

KENDRIYA VIDYALAYA SANGATHAN REGIONAL OFFICE LUCKNOW
2ND PRE-BOARD EXAMINATION 2024-25

CLASS: XII
TIME: 3 HOURS

SUBJECT: COMPUTER SCIENCE
M. MARKS: 70

General 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 (21x1 = 21 marks)	Marks
1	State True or False : In a Python program, if a break statement is given in a nested loop, it brings the control out of that loop only, in which it is declared.	1
2	Analyze the following lines of code and predict the correct output from the given options:- S1="Come to learn" lst=S1.split() str_new= "@".join([lst[0].upper(),lst[1],lst[2].capitalize()]) print(str_new) (a) COME@TO@Learn (b) COME@to@Learn (c) Come@To@Learn (d) Come@TO@learn	1
3	Write the most appropriate word for “ the smallest individual unit of a program ”.	1
4	A list lst is defined as follows :- lst = [12,34,23,45,90] Identify the correct statement from the following that will remove the middle element 23 from the given list so that the list will contain the values [12, 34, 45,90]. (a) del lst[2] (b) lst[2:3] = [] (c) lst.delete(2) (d) lst.remove(2)	1
5	Riya is working on two dictionaries as given below : Exam={'Exam':'AISSCE','Year':2024}	1

	<p>Marks={'Total Marks':500,'Marks Scored':435}</p> <p>Now she wants to merge the contents of both the dictionaries. Help her to identify the correct statement from the followings to do so:-</p> <p>(a) Exam+Marks (b) Exam.merge(Marks) (c) Exam.update(Marks) (d) Exam.concate(Marks)</p>	
6	<p>The keys of a dictionary must be of _____ type.</p> <p>(a) Integer (b) mutable (c) immutable (d) any of the above</p>	1
7	<p>Analyze the following code :</p> <pre>tpl1 = (12,42, 35) tpl2 = tpl1 tpl1 += (54) print(tpl1 == tpl2)</pre> <p>Identify the line number of code that will result into an error. (a) Line 2 (b) Line 3 (c) Line 4 (d) Line 1</p>	1
8	<p>If my_dict is a dictionary as defined below, then select the statement from the following statements that will raise an exception.</p> <p>my_dict = {'apple': 10, 'banana': 20, 'orange': 30}</p> <p>(a) my_dict.get('orange') (b) print(my_dict['apple', 'banana']) (c) my_dict['apple']=20 (d) print(str(my_dict))</p>	1
9	<p>Identify the incorrect statement about keys in RDBMS from the following statements :-</p> <p>(a) Any candidate key is eligible to become a primary key. (b) A primary key is used to uniquely identify the tuples in a relation. (c) A foreign key is an attribute which is declared as primary key in another table. (d) An alternate key can serve as a foreign key in a relation.</p>	1
10	<p>Ansh has created a Text file named “Myfile.txt”. He opens the file in read mode and reads twenty bytes from the file using the following statement:-</p> <pre>f1 = open(“Myfile.txt”,’r’) f1.read(20)</pre> <p>Now he wants to read the entire contents of the file as a string. Find the correct statement from the followings to do so:-</p> <p>(a) f1.readall() (b) f1.readlines() (c) f1.read() (d) f1.readline()</p>	1
11	<p>Name the type of exception that is raised when denominator of a division expression is zero.</p>	1
12	<p>Ankush has designed the following function :-</p>	1

	<pre>def Pwr(N1, N2=2): return N1**N2</pre> <p>Now he wants to call the function using below mentioned methods. Identify the wrong call of method which will result into error.</p> <p>(a) Pwr(3,4) (b) Pwr(N2=5) (c) Pwr(N1=6) (d) Pwr(N1=5, N2=5)</p>	
13	<p>Select the correct SQL statement from the followings which is used to delete all the records of a relation “Students” along with its structure.</p> <p>(a) Delete ALL from Students; (b) Delete * from Students; (c) Drop table Students (d) Drop All from Students</p>	1
14	<p>Identify the SQL command(s) from the followings that will change the cardinality of a relation.</p> <p>(a) Insert (b) Update (c) Alter (d) Delete</p>	1
15	<p>_____ is an attribute whose values are derived from the primary of any other table.</p> <p>(a) Primary Key (b) Foreign Key (c) Candidate Key (d) Alternate Key</p>	1
16	<p>Complete the following SQL statement to display the vehicles registered in any district of Uttar Pradesh, using any of the option given below:- SELECT makeyear, veh_name FROM Vehicle where V_Number _____ .</p> <p>(a) = “UP” (b) Like “UP” (c) Like “UP%” (d) Like “UP_”</p>	1
17	<p>A security mechanism that can be created in hardware and software both to prevent the unauthorized access to and from a network is known as :-</p> <p>(a) Firewall (b) Authentication (c) Authorization (d) Network Security</p>	1
18	<p>Select the highest bandwidth transmission media from the followings:-</p> <p>(a) Coaxial Cable (b) Fiber Optic Cable (c) Microwaves (d) Radio waves</p>	1

19	The switching technique that uses the Store and Forward method is _____ . (a) Circuit (b) Message (c) Packet (d) None of the above	1
20	The order of resolving scope of a name in a Python program is - (a) B G E L (b) L E G B (c) G E B L (d) L B E G	1
21	Complete the query with the suitable word from the given options. INSERT into emp _____ (1034, 'Amit', 12450); (a) Update (b) Add (c) values (d) value	1
Section - B (7x2 = 14 marks)		
22	Differentiate between keyword and identifier with two suitable example of each.	2
23	Explain the role of comments and indentation in a program.	2
24	Write the python built-in methods along with the syntax to perform the following - (a) Get all the keys in a dictionary. (b) Add and element in the beginning of the list. OR Write the output of the following code : tup=('a', 'b', 'c', 'A', 'B', 'C') print(max(tup)) print(min(tup))	2
25	Predict the output of the following code : S="LUCK" L=[10,20,30,40] D={} for i in range(len(S)): if i%2==0: D[L.pop()] =S[i] else: D[L.pop()] = i+3 for K, V in D.items(): print(K, V, sep="#")	2
26	Predict the output of the following code def FUN(s): k=len(s) m="" for i in range(0,k): if s[i].isupper(): m=m+s[i].lower() elif s[i].islower(): m=m+s[i].upper() elif s[i].isdigit(): m=m+s[i-1]	2

	<pre> else: m=m+'@' print(m) FUN('CBSE-EXAM#2024-25') </pre>	
27	<p>Differentiate between CHAR and VARCHAR datatypes in SQL with appropriate example.</p> <p style="text-align: center;">OR</p> <p>Define the terms Degree and Cardinality of a relation with suitable example.</p>	2
28	<p>Differentiate between a Switch and a Hub.</p> <p style="text-align: center;">OR</p> <p>Explain the terms URL and domain name with the help of a suitable example.</p>	2
Section - C (3x3 = 9 marks)		
29	<p>Write a function in Python to count the number of lowercase alphabets, uppercase alphabets and digits in a text file "STORY.TXT".</p> <p style="text-align: center;">OR</p> <p>Write a function CountMail(filename) in Python to count the number of email addresses present in a text file "RECORDS.TXT"</p> <p>HINT:- Search for the presence of '@' symbol and '.com' string in a word and count.</p>	3
30	<p>Two list Lname and Lage contains name of person and age of person respectively. A list named Lnameage is empty. Write functions as per details given below:</p> <p>(i) Push_na() :- it will push the tuple containing pair of name and age from Lname and Lage whose age is above 50</p> <p>(ii) Pop_na() :- it will remove the last pair of name and age and also print name and age of removed person. It should also print "underflow" if there is nothing to remove</p> <p>For example the two lists has following data Lname=['narender', 'jaya', 'raju', 'ramesh', 'amit', 'Piyush'] Lage=[45,23,59,34,51,43]</p> <p style="text-align: center;">OR</p> <p>A dictionary stu contains rollno and marks of students. Two empty list stack_roll and stack_mark will be used as stack. Two functions push_stu() and pop_stu() are defined and perform the following operations:</p> <p>(a) Push_stu() :- It reads dictionary stu and add keys into stack_roll and values into stack_marks for all students who secured more than 60 marks.</p> <p>(b) Pop_stu() :- it removes last rollno and marks from both list and print "underflow" if there is nothing to remove</p> <p>For example stu={1:56,2:45,3:78,4:65,5:35,6:90} values of stack_roll and stack_mark after push_stu() [3,4,6] and [78,65,90]</p>	3
31	<p>Predict the output of the following Python code :</p> <pre> Data = ["P",20,"R",10,"S",30] Times = 0 Alpha = "" Add = 0 for C in range(1,6,2): </pre>	3

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Times = Times + C
Alpha = Alpha + Data[C-1]+"$"
Add = Add + Data[C]
print (Times,Add,Alpha)

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OR

Write a Python program to accept a List of numbers from the user and swap the values at even position with the values at odd positions in the listl.

Note : Assuming that the list has even number of values in it.

For example :

If the list is :

[25,17,19,13,12,15]

After swapping the list content should be displayed as :

[17,25,13,19,15,12]

Section - D (4x4 = 16 marks)

32

Consider the following table HOSPITAL. Answer the questions that follows the table:

Table: HOSPITAL

No.	Name	Age	Department	Dateofadm	Charges
1	Arpit	62	Surgery	21/01/98	3000
2	Zarina	22	ENT	12/12/97	2000
3	Kareem	32	Orthopaedic	19/02/98	1500
4	Arun	12	Surgery	11/01/98	3000
5	Zubin	30	ENT	12/01/98	1500
6	Ketaki	16	ENT	24/02/98	2000

Based on the data given above answer the following questions:

- Write SQL statement to see the structure of the table.
- What is the degree and cardinality of the above table?
- Write SQL statement to Delete the record where the Name starts with 'Z'.
- Write SQL statement to increase the Charges by 500 for ENT department.

OR

Write the output of the queries (i) to (iv) based on the tables, HOSPITAL given above :

- SELECT DISTINCT Department FROM Hospital;
- SELECT Name, Count(*) FROM Hospital GROUP BY Department;
- SELECT Name, Department FROM Hospital WHERE Department="ENT" and Charges<2000;
- Select Name, Department from Hospital Order By Name desc;

4

33

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

- ADD() – To accept and add data of an employee to a CSV file 'record.csv'. Each record consists of a list with field elements as empid, name and mobile to store employee id, employee name and employee salary respectively.
- COUNTR() – To count the number of records present in the CSV file named 'record.csv'.

4

34

Write SQL queries based on the tables PASSENGER and FLIGHT given below :

Table: FLIGHT

4

FNO	START	END	F_DATE	FARE
F101	MUMBAI	LUCKNOW	17-11-2024	8750
F102	DELHI	GANDHI NAGAR	08-11-2024	9000
F103	DELHI	JAMMU	20-12-2024	12000
F104	MUMBAI	DELHI	17-01-2025	8300
F105	DELHI	KOLKATA	31-10-2024	14000

Table : PASSENGER

PNO	NAME	GENDER	FNO
1001	Nitin	M	F104
1002	Raj	M	F101
1003	Vanshika	F	F102
1004	Sneha	F	F103

- (a) Write a query to change the fare to 9700 of the flight number F103.
 (b) To Display the total number of flights, starting from Delhi and Mumbai.
 (c) To Display the Name, Fare and Gender of all the Passengers.
 (d) To display all the flight details in the decreasing order of FARE.

35

A table, named BOOK, in LIBRARY database, has the following structure:

<u>Field</u>	<u>Type</u>
BNo	int(4)
BName	varchar(15)
Price	float
Qty	int(11)

Write the following Python function to perform the specified operation:

Add() : To input details of a Book and store it in the table BOOK.

Display() : The function should retrieve and display all records from the BOOK table where the Price is greater than 180.

Assume the following for Python-Database connectivity:

Host: localhost, User: root, Password: Library

4

Section - E (2x5 = 10 marks)

36

Vaibhavi is studying in class 12 and trying to develop a solution for easy record handling of students' result and performance. She wants to store the following information of the students in the form of a list -

Admission Number - Integer

Name - String

Percentage - float

Her Teacher guided her to use binary files for this purpose and create the following user defined function -

(a) A Function ADD_Data() to input the data and add it to a Binary file **Student.Dat**.

(b) Display() - to read all the data from the Binary file and display.

(c) CountRec() - Accepts the range of the percentage, display the records and count of the records lying in the given range.

5

National Centre for Indigenous Arts has its Headquarter in Dehi and just set up a new Campus in Kolkata. They want to set up a Local area network in Kolkata campus. The Campus has four buildings :

- Main Building
- Admin
- Finance
- Academic

The distances between various buildings of university are given as:-

Block to Block distance in Meters

FROM	TO	Distance in Meter
Main	Admin	50
Main	Finance	100
Main	Academic	70
Admin	Finance	50
Finance	Academic	70
Admin	Academic	60

Number of computers in each building:-

Main Building	80
Admin Building	75
Finance Building	50
Academic Building	60

As a network expert, you are required to give best possible solutions for the given queries of the university administration:-

- (a) Suggest the most appropriate location of the server inside the campus. Justify your choice.
- (b) Which hardware device will you suggest to connect all the computers within each building?
- (c) Draw the cable layout to efficiently connect various buildings within the campus. Which cable would you suggest for the most efficient data transfer over the network?
- (d) Is there any requirement of a repeater in the given cable layout? Justify your answer.
- (e) What would be your recommendation for enabling live visual communication between the Admin Office at the Kolkata campus and the DELHI Headquarter from the following options:
 - a) Video Conferencing
 - b) Email
 - c) Telephony
 - d) Instant Messaging

OR

What type of network (PAN, LAN, MAN, or WAN) will be formed between Delhi Headquarter and Kolkata Campus?