

KENDRIYA VIDYALAYA SANGATHAN, DELHI REGION

Pre-Board 1 Examination 2025-26

Class – XII

Subject – Computer Science (083)
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 MCO, text of the correct answer should also be written.

Q No.	Section-A (21 x 1 = 21 Marks)	Marks
1	State if the following statement is True or False: "A Python List must always contain all its elements of same data type."	1
2	Consider the statements given below and then choose the correct output from the given options:	1
	L=['TIC', 'TAC'] print(L[::-1])	
	(A) ['TIC', 'CAT'] (B) ['TIC', 'TAC'] (C) ['CAT', 'CIT'] (D) ['TAC', 'TIC']	
3	Which of the following operator evaluates to True if the variable on either side of the operator points towards the same memory location and False otherwise?	1
	(A) is (B) is not (C) and (D) or	
4	Which clause in a SELECT statement is used to specify the table from which data is to be retrieved?	1
	(A) WHERE (B) FROM (C) GROUP BY (D) ORDER BY	
5	Which of the following is/are compile time errors?	1
	(A) Syntax error (B) Semantic error (C) (A) and (B) both (D) None of these	
6	What will be the output of the following statement?	1
	print(14 % 3**2 * 5)	
	(A) 16 (B) 64 (C) 25 (D) 256	
7	Which of the following is the correct identifier?	1
	(A) global (B) Break (C) def (D) with	
8	All of the following are examples of Single Row Functions in SQL Except:	1

	(A) POWER() (B) UCASE() (C) COUNT() (D) MONTH()	
9	Which built-in exception is raised when an operator receives a value of an incorrect data type? (A) ValueError (B) NameError (C) TypeError (D) IndexError	1
10	Given the following dictionary Day={1:"Monday", 2: "Tuesday", 3: "Wednesday"} Which statement will return "Tuesday". (A) Day.pop() (B) Day.pop(2) (C) Day.pop(1) (D) Day.pop("Tuesday")	1
11	What possible output is expected to be displayed on the screen at the time of execution of the Python program from the following code? <pre>import random Cards=["Heart", "Spade", "Club", "Diamond"] for i in range(2): print (Cards[random.randint(1,i+2)], end="#")</pre> (A) Spade#Diamond# (B) Spade#Heart# (C) Diamond#Club (D) Heart#Spade	1
12	What will be the output of the following Python code? <pre>def Change(N): N=N+10 print(N,end='\$\$') N=15 Change(N) print(N)</pre> (A) 25\$\$15 (B) 15\$\$25 (C) 25\$\$25 (D) 2525\$\$	1
13	What is a Tuple in a relational database? (A) The name of a column in a table. (B) Each individual data value in a cell. (C) Each row of data in a relation or table. (D) A collection of related tables.	1
14	Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code. <pre>STRING=""WELCOME NOTE""" for S in range[0,7]: print (STRING(S)) print (S+STRING)</pre>	1
15	In SQL, a relation consists of 4 columns and 8 rows. If 2 columns and 3 rows are added to the existing relation, what will be the updated degree of a relation? a) Degree: 6 b) Degree: 8 c) Degree: 9 d) Degree: 11	1
16	Which SQL command is used to remove table in MySQL? a) UPDATE b) ALTER c) DROP d) DELETE	1
17	Which of the following networking devices is used to regenerate and transmit the weakened signal ahead? (A) Hub (B) Ethernet Card (C) Repeater (D) Modem	1
18	Which of the following options is the correct protocol used for phone calls over the internet? a) (A) PPP (B) FTP (C) HTTP (D) VoIP	1
19	A small office needs to connect 15 computers and a shared printer within a single	1

	<p>room. Which type of network would be most suitable for this setup?</p> <p>(A) Wide Area Network (WAN) (B) Metropolitan Area Network (MAN) (C) Personal Area Network (PAN) (D) Local Area Network (LAN)</p>	
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	<p>Assertion (A): Strings in Python are mutable. Reason (R): The first character has the index 0 and the last character has the index n-1 where n is the length of the string.</p>	1
21	<p>Assertion (A): The WHERE clause is optional in a SELECT statement. Reason (R): If the WHERE clause is omitted, the SELECT statement will retrieve all records from the specified table.</p>	1
Q N.	Section-B (7 x 2=14 Marks)	Marks
22	<p>A. What is the difference between (12) and (12,)? OR B. Explain the difference between List and Tuples data types in Python with a suitable example.</p>	2
23	<p>Identify the errors(s) in the code and write the correct code.</p> <pre>def describe intelligent life form (): height = input ("Enter the height") raw_input ("Is it correct?") weight = input ("Enter the weight") favourite-game = input ("Enter favourite game") print ("your height", height, 'and weight', weight) print ("and your favourite game is", favouritism, '.)</pre>	2
24	<p>A. (Answer using Python built-in methods/functions only): I. Write a statement to find the frequency of the member element 2 in tuple t1. II. Write a statement to reverse the elements of list L1. OR B. I. Write a statement to uppercase only first character and lower case rest of the characters of the string s1="i like python language" II. Write a statement to check whether above s1 string is in lowercase?</p>	2
25	<p>Write a function listchange(Arr)in Python, which accepts a list Arr of numbers , the function will replace the even number by value 10 and multiply odd number by 5 . e.g. Sample Input Data of the list is: a=[10,20,23,45] listchange(a,4) will give output : [10, 10, 115, 225] OR Write definition of a method OddSum(NUMBERS) to add those values in the list of NUMBERS, which are odd.</p>	2
26	<p>What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the maximum values that can be assigned to each of the variables BEG and END.</p> <pre>import random A=[20,30,40,50,60,70] BEG=random.randint(1,3)</pre>	2

```

END=random.randint(2,4)
for K in range(BEG,END+1):
    print (A[K],end="# ")
(A) 10#40#70# (B) 30#40#50# (C) 50#60#70# (D) 40#50#70#

```

OR

What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code?

```

import random as r
x=[26,44,29,13,35,42]
i=0
while True:
    if x[i]%7==0:
        break
    i=i+1
y=r.randint(i,i)
for j in range(0,len(x)):
    if x[j]%2:
        x[j]=x[j]+x[y]
    else:
        x[j]=x[j]-2
print(x)

```

27	<p>A. Write suitable commands to do the following in MySQL.</p> <p>I. View the databases available.</p> <p>II. Delete the database named Student</p> <p>OR</p> <p>B. Differentiate between CHAR and VARCHAR data type in SQL with a suitable example.</p>	2
28	<p>A. Define the following terms:</p> <p>I. NIC</p> <p>II. Router</p> <p>OR</p> <p>B.</p> <p>I. Expand the following terms: XML and VoIP</p> <p>II. Differentiate between Hub and Switch.</p>	2
Q No.	Section-C (3 x 3 = 9 Marks)	Marks
29	<p>Write a function in Python that counts the number of “Me” or “My” words present in a text file “FILE.TXT”. If the “FILE.TXT” contents are as follows:</p> <p>My first book was Me and My Family. It gave me chance to be Known to the world. The output of the function should be: Count of Me/My in file: 4</p> <p>OR</p> <p>Write a function AICount() in Python, which should read each character of a text file FILE.TXT, should count and display the occurrences of alphabets A and I (including small cases a and m too).</p>	3
30	<p>Write a function in Python PUSH(Arr), where Arr is a list of numbers. From this list push all numbers divisible by 5 into a stack implemented by using a list. Display the stack if it has at least one element, otherwise display appropriate error message.</p> <p>OR</p>	3

	Write a function in Python POP(Arr), where Arr is a stack implemented by a list of numbers. The function returns the value deleted from the stack and also shows appropriate message for underflow condition.	
31	<p>A. Predict the output of the following Python code:</p> <pre>def Show(str): m="" for i in range(0,len(str)): if(str[i].isupper()): m=m+str[i].lower() elif str[i].islower(): m=m+str[i].upper() else: if i%2==0: m=m+str[i-1] else: m=m+"#" print(m) Show('PythonLanguage')</pre> <p style="text-align: center;">OR</p> <p>B. Predict the output of the following Python code:</p> <pre>def swap(A ,B): A,B=B,A print(A,"#",B) return (A) C=120 D=240 C=swap(C,D) print(C,"#",D)</pre>	3

Q No.	Section-D (4 x 4 = 16 Marks)	Marks																																															
32	<p>A. Write SQL commands for the following queries (i) to (iv) based on the relations Company and Customer given below:</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th colspan="4">COMPANY</th> </tr> <tr> <th>CID</th> <th>NAME</th> <th>CITY</th> <th>PRODUCTNAME</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>SONY</td> <td>DELHI</td> <td>TV</td> </tr> <tr> <td>2</td> <td>NOKIA</td> <td>MUMBAI</td> <td>MOBILE</td> </tr> <tr> <td>3</td> <td>ONIDA</td> <td>DELHI</td> <td>TV</td> </tr> <tr> <td>4</td> <td>SONY</td> <td>MUMBAI</td> <td>MOBILE</td> </tr> <tr> <td>5</td> <td>BLACKBERRY</td> <td>MADRAS</td> <td>MOBILE</td> </tr> <tr> <td>6</td> <td>DELL</td> <td>DELHI</td> <td>LAPTOP</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th colspan="5">CUSTOMER</th> </tr> <tr> <th>CUSTID</th> <th>NAME</th> <th>PRICE</th> <th>QTY</th> <th>CID</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Rohan Sharma</td> <td>7000</td> <td>20</td> <td>2</td> </tr> </tbody> </table>	COMPANY				CID	NAME	CITY	PRODUCTNAME	1	SONY	DELHI	TV	2	NOKIA	MUMBAI	MOBILE	3	ONIDA	DELHI	TV	4	SONY	MUMBAI	MOBILE	5	BLACKBERRY	MADRAS	MOBILE	6	DELL	DELHI	LAPTOP	CUSTOMER					CUSTID	NAME	PRICE	QTY	CID	1	Rohan Sharma	7000	20	2	4
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1	Rohan Sharma	7000	20	2																																													

2	Deepak Kumar	5000 0	10	6
3	Mohan Kumar	3000 0	5	1
4	Sahil Bansal	3500 0	3	3
5	Neha Soni	2500 0	7	4
6	Sonal Aggarwal	2000 0	5	3
7	Arjun Singh	5000 0	15	6

(i) To display those company name which are having price less than 30000.
 (ii) To display the name of the companies in reverse alphabetical order.
 (iii) To increase the price by 1000 for those customer whose name starts with 'S'
 (iv) To add one more column totalprice with decimal(10,2) to the table customer

OR

B. Predict the output of the following:

(i) `SELECT COUNT(*) ,CITY FROM COMPANY GROUP BY CITY;`
 (ii) `SELECT MIN(PRICE), MAX(PRICE) FROM CUSTOMER WHERE QTY>10 ;`
 (iii) `SELECT AVG(QTY) FROM CUSTOMER WHERE NAME LIKE "%r%";`
 (iv) `SELECT PRODUCTNAME,CITY, PRICE FROM COMPANY,CUSTOMER WHERE COMPANY.CID=CUSTOMER.CID AND PRODUCTNAME="MOBILE";`

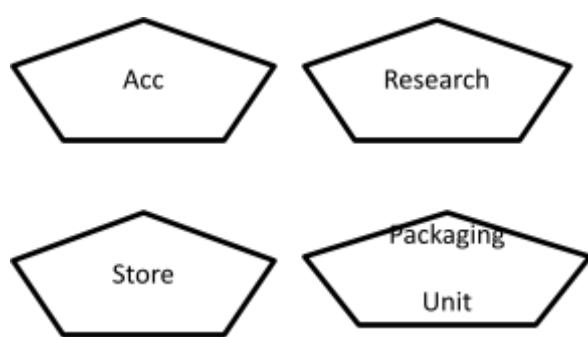
33	<p>Anil has created a CSV file named book.csv, which stores the details of books.</p> <p>The columns of the CSV file are: Bookno and Bookname.</p> <p>Help him to efficiently maintain the data by creating the following user-defined functions:</p> <p>I. <code>addcontents()</code> – to accept a book record from the user and add it to the file book.csv.</p> <p>II. <code>readcontents()</code> – to display the details of book.</p>	4
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34	<p>Consider the tables STUDENTS and MARKS given below. Write commands in SQL for (i) to (iv)</p> <table border="1"> <thead> <tr> <th colspan="4">STUDENTS</th></tr> <tr> <th>Student_id</th><th>Name</th><th>Class</th><th>DOB</th></tr> </thead> <tbody> <tr> <td>1</td><td>Ravi</td><td>10A</td><td>12-03-2006</td></tr> <tr> <td>2</td><td>Priya</td><td>10A</td><td>19-07-2005</td></tr> <tr> <td>3</td><td>Arjun</td><td>10B</td><td>10-01-2004</td></tr> <tr> <td>4</td><td>Neha</td><td>10A</td><td>05-11-2006</td></tr> </tbody> </table> <table border="1"> <thead> <tr> <th colspan="4">MARKS</th></tr> <tr> <th>Mark_id</th><th>Student_id</th><th>Subject</th><th>Marks_obtained</th></tr> </thead> </table>	STUDENTS				Student_id	Name	Class	DOB	1	Ravi	10A	12-03-2006	2	Priya	10A	19-07-2005	3	Arjun	10B	10-01-2004	4	Neha	10A	05-11-2006	MARKS				Mark_id	Student_id	Subject	Marks_obtained	4
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1	1	Maths	88
2	1	Science	75
3	2	Maths	91
4	3	English	65
5	4	Maths	84

(i) Find students who scored more than 80 marks in any subject.
(ii) Display each student's total marks.
(iii) Display students and their subjects in descending order of marks.
(iv) Find students who were born before 2005 along with their marks.

35	<p>MySQL database named EmployeeDB has a Employee table in MySQL which contains the following attributes:</p> <ul style="list-style-type: none"> • Emp_code: Employee code (Integer) • Employee_name: Name of Employee (String) • Salary: Quantity of product (Integer) • Dept_Code: Cost of product (Integer) <p>Consider the following details to establish Python-MySQL connectivity:</p> <ul style="list-style-type: none"> • Username: admin_user • Password: employee2025 • Host: localhost <p>Write a Python program to change the Salary of the Employee to 90000 whose Emp_code is 101 in the Employee table.</p>	4
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Q N.	Section-E (2 X 5 = 10 Marks)	Marks
36	<p>A binary file "Book.dat" has structure [BookNo, Book_Name, Author, Price].</p> <ol style="list-style-type: none"> I. Write a user defined function CreateFile() to input data for a record and add to Book.dat. II. 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" 	2+3
37	<p>A-One Research Organization has set up its new center in Dubai. It has four buildings as shown in the diagram given below:</p> 	5

Distance between various building are as follows:

Accounts to research Lab	55m
Accounts to store	150m
Store to packaging unit	160m
Packaging unit to research lab	60m
Accounts to packaging unit	125m
Store to research lab	180m

Number of Computers

Accounts	25
Research Lab	100
Store	15
Packaging Unit	60

As a network expert, provide the best possible answer for the following queries:

- i) Suggest a cable layout of connections between the buildings.
- ii) Suggest the most suitable place (i.e. buildings) to house the server of this organization.
- iii) Suggest the placement of the following device with justification:
 - a) Repeater b) Hub/Switch
- iv) Suggest a system (hardware/software) to prevent unauthorized access to or from the network.
- v) Which cable is best suited for above layout?