KVS (DR)/2025/RA

KENDRIYA VIDYALAYA SANGATHAN, DELHI REGION
PRE-BOARD-II Examination-2025-26

CLASS: XII
MM:70

Subject: COMPUTER SCIENCE (083)
Time: 03 Hours

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	What will be the output of following expression? (5<10) and (10< 5) or (3<18) and not 8<18 (a) True (b) False (c) Error (d) No output	1
2	What will be the output of the following code snippet? message= "Satyamev Jayate" print(message[-2::-2])	1
3	Which of the following is not a type of network topology? a) Bus b) Star c) Tree d) Bridge	1
4	How would you return all the rows from a table named "Item" sorted in descending order on the column "IName"? (a) SELECT * FROM Item SORT 'IName' DESC; (b) SELECT * FROM Item ORDER BY IName DESC ; (c) SELECT * FROM Item ORDER IName DESC ; (d) SELECT * FROM Item SORT BY 'IName' DESC;	1
5	A device that connects networks with different protocols – (a) Switch (b) Hub (c) Gateway (d) Proxy Server	1
6	LIKE clause is used for. (a) For pattern matching (b) For table matching (c) For inserting similar data in a table (d) For deleting data from a table	1
7	Observe and find output of the following python code: str1 = "Python" str2 = "Programming"	1

	print(str1[:2] + str2[-4:]) a. Pyming b. Pythming c. Pyogramming d. Pythonming	
8	What will be the output of following python code: s = 'Programming' print(s.split("m")) a. ['Progra', ' ', 'ing'] b. ['Progra', 'ing'] c. ['Progra', 'm', 'ing'] d. ['Progra', 'ming']	
9	Which of the following options will not result in an error when performed on tuples in python where tp = (5,2,7,0,3) ? (a) Tp[1] = 2 (b) tp.append(2) (c) tp1 = tp+tp (d) tp.sum( )	
10	Count(*) method count (a) NULL values only (b)Empty Values (c) ALL the values (d) None of these	

11	import random
	CITY = ["DELHI", "MUMBAI", "CHENNAI", "KOLKATA"]
	PICK = random.randint(1, 3)
	for I in CITY:
	for J in range(0, PICK):
	print(I, end="")
	print()
	(a) DELHIDELHI
	MUMBAIMUMBAI
	CHENNAICHENNAI
	KOLKATAKOLKATA
	(b) DELHIDELHI
	MUMBAIMUMBAI
	CHENNAICHENNAI
	(c) DELHIDELHIDELHIDELHI
	MUMBAIMUMBAIMUMBAIMUMBAI
	CHENNAICHENNAICHENNAICHENNAI
	KOLKATAKOLKATAKOLKATAKOLKATA
	(d)None of These	

12	Which of the following attributes can be considered as a choice for primary key? (a) Name (b) Street (c) Roll No (d) Subject	1
13	What will be the output of following python code: l2= [1,2,3,'[4,5]'] print(type(l2[-1])) a. error b. <class 'list'> c. <class 'string> d. <class 'None Type'>	1
14	State whether the following statement is True or False: An exception may be raised even if the program is syntactically correct	1
15	What is the output of following SQL statement? SELECT Department, COUNT(*) FROM employees WHERE Salary > 50000 GROUP BY Department;	1

	a. The total number of employees in each department b. The departments with employees earning over 50,000 and the count of such employees in each department c. The departments with average salary over 50,000 and their total number of employees d. The number of departments with employees earning over 50,000	
16	What would the following code print: fruits = {'apple': 5, 'banana': 3, 'orange': 2, 'grape': 4} print(fruits.get('mango')) a. 0 b. None c. Error d. 5	1
17	What will be the output of the following Python code ? v = 50 def Change(n): global v v, n = n, v print(v, n, sep = "#", end = "@") Change(20) print(v) (a) 20#50@20 (b) 50@20#50 (c) 50#50#50 (d) 20@50#20	1
18	What is the output of the expression? St1="abc@pink@city" print(St1.split("@")) (a) ("abc", "@", "pink", "@", "city") (b) ["abc", "@", "pink","@","city"] (c) ["abc", "pink", "city"] (d) Error	1
19	Write the full form of the following: (i) FTP (ii) DNS	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	1
20	**Assertion (A):** list. append(x) adds an item to the list at the beginning. **Reason (R):** The append() function adds an element to the end of the list.	1
21	**Assertion** :- Both WHERE and HAVING clauses are used to specify conditions. **Reason** :- The WHERE and HAVING clauses are interchangeable	1
Q No	**Section-B (7 x 2=14 Marks)**	**Marks**
22	Give two examples of each of the following: (I)logical operators (II) Relational operators	2
23	Rewrite the following code in Python after removing all syntax error(s) and underline each correction done in the code . define fun1(): 30 = num for k range(0,num):	2

	if k%4=0 :
	  print(k*4)
	else:
	  print(k+3)	

24	Answer using python built-in methods/functions only. 1. Which method adds an element to the end of a list 2. Which method sorts a list in place? **OR** 3. Predict the output of the following Python code: text="Learn Python with fun and practice" print(text.partition("with")) print(text.count("a"))	2
25	Write a Python function is_even(num) that returns True if the number is even, else returns False. **OR** Write a Python function max_of_two(a, b) that returns the greater of the two numbers.	2
26	Predict the output of the Python code given below: d = {"x": 2, "y": 4, "z": 6} total = 0 for value in d.values(): total += value print(total)	2
27	(i) A) What constraint should be applied on a table column so that duplicate values are not allowed in that column, but NULL is allowed. **OR** B) What constraint should be applied on a table column so that NULL is not allowed in that column, but duplicate values are allowed (ii) A) Write an SQL command to remove the Primary Key constraint from a table, named MOBILE. M_ID is the primary key of the table. **OR** B) Write an SQL command to make the column M_ID the Primary Key of an already existing table, named MOBILE	2
28	Differentiate between Coaxial Cable and Optical Fiber. **OR** What is the use of the following devices? (i) Modem (ii) Repeater	2
QNo	**Section-C (3 x 3=9 Marks)**	**Marks**
29	Write a function in Python to count the number of lines in a text fie 'EMP.txt' which start with an alphabet 'T' . **OR** Write a function in Python that count the number of "THE" words present in a text file "BOOK.txt"	3

	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. 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. 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. 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], ['Gangtok", "India", 1580), ["Columbo'" "Sri Lanka", The stack should contain: (Naypyidaw, 'Myanmar]. ('Dubai', UAE], [Columbo', 'Sri Lanka'] The output should be: [Columbo', 'Sri Lanka'] ('Dubai', UAE] ['Naypyidaw', Myanmar'] Stack Empty	3

31	Predict the output of the Python code given below:
	start='Pre-board Exam'
	text=''
	x=range(len(start)-1)
	for i in x:
	  if start[i].isupper():
	  text+=start[i]
	  elif start[i].islower():
	  text+=start[i+1]
	  else:
	  text+='@'
	print(text)
	
	OR
	
	Predict the output of the following code :
	s = "OpenAI123"
	result = " "
		3

```
    if ch.isalpha():
        if ch.islower():
            result += ch.upper()
        else:
            result += ch.lower()
    elif ch.isdigit():
        if int(ch) % 2 == 0:
            result += "#"
        else:
            result += "*"
print(result)
```

QNo	Section-D (4 x 4=16 Marks)	Marks
32	Consider the table Students as given below:	

Table: Students

StudentID	Name	Age	Grade	City
1	Amit	16	10	Delhi
2	Riya	17	11	Mumbai
3	Rahul	16	10	Bangalore
4	Priya	18	12	Delhi
5	Ankit	17	11	Mumbai

Write the following queries:

1. Write an SQL query to display the names of all students from the table Students.
2. Write an SQL query to display all details of students who are in grade 11.
3. Write an SQL query to count how many students are there from Mumbai.
4. Write an SQL query to display student names and their ages in ascending order of age.

OR

Predict the output of the query:

1. SELECT Name, City FROM Students WHERE Age = 16;
2. SELECT COUNT(*) FROM Students WHERE City = 'Mumbai';
3. SELECT City, COUNT(*) FROM Students GROUP BY City;
4. SELECT Name FROM Students ORDER BY Age DESC;

33	A csv file " record.csv " contains the data . Each record consists of a list with field elements as empid, name and sal to store employee id, employee name and employee salary respectively. Write user defined functions s in Python that defines the following:	4

(i) ADD() – To accept and add data of an employee to a CSV file 'record.csv'.

(ii) COUNTR() – To count the number of records present in the CSV file named 'record.csv' whose salary is more than 100000.

34 4

Aman has been entrusted with the management of some Institution's Database. He needs to access some information from Customer and Order tables for a survey analysis. Help him extract the following information by writing the desired SQL queries as mentioned below.

Table: Customer

CustID	CustName	City
101	Arjun	Delhi
102	Bhavna	Mumbai
103	Chetan	Kolkata

Table :Order

OrderID	CustID	Amount
1	101	3000
2	102	5000
3	104	4500

i) To display the customer name and order ID for all customers who have placed orders.

ii) To display name, bonus for each customer where bonus is 10% of Amount.

iii) To display customer name and amount who placed orders of more than 4000

iv) a)To display the names of customers along with the city and orderID who belongs to Mumbai.

OR

b)To display the Cartesian Product of these two tables.

35 4

Kabir wants to write a program in Python to insert the following record in the table named Student in MYSQL database, SCHOOL:
- rno(Roll number) – integer
- name(Name) – string
- DOB(Date of Birth) – Date
- Fee – float

Note the following to establish connectivity between Python and MySQL:
- Username – root
- Password – tiger
- Host – localhost

	The values of fields rno, name, DOB and fee has to be accepted from the user. Help Kabir to write the program in Python.
Q No	**Section-E (2 x 5=10 Marks)**
36	A binary file "STUDENT.DAT" has structure [admission_number, Name, Percentage]. (i) Write a function to input the data of a candidate and append it in a binary file. (ii)) Write a function to increase the percentage of student to 95% whose admission number is input by the user.
37	CITY CABLE NETWORK has set up its new centre at HYDERABAD for its office and web based activities. It has four buildings as shown in the diagram below:



Number of Computers

Block A	25
Block B	50
Block C	125
Block D	10

Center to center distances

Black A to Block B	50 m
Block B to Block C	150 m
Block C to Block D	25 m
Block A to Block D	170 m
Block B to Block D	125 m
Block A to Block C	90 m

(i) Which type of network is this
a)LAN b)PAN c)WAN d)MAN

(ii) Suggest a cable layout of connections between the blocks.

(iii) Suggest the most suitable place (i.e. block) to house the server of this organisation with a suitable reason.

(iv) Suggest the placement of the following devices with justification

- Repeater
- Hub/Switch

(v) A) The organization is planning to link its front office situated in a far city in a hilly region where cable connection is not feasible, suggest a way to connect it with reasonably high speed?

OR

B) To protect the network from unauthorized access which device/software should be installed?