केन्द्रीय विद्यालय संगठन, भोपाल संभाग

SET B

KENDRIYA VIDYALAYA SANGATHAN , BHOPAL REGION

प्रथम प्री-बोर्ड परीक्षा / FIRST PRE BOARD EXAMINATION 2025-26

कक्षा / Class - XII **अधिकतम अंक / Maximum Marks : 70**

विषय / Subject - Computer Science **समय / Time : 3 Hrs.**

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 (21 x 1 = 21 Marks)	Marks
1	State True or False: "A Python List must always contain all its elements of same data type."	1
2	What will be output of the following code? L = ["Apple", "Banana", "Orange"] print(L[2][1] + L[1][-3]) a) ra b) range c) RA d) raa	1
3	Consider the given expression: (5<10) and (10<5) or (3<18) and not 8<18 Which of the following will be the correct output of the given expression? a) True b) False c) NULL d) No output	1
4	In SQL, which type of Join(s) may not contain duplicate column(s)? a) EQUI JOIN b) NATURAL JOIN c) RIGHT JOIN d) CROSS JOIN	1
5	What will be the output of the following code snippet? message= "World Peace" print(message[-2::-2]) a) ce b) ce lo c) ol Pa d) Error	1

6	Write the output of the following Python code :
	
	L = [1,2,3,4,5,6,7,8]
	for i in L:
	if i%2 = = 0:
	print(i)
	a) 1 b) 2 c) 2 d) 1
	3 4 4 3
	5 6 6 4
	7 7 8 6
		1

7	What will be the output of the following Python statement:
	x = 5
	y = 10
	result = (x ** 2 + y) // x * y - x
	print(result)
	
	a) 0 b) -5 c) 65 d) 265
		1

8	Fill in the blank: _____ command is used to remove primary key from the table in SQL. a) update b) remove c) alter d) drop	1
9	State whether the following statement is True or False: "An exception may be raised even if the program is syntactically correct.	1
10	What will be the output of the following Python code? dict1 = {"name": "Anamika", "age": 18, "city": "INDORE"} print(dict1.get("profession", "Not Specified")) a) Anamika b) INDORE c) None d) Not Specified	1
11	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

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	In SQL, a relation consists of 4 columns and 3 rows. If 2 columns and 3 rows are added to the existing relation, what will be the updated degree of a relation? a) Degree: 7 b) Degree: 8 c) Degree: 9 d) Degree: 6	1
14	Select the correct output of the code: a = "Year 2022 at All the best" a = a.split('2') b = a[0] + ". " + a[1] + ". " + a[3] print (b) 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	1
15	Fill in the blank: In case of _____ switching, before a communication starts, a dedicated path is identified between the sender and the receiver.	1
16	If a table which has one Primary key and two alternate keys. How many candidate keys will this table have? a) 1 b) 2 c) 3 d) 4	1

17	Which protocol is used to send e-mail over internet? a) FTP b) TCP c) SMTP d) SNMP	1
18	Which device is used to select shortest route for sending messages in network : a) Switch b) Router c) Repeater d) Bridge	1
19	In order to cover a long-distance network which of the following device will be helpful ? a) Modem b) Gateway c) Switch d) Repeater	1
	Q20 and Q21 are Assertion (A) and Reason (R) 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	
20	Assertion (A): In a relation of RDBMS, redundancy can be reduced. Reasoning (R): This can be done with the help of join operations in between relation.	1
21	Assertion (A): A function in Python can have any number of arguments. Reasoning(R): variable length parameter can be used to deal with such number of arguments.	1

Q No.	Section-B (7 x 2=14 Marks)	Marks
22	A. What is difference in mutable and immutable data type? Give example of each. OR B. Write any two difference between append ( ) and extend ( ) method in list.	2

23	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.
	
	`define revNumber(num):`
	`  rev = 0`
	`  rem = 0`
	`  While num > 0:`
	`  rem ==num %10`
	`  rev = rev*10 + rem`
	`  num = num//10`
	`  return rev`
	`print(revNumber(1234))`
		2

24	A. (Answer using Python built-in methods/functions only): I. Write a statement to remove first occurrence of the substring "India" in a string named S1. II. Write a statement to display sum of elements of list L1. OR B. Predict the output of the following Python code: S= “Hello World” print(S.isalpha( )) print(S.lower( ))	2
25	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 [12,4,0,11,0,56] The indexList will have - [0,1,3,5] OR	2

	Write a function countNow(PLACES) in Python, that takes the dictionary, PLACES as an argument and displays the names (in uppercase)of the places whose names are longer than 5 characters. For example, Consider the following dictionary PLACES={1:"Delhi",2:"London",3:"Paris",4:"New York",5:"Doha"} The output should be: LONDON NEW YORK	

26	Predict the output of the Python code given below :
	
	`S = "LOST"`
	`L = [10,21,33,4]`
	`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

27	A. Write suitable commands to do the following in MySQL. I. Display list of table. II. Drop a database named Hospital. OR B. Differentiate between DDL/DML in SQL with a suitable example.	2
28	A. Define the following terms: I. Wi-Fi Card II. MODEM OR B. I. Expand the following terms: SMTP and POP II. Differentiate between HTML and XML.	2

Q No.	Section-C (3 x 3 = 09 Marks)	Marks
29	A) Write a Python function that displays all the words starting from the letter 'C' in the text file "chars.txt". **OR** B) Write a Python function that can read a text file and print only numbers stored in the file on the screen (consider the text file name as "info.txt").	3
30	A list, NList contains following record as list elements: [City, Country, distance from Delhi] Each of these records are nested together to form a nested list. Write the following user defined functions in Python to perform the specified operations on the stack named travel. (i) Push_element(NList): It takes the nested list as an argument and pushes a list object containing name of the city and country, which are not in India and distance is less than 3500 km from Delhi. (ii) Pop_element(): It pops the objects from the stack and displays them. Also, the function should display "Stack Empty" when there are no elements in the stack.	3

For example: If the nested list contains the following data:

NList=[["New York", "U.S.A.", 11734], ["Naypyidaw", "Myanmar", 3219], ["Dubai", "UAE", 2194], ["London", "England", 6693], 3 [12] ["Gangtok", "India", 1580], ["Columbo", "Sri Lanka", 3405]]

The stack should contain:
['Naypyidaw', 'Myanmar'], ['Dubai', 'UAE'], ['Columbo', 'Sri Lanka']

The output should be:
['Columbo', 'Sri Lanka'] ['Dubai', 'UAE'] ['Naypyidaw', 'Myanmar']
Stack Empty

31 Predict the output of the Python code given below: 3

```
Text1="IND-23"
Text2=""
I=0
while I<len(Text1):
    if Text1[I]>="0" and Text1[I]<="9":
        Val = int(Text1[I])
        Val = Val + 1
        Text2=Text2 + str(Val)
    elif Text1[I]>="A" and Text1[I]<="Z":
        Text2=Text2 + (Text1[I+1])
    else:
        Text2=Text2 + "*"
    I+=1
print(Text2)
```

OR

Predict the output of the following code:

```
d = {"apple": 15, "banana": 7, "cherry": 9}
str1 = " "
for key in d:
    str1 = str1 + str(d[key]) + "@" + "\n"
str2 = str1[:-1]
print(str2)
```

Q No.	Section-D (4 x 4 = 16 Marks)	Marks

32 Consider the table ORDERS as given below : 4

O_Id	C_Name	Product	Quantity	Price
1001	Jitendra	Laptop	1	12000
1002	Mustafa	Smartphone	2	10000
1003	Dhwani	Headphone	1	1500
1004	Alice	Smartphone	1	9000
1005	David	Tablet	NULL	7000

Note: The table contains many more records than shown here.

A) Write the following queries:

(I) To display the total Quantity for each Product, excluding Products with total Quantity less than 5.
(II) To display the ORDERS table sorted by total price in descending order.
(III) To display the distinct customer names from the ORDERS table.
(IV) To display the sum of the Price of all the orders for which the quantity is NULL.

OR

B) Write the output:
(I) SELECT C_Name, SUM(Quantity) AS Total_Quantity FROM ORDERS GROUP BY C_Name;
(II) SELECT * FROM ORDERS WHERE Product LIKE '%phone%';
(III) SELECT O_Id, C_Name, Product, Quantity, Price FROM ORDERS WHERE Price BETWEEN 1500 AND 12000;
(IV) SELECT MAX(Price) FROM ORDERS;

33 A csv file "Happiness.csv" contains the data of a survey. Each record of the file contains the following data: 4

- Name of a country
- Population of the country
- Sample Size (Number of persons who participated in the survey in that country)
- Happy (Number of persons who accepted that they were Happy)

For example, a sample record of the file may be: ['Signiland', 5673000, 5000, 3426]
Write the following Python functions to perform the specified operations on this file:

(I) Read all the data from the file in the form of a list and display all those records for which the population is more than 5000000.

(II) Count the number of records in the file.

34 Consider the tables PRODUCT and BRAND given below: 4

Table: PRODUCT

PCode	PName	UPrice	Rating	BID
P01	Shampoo	120	6	M03
P02	Toothpaste	54	8	M02
P03	Soap	25	7	M03
P04	Toothpaste	65	4	M04
P05	Soap	38	5	M05
P06	Shampoo	245	6	M05

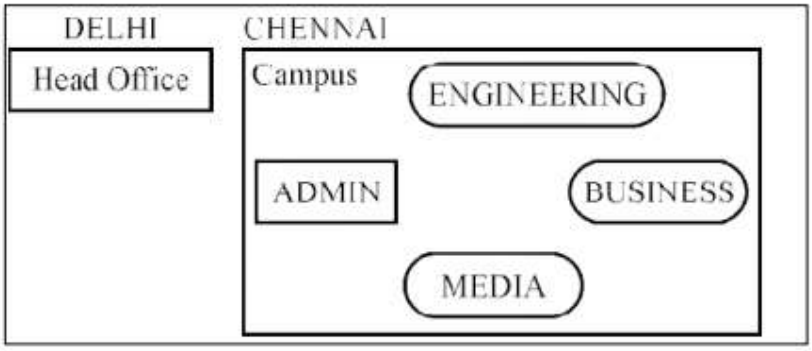
Table: BRAND

BID	BName
M02	Dant Kanti
M03	Medimix
M04	Pepsodent
M05	Dove

Write SQL queries for the following:

	(i) Display product name and brand name from the tables PRODUCT and BRAND. (ii) Display the structure of the table PRODUCT. (iii) Display the average rating of Medimix and Dove brands (iv) A. To display the Cartesian Product of Product and Brand tables. OR B. Display brand name of product toothpaste.	
35	A table, named ELECTRONICS, in the PRODUCTDB database, has the following structure: Field Type ProductID int(11) productName varchar(20) price float stockQty int(11) Write the following Python function to perform the specified operation: AddAndDisplay(): To input details of a product and store it in the table ELECTRONICS. The function should then retrieve and display all records from the ELECTRONICS table where the price is greater than 150. Assume the following for Python-Database connectivity: Host: localhost User: root Password: Electro123	4

Q No.	Section-E (3 x 5 = 15 Marks)	Marks
36	Surya is a manager working in a recruitment agency. He needs to manage the records of various candidates. For this, he wants the following information of each candidate to be stored: - Candidate_ID – integer - Candidate_Name – string - Designation – string - Experience – float You, as a programmer of the company, have been assigned to do this job for Surya. (I) Write a function to input the data of a candidate and append it in a binary file. (II) Write a function to update the data of candidates whose experience is more than 10 years and change their designation to "Senior Manager".	2+3
37	Meticulous EduServe is an educational organization. It is planning to setup its India campus at Chennai with its head office at Delhi. The Chennai campus has 4 main buildings – ADMIN, ENGINEERING, BUSINESS and MEDIA	5



Block to Block distances (in Mtrs.)

From	To	Distance
ADMIN	ENGINEERING	55 m
ADMIN	BUSINESS	90 m
ADMIN	MEDIA	50 m
ENGINEERING	BUSINESS	55 m
ENGINEERING	MEDIA	50 m
BUSINESS	MEDIA	45 m
DELHI HEAD OFFICE	CHENNAI CAMPUS	2175 km

Number of computers in each of the blocks/Center is as follows:

ADMIN	110
ENGINEERING	75
BUSINESS	40
MEDIA	12
DELHI HEAD	20

i. Suggest and draw the cable layout to efficiently connect various blocks of buildings within the CHENNAI campus for connecting the digital devices.

ii. Which network device will be used to connect computers in each block to form a local area network?

iii. Which block, in Chennai Campus should be made the server? Justify your answer.

iv. Which fast and very effective wireless transmission medium should preferably be used to connect the head office at DELHI with the campus in CHENNAI?

v. (A). Is there a requirement of a repeater in the given cable layout? Why/ Why not?

OR

(B). Which type of network (PAN, LAN, MAN, or WAN) will be formed while connecting the Delhi head office to Chennai campus?