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INDIAN SCHOOL SALALAH

FIRST TERM EXAMINATION-SEPTEMBER 2026

CLASS: XII **COMPUTER SCIENCE (083)** **DATE: 22-09-2026**

Time: 3 HRS **Maximum Marks: 70**

General Instructions:

The question paper will contain 37 questions, all of which will be compulsory. It will be divided into 5 sections: A, B, C, D, and E.

- Section A will have 21 questions, each carrying 01 mark.
- Section B will consist of 07 Very Short Answer type questions, with each question carrying 02 marks.
- Section C will include 03 Short Answer type questions, and each question will carry 03 marks.
- Section D will comprise 04 questions, and each question will carry 04 marks.
- Section E will have 02 questions, with each question carrying 05 marks.
- All programming questions must be answered using the Python language exclusively.

SECTION A		
1	What will be the output of the following code? >>>L=['India','Independence','Day@August 15'] >>> L[2][3:10] A. 'depend@' B. 'dependen@' C. '@August' D. None of these	1
2	Consider the given SQL Query: mysql> select * from students where class_section=NULL; Zaina executes the above query but does not get any output. Write the correct SQL query to retrieve the records where class_section having null value.	1
3	What will be the output of the following Python statement? >>>10+6//2**2**2+10	1
4	Find the aggregate function in MySQL? A) max() B) count() C) sum() D) All of these	1
5	Which of the following is responsible for adding styles such as colors, fonts, and layouts to a web page? A) HTML B) CSS C) JavaScript D) FTP	1
6	_____Command can change the degree of a relation in MySQL. A) UPDATE B) ALTER C) DELETE D) INSERT	1
7	Find the output >>>num1 = “25” >>>num2 = “30” >>>print(int(num1)+float(num2)) A) 55.0 B) 55 C) 2530 D) ERROR	1
8	What is the output of the given Python code? >>>st=”Education is part of our life” >>>print(st.split("u")) A) ['Ed', 'cation is part of o', 'r life'] B) ('Ed', 'cation is part of o', 'r life')	1

	C) ['Edu','u', 'cation is part of our life'] D) None of these	
9	What will be the output of the following code? >>>tuple1 = (1, 2, 3) >>>tuple2 = tuple1 >>>tuple1 += (4,) >>>print(tuple1 == tuple2) A) True B) False C)tuple1 D)Error	1
10	Which of the following statements is correct regarding a table that has one Primary Key and two Alternate Keys? A) 1 Candidate Key B) 2 Candidate Keys C) 3 Candidate Keys D) 4 Candidate Keys	1
11	Fill in the blank in the following Python code to move the file pointer back to the beginning of the file. file = open("computerscience.txt", "r") data = file.read(20) _____ # Move the file pointer to the beginning next_data = file.read(25) file.close()	1
12	Which module is used to store and retrieve Python objects in a binary file? A) csv B) pickle C) binary D) file	1
13	Which function is used to write multiple rows into a CSV file? A) writerow() B) readrows() C) writerows() D) writeall()	1
14	_____ is the protocol used to send emails to the e-mail server and _____ is the protocol used to download mail to the client computer from the server. A) SMTP,POP B) HTTP,POP C) FTP,TELNET D) HTTP,IMAP	1
15	The table Student contains two columns: RNO and SCORE. The table has three rows. The following SQL queries were executed, producing the outputs 45 and 2, respectively: (i) SELECT AVG(SCORE) FROM Student; → 45 (ii) SELECT COUNT(SCORE) FROM Student; → 2 The values in the SCORE column are the same in two of the three rows. Based on the above information, determine the values present in the SCORE column for all three rows.	1
16	For a function header as follows: def calc(x, y=20): which of the following function calls will give an error? A) calc(15, 25) B) calc(x=15, y=25) C) calc(y=25) D) calc(x=25)	1
17	Shan has declared a tuple T in Python as follows: T= (50, 60, 70) Now, he wants to insert an element 80 after these three elements of T so that the tuple may contain (50, 60, 70, 80). Which of the following statements should he write to accomplish the above task? A) T=T+80 B) T=T + (80) C) T=T+(80,) D) Shan cannot insert 80 into the	1

	tuple since tuples are immutable	
18	Which of the following is a unique hardware address assigned to a Network Interface Card (NIC) for identifying a device on a local network? A) IP Address B) MAC Address C) URL D) Port Number	1

19	Suppose the content of "rhymes.txt" is Good Morning Madam. What will be the output of the Python code?
	F=open("rhymes.txt")
	L=F.read().split()
	for i in L:
	  if i.lower()==i[: : -1].lower():
	  print(i)
	A) Good B) Morning
	C) Madam D)Error	

20.	Assertion (A): - A stack is a linear data structure, that stores elements in First in First out order. Reasoning (R): - New element is added at one end and the element is removed from that end only. A. Both A and R are true, and R is the correct explanation of A. B. Both A and R are true, but R is not the correct explanation of A. C. A is true, but R is false. D. A is false, but R is true.	1
21.	Assertion (A): A primary key uniquely identifies each record in a table. Reason (R): A primary key does not allow duplicate or NULL values. A. Both A and R are true, and R is the correct explanation of A. B. Both A and R are true, but R is not the correct explanation of A. C. A is true, but R is false. D. A is false, but R is true.	1
	SECTION B	
22	Differentiate between Star Topology and Bus Topology on the basis of their connection structure and failure handling. OR A school network uses a central switch to connect all computers. a) Identify the topology used. b) What happens to the network if one computer's connecting cable fails?	2
23	a) Differentiate between the DELETE and DROP commands in MySQL with respect to their purpose and effect on a table. OR	2

	b) Categorize the following MySQL commands as DDL or DML: CREATE, INSERT, UPDATE, DROP.	

24	Predict the output of the following Python code
	
	X = 50
	def Func1(start1):
	  global X
	  start1 += X
	  X += 20
	  start1 = Func2(start1)
	  return start1
	
	def Func2(start1):
	  global X
	  X += 10
	  start1 += X
	  return start1
	
	start = 100
	start = Func1(start)
	print(start, X)
		2

25	Write a Python function countmy() to read the text file "data.txt" and count the number of times the word "my" occurs in the file. **Example:** If the contents of data.txt are: My school is my pride. I love my school. The function should count and display the output as: my = 3 times	2
26	Write a MySQL statement to create a table named emp with suitable data types and constraints for the following fields: emp_no – Employee number and Primary Key**,** emp_name, emp_sal, emp_designation, emp_contact which must not contain NULL values	2
27	Write a Python function pop(Arr) to perform the POP operation on a stack implemented using a list of numbers. The function should delete and return the value from the top of the stack. **Example:** Arr = [10, 20, 30, 40] After calling pop(Arr), the output should be: Deleted value = 40 Stack = [10, 20, 30] **Note:** Display an appropriate message if the stack is empty.	2

28	What is a Candidate Key? How is it different from a Primary Key? Give a suitable example	2
	Section C	

29	Write the output of the following code:
	
	def display(n):
	  sum = 5
	  i = 1
	  while i <= n:
	  sum += i
	  i += 5
	  sum = sum - 2
	  print("value =", sum, "i =", i)
	
	x = 30
	display(x)
		3

30	(a) Write a Python program to read the CSV file student.csv, which contains the following fields: RollNo, Name, Class, Marks Accept a Roll Number from the user and search for the corresponding student record in the CSV file. • If the record is found, display the student's Name, Class and Marks. • If the record is not found, display "Record not found". or (b) Write a Python program to read the CSV file student.csv, containing the fields RollNo, Name, Class and Marks. Display the names and marks of all students who have scored more than 80 marks. Also display the total number of such students.	3
31	(a) A school maintains employee records in a binary file named employee.dat. Each record contains EmpNo, Name, Designation and Salary. Write a Python program to search for an employee using EmpNo and update the 10%Salary of that employee. After updating, rewrite the records into the binary file. or (b) A company maintains employee records in a binary file named employee.dat. Each record contains EmpNo, Name, Designation and Salary.	3

	Write a Python program to read the records from the binary file and display the details of all employees whose salary is more than ₹50,000.	
	Section D	
32	a) Write a Python function INSERTLINES() to accept 5 lines of text from the user and store them in a text file named DATA.TXT. b) Write a Python function COUNTLINES() to read the file DATA.TXT and count and display the number of lines that start with the letter s and end with the letter g. **Note: The function should treat uppercase and lowercase letters as the same.** Sample Input: Enter line 1: Top Reasons to Learn Python: Enter line 2: Data science. Enter line 3: Scientific and mathematical computing. Enter line 4: Finance and trading. Enter line 5: Security and penetration testing. **Expected Output:** The number of lines which start with s and end with g : 2	4
33	Consider the given STD table, write the query as per the instructions **Roll_No** | **Name** | **Class** | **Marks** 101 | Ali | XI-A | 85 102 | Sara | XI-B | 92 103 | John | XI-A | 78 104 | Amna | XI-B | 88 a) Insert a new record into the STD table with the following details: 105, Ahmed, XI-A, 90 b) Delete the record of the student whose Roll_No is 103. c) Change the size of the Name column to VARCHAR(30). d) Change the marks 95 of the student whose Roll_No is 102 or (only for d) e) Display the class and Marks whose name start with 'A'	4
34	a) When do you think binary files should be preferred over text files**?**	4

b) A grocery shop wants to maintain the details of different items in a CSV file named Groceries.csv. The file should store Item Code, Item Name, Price and Quantity. Write a Python program to accept the details of grocery items from the user, store them permanently in the CSV file, and display the stored data.

35 Consider the following table EMP: write any 4 queries as given below (4)

Emp_No	Emp_Name	Department	Designation	Salary
101	Ali	Sales	Manager	5500
102	Sara	IT	Developer	4500
103	John	Sales	Executive	3500
104	Amima	HR	Manager	5000
105	David	IT	Developer	4800
106	Fatima	Sales	Executive	4000
107	Ahmed	HR	Executive	3200
108	Mary	IT	Manager	6000

a) Display the total salary paid by each department.
b) Display the departments whose total salary is more than 10,000.
c) Display the details of all employees in descending order of Salary.
d) Display the number of employees in each department, arranging the result in ascending order of the number of employees.
e) Display the highest and lowest salary of each department.
f) Display the Emp_Name and Designation whose salary is more than 5000 and Department either IT or HR.

Section E

36 A CBSE school is maintaining student data in a CSV file named school.csv. The file contains the fields Student Number, Name and Marks. Given below is a Python program that creates the CSV file and stores student records entered by the user. The file operation is performed using a user-defined function addrecord(). Write the following missing statements to complete the code: (5)

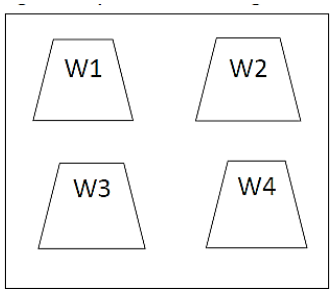
Statement 1 – Write the command to import the required module for CSV file handling.
Statement 2 – Write the name of the CSV file to be opened in write mode.
Statement 3 – Write the command to create a writer object for the CSV file.
Statement 4 – Write the command to write a complete student record into the CSV file.
Statement 5 – Write the command to end the CSV file after completing the file operation.

```
import _____                    # Statement 1
def addrecord():
    f = open(_____, 'w', newline='')    # Statement 2
    wr = csv._____(f)           # Statement 3
    ch = 'y'
    while ch == 'y':
        stno = int(input("Enter student number: "))
        sname = input("Enter name: ")
```

```
        marks = int(input("Enter marks: "))
        wr._____([stno, sname, marks])        # Statement 4
        ch = input("Want to add more records (y/n): ")
    f._____()                                 # Statement 5
```

37 (5)

The company Mega enterprises located in New Delhi has 4 wings of buildings as shown in the diagram



Computers in each wing are networked but the wings are not networked. The company has now decided to connect the wings also.

Details of the School Buildings

Wing	Number of Computers	Distance to W1	Distance to W2	Distance to W3	Distance to W4
W1	150	—	60 m	50 m	90 m
W2	15	60 m	—	125 m	25 m
W3	15	50 m	125 m	—	170 m
W4	24	90 m	25 m	170 m	—

(a) Suggest the most suitable cable layout for the above connections.
(b) Suggest the most appropriate topology of the connection between the wings.
(c) The company wants internet accessibility in all the wings. Suggest a suitable technology.
(d) Suggest the placement of the following devices with justification if the company wants minimized network traffic.

(i) Repeater (ii) Hub or switch

(e) The company is planning to connect its head office situated in Mumbai with its offices located in different cities. Which communication medium would be most suitable and economical for this purpose?