GAME FROM MEMBER WHERE DOAPP<"2007-01-01" AND MNAME LIKE "AM%";

(iii) SELECT MNAME, AGE, PAY FROM CLUB WHEREGENDER = "FEMALE" AND PAY BETWEEN 1000 AND 1200;

28 Write a function in Python to read a text file, Story.txtand displays those lines which begin with the word 'Once'. 3

OR

Write a method COUNTLINES () in Python to read lines from text file 'FILE.TXT' and display the lines which are starting with any vowel.

29 Consider the table **HRM**given below: 1*3=3

Table: HRM

ID	Name	Designation	Salary	Incentive
P01	Mohit	Manager	99000	5800
P02	Rakesh	Clerk	70000	2600
P03	Suresh	Superviser	48000	NULL
P04	Sahil	Clerk	61000	2900
P05	Rubeena	Superviser	50000	3100

Based on the given table, write SQL queries for the following:

(i) Increase the salary by 5% of all employees who are not getting any incentive.

(ii) Display Name and Total Salary (sum of Salary and Allowance) of all employees. The column heading 'Total Salary' should alsobe displayed.

(iii) Delete the record of Supervisors who have salary less than 50000

30 A list contains following record of a customer: 3

[Patient_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 patients who live in Delhi to the stack

(ii) (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:

["Kabir", "99999999999","Goa"]

["Neha", "8888888888","Delhi"]

["Mehul","77777777777","Delhi"]

["Asimita", "1010101010","Goa"]

The stack should contain

["Neha", "8888888888"]

	["Mehul","7777777777"] **The output should be:** ["Neha", "8888888888"] ["Mehul","7777777777"] Stack Empty	
	SECTION D	
31	Consider the Item and company Table Table : Item (see table below) **Table : Company** (see table below) Write SQL queries : **i. Display item name and company name from the tables Item and Company** **ii. Display the structure of table Item.** **iii. Display the maximum rating for each company.** **iv. Display the item name, price and rating in ascending order of rating.**	1*4=4
32	Vihaan is a Python programmer working in a school. For the Annual Sports Event, he has created a csv file named Sports.csv, to store theresults of students in different sports events. The structure of Sports.csv is : [Player_Id, Player_Name, Game, Result] Where Player_Idis Player ID (integer) Player_nameis Player Name (string) Game is name of game in which student is participating(string) Result is result of the game whose value can be either 'Winner', 'Defeated'or 'NO result' For efficiently maintaining data of the event, Vihaan wants to write thefollowing user	4

Icode	IName	Price	Rating	Cid
I01	Mobile	12000	5	A01
I02	TV	20000	4	A02
I03	OVEN	5000	7	A03
I04	EARPHONE	5000	8	A04
I05	WATCH	10000	6	A05
I06	CAMERA	11000	6	A06

CId	**Cname**
A01	**Apple**
A02	**Samsung**
A03	**Philips**
A04	**Xiomi**
A05	**Vivo**
A06	**Oppo**

defined functions:

input() – to input a record from the user and add it to the file Sports.csv. The column headings should also be added on top of thecsv file.

Winner_Count()– to count the number of player who have won any event.

As a Python expert, help him complete the task.

SECTION E

33 NMS Training Institute is planning to set up its Centre in Bhubaneswar with four specialized blocks for Medicine, Management, Law courses along with an Admission block in separate buildings. The physical distances between these blocks and the number of computers to be installed in these blocks are given below. You as a network expert have to answer the queries raised by their board of directors as given in (i) to (iv). 1*5=5

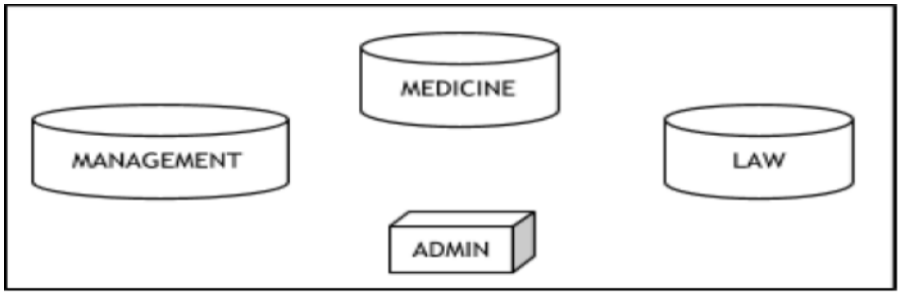
Shortest distances between various locations in meters:

Admin Block to Management Block	50
Admin Block to Medicine Block	30
Admin Block to Law Block	65
Management Block to Medicine Block	40
Management Block to Law Block	125
Law Block to Medicine Block	35

Number of Computers installed at various locations are as follows:

Admin Block	250
Management Block	100
Medicine Block	45
Law Block	95

‘



(i). Suggest the most suitable location to install the main server of this institution to get efficient connectivity.

(ii). Suggest by drawing the best cable layout for effective network connectivity of the blocks having server with all the other blocks.

(iii). Suggest the device to be installed in each of these buildings for connecting computers installed within the building.

(iv) Suggest the most suitable wired medium for efficiently connecting each computer installed in every building out of the following network cables:

- Coaxial Cable
- Ethernet Cable
- Single Pair
- Telephone Cable.

	(v) Suggest a device/software to be installed to take care of data security.	
34	(i) Differentiate between w and a file modes in Python. (ii) Consider a file, Movie.DAT, containing records of the following structure: [MovieName, Banner, YearofRelease] Write a function, CaptureData(), that reads contents from the file Movie.DAT and copies the records with Banner as "**YashRaj**" to the file named Yashrajfilms.DAT. The function should return thetotal number of records copied to the file Yashrajfilms.DAT. **OR** **(Option for part (ii) only)** A Binary file, CINEMA.DAThas the following structure: {MNO:[MNAME, MTYPE]} Where MNO – Movie Number MNAME – Movie Name MTYPEis Movie Type Write a user defined function, find Type(mtype), that accepts mtype as parameter and displays all the records from the binary file CINEMA.DAT, that have the value of Movie Type as mtype.	2+3=5

35	(i) What do you mean by tuple in relation data model. (ii) Rehaan wants to write a program in Python to insert the followingrecord in the table named EMP in MYSQL database, Company: a. eno(Empno)- integer b. ename(Name) - string c. DOB (Date of birth) – Date d. Salary – float Note the following to establish connectivity between Python andMySQL: e. Username - root f. Password – password g. Host - localhost The values of fields eno, name, DOBand salary has to be accepted from the user. Help Rehaan to write the program in Python. OR (i) Give one difference between Primary key and Unique. (ii) Gurmehar has created Product in MYSQL database, Product: a. Pno(Product Number)- integer b. Pname(Product Name) - string c. DOM (Date of Manufacture) – Date d. Price – float Note the following to establish connectivity between Python andMySQL: e. Username - root	1+4=5

	f. Password – password g. Host – localhost Gurmehar, now want to display the records of the product whose price is more than 10000. Help Gurmehar to write the program in python	