

COMPUTER SCIENCE – CODE NO. 083
PRACTICE QUESTION PAPER
Class - XII - (2025-26)

Time Allowed: 3 Hrs.

Maximum 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 (21 x 1 = 21 Marks)	Marks
1	State if the following statement is True or False : id(10) == id(10) will always return True in Python.	1
2	What will be the output of the following code? S = ["AI", "Machine", "Learning"] print(S[0][1] + S[2][0]) a) AI b) In c) IL d) aL	1
3	Consider the given expression: print(not 5>7 or 3==3 and False) Which of the following will be the correct output of the given expression? a) True b) False c) Error d) None	1
4	Which SQL join returns only matching rows from both tables? a) FULL JOIN b) INNER JOIN c) LEFT JOIN d) CROSS JOIN	1
5	What will be the output of the following Python code? s = "PROGRAM" print(s[-2::-2]) a) AMRP b) MRPG c) AGRM d) MGOR	1
6	Write the output of the following Python code: for i in range(4, 16, 4): print(i, end="**")	1
7	What will be the output of the following Python statement: print(50/5 + 2**3 - 9) a) 10 b) 9 c) 11 d) 8	1
8	Correct the given SQL Query: SELECT dept, AVG(salary) FROM employees _____ AVG(salary)>40000 GROUP BY dept; a) HAVING b) WHERE c) ORDER BY d) WITH	1

17	Which protocol is used to send emails: a) HTTP b) FTP c) POP3 d) SMTP	1
18	Which device is used to connect multiple computers within the same LAN and forward data only to the intended destination device? a) Hub b) Switch c) Modem d) Repeater	1
19	Which device is used to protect network by filtering traffic? a) Repeater b) Firewall c) Modem d) Switch	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): Tuple can store duplicate values. Reason (R): Tuples are immutable.	1
21	Assertion (A): Foreign key is used to maintain referential integrity between two tables in a database. Reasoning (R): Foreign key must always reference the primary key of another table.	1
Q No.	Section-B (7 x 2=14 Marks)	Marks
22	A. Explain the difference between mutable and immutable with examples. OR B. Explain the difference between = and == in python with example.	2
23	The code provided below is intended to print the substring of a given string starting from the 3 rd character to the end. However, there are syntax and logical errors in the code. Rewrite it after removing all the errors. Also, underline all the corrections made. <code>def mid(s) if len(s)<3 return s m = s[2:len(s)] print(m mid("School")</code>	2
24	A. (Answer using Python built-in methods/functions only): I. Write a statement to count letter 'a' in string named data . II. Write a statement to Reverse list L. OR B. Predict the output of the following Python code: msg="Coding With Python" print(msg.replace("o","@")) print(msg.startswith("Cod"))	2

25	A. Write a function <code>remove_neg(L)</code> to delete negative numbers from list <code>L</code>. OR B. Write a user-defined function in Python named fact(n) that calculates and returns the factorial of any positive number entered by the user. Factorial of a number n is defined as: $n! = n \times (n-1) \times (n-2) \times \dots \times 1$	2
26	Predict the output of the Python code given below: <pre>D={"Tom":90,"Ria":75,"Kabir":88,"Zoya":92} sel=[] for n in D: if D[n] > 85: sel.append(n) print(sel)</pre>	2
27	A. Write suitable commands to do the following in MySQL. - Display all tables. - Delete a table named Student. OR B. Differentiate between update and modify query in SQL with a suitable example.	2
28	A. Define the following terms: - Cache memory - Switch OR B. - Expand the following terms: TCP and URL - Differentiate between web optical fiber and twisted pair.	2
Q No.	Section-C (3 x 3 = 9 Marks)	Marks
29	A. Write a Python function that reads a text file named DOE.txt and counts the total number of lines and total number of words in the file. OR B. Write a Python program to read a text file named notes.txt and display only those lines which do not contain the word "AI" (case-insensitive).	3
30	A list containing records of products as numbers = [12, 5, 45, 7, 60, 3] Write functions: - Push only numbers divisible by 3. - Pop till empty & display, else "Stack Empty".	3

31	A. Predict the output of the following Python code: <pre>def change(num): num = num + 5 return num a = 10 b = change(a) print(a, b) x = [1, 2, 3] y = x y.append(4) print(x, y)</pre> OR B. Predict the output of the following Python code: <pre>fruits=["apple","kiwi","orange","grape","banana"] res=[] for f in fruits: if f[-1] in "aeiou": res.append(f[1].upper()) print(res)</pre>	3																								
Q No.	Section-D (4 x 4 = 16 Marks)	Marks																								
32	Consider the table STUDENTS as given below: <table><tr><th>roll</th><th>name</th><th>class</th><th>marks</th></tr><tr><td>101</td><td>Riya</td><td>12</td><td>88</td></tr><tr><td>102</td><td>Aman</td><td>11</td><td>72</td></tr><tr><td>103</td><td>Neha</td><td>12</td><td>91</td></tr><tr><td>104</td><td>Rohan</td><td>11</td><td>78</td></tr><tr><td>105</td><td>Priya</td><td>12</td><td>84</td></tr></table> A. Write the following queries: i) Display class-wise average marks only for those classes where the average marks are greater than 75. ii) Display all student details sorted by name in ascending order. iii) Display distinct class numbers from the STUDENTS table. iv) Display details of students whose name ends with 'a'. OR B. Predict the output of the following: i) SELECT class, COUNT(*) FROM STUDENTS GROUP BY class; ii) SELECT name, marks FROM STUDENTS WHERE marks > 80; - iii)SELECT name, marks FROM STUDENTS ORDER BY marks DESC LIMIT 3; - iv)SELECT name, class FROM STUDENTS WHERE name LIKE ' i%';	roll	name	class	marks	101	Riya	12	88	102	Aman	11	72	103	Neha	12	91	104	Rohan	11	78	105	Priya	12	84	4
roll	name	class	marks																							
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33	Riya is maintaining a student project file named students.csv that stores details in the format: AdmNo, Name, Class, Marks She wants to help her teacher quickly identify high-performing students for a scholarship list. Write a Python program for Riya to: Display names of students who scored 90 or above. - Count and display the total number of such students.	4																														
34	Amir, a Class 12 Computer Science student, is helping his teacher maintain a school database. Two tables are used in the school's database as given below: Table: COURSE <table border="1"> <thead> <tr> <th>cid</th><th>cname</th><th>duration</th></tr> </thead> <tbody> <tr> <td>C101</td><td>Python</td><td>6 months</td></tr> <tr> <td>C102</td><td>Java</td><td>4 months</td></tr> <tr> <td>C103</td><td>AI Basics</td><td>3 months</td></tr> <tr> <td>C104</td><td>Networking</td><td>5 months</td></tr> </tbody> </table> Table: STUDENT <table border="1"> <thead> <tr> <th>sid</th><th>sname</th><th>cid</th></tr> </thead> <tbody> <tr> <td>S01</td><td>Riya</td><td>C101</td></tr> <tr> <td>S02</td><td>Arjun</td><td>C103</td></tr> <tr> <td>S03</td><td>Meera</td><td>NULL</td></tr> <tr> <td>S04</td><td>Anuj</td><td>C102</td></tr> </tbody> </table> As part of a digital record-keeping project, Amir needs to write SQL queries to analyze the data stored in the database and support administration decisions. Write SQL queries to: - Display the names of students enrolled in the Python course. - Display all courses that have a duration greater than 4 months. - Delete records of students who are not enrolled in any course (cid is NULL). A. Display the student name along with the course name using a JOIN. OR B. Display the name of students whose name starts with the letter 'A'.	cid	cname	duration	C101	Python	6 months	C102	Java	4 months	C103	AI Basics	3 months	C104	Networking	5 months	sid	sname	cid	S01	Riya	C101	S02	Arjun	C103	S03	Meera	NULL	S04	Anuj	C102	4
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S04	Anuj	C102																														
35	A MySQL database named RetailStoreDB contains a table called stock_master with the following fields: Prod_ID — Product ID (Integer) Prod_Name — Product Name (String) Units_Available — Number of units in stock (Integer) Price — Price per unit (Integer) The database connection details are: Username: store_admin Password: retail@2025 Host: localhost Write a Python program using MySQL connectivity to update the Units_Available to 150 for the product whose Prod_ID = 502 in the stock_master table.	4																														

Q No.	Section-E (2 X 5 = 10 Marks)	Marks																															
36	Riya, a Class 12 Computer Science student, is helping her teacher maintain student records for a scholarship selection program. The student information is stored in a binary file named Stu.dat with the following fields: Roll, Name, Class, Marks. Write two Python functions to help Riya: i) Append new student record to Stu.dat ii) Read and display the student details having Marks > 80	2+3																															
37	ABC Global Pvt. Ltd. is setting up a new campus in Pune while the main head office is located in Mumbai. The Pune campus will consist of four departments: Admin, Research Lab, Training, and Support. The building distances and number of computers are given below: <table><tr><th>From</th><th>To</th><th>Distance (in meters)</th></tr><tr><td>Admin</td><td>Research Lab</td><td>80</td></tr><tr><td>Admin</td><td>Training</td><td>150</td></tr><tr><td>Admin</td><td>Support</td><td>100</td></tr><tr><td>Research Lab</td><td>Training</td><td>70</td></tr><tr><td>Research Lab</td><td>Support</td><td>60</td></tr><tr><td>Training</td><td>Support</td><td>85</td></tr></table> No. of Computers in each block <table><tr><th>Block</th><th>No. of Computers</th></tr><tr><td>Admin</td><td>50</td></tr><tr><td>Research Lab</td><td>120</td></tr><tr><td>Training</td><td>75</td></tr><tr><td>Support</td><td>30</td></tr></table> Answer the following questions: I. Which department in the Pune campus should host the main server? Justify your answer. II. Suggest the appropriate placement of the following devices: a) Repeater b) Switch III. Suggest and draw (conceptually) the cable connection layout between buildings. IV. The company wants to connect its Pune campus with Mumbai head office using a high-speed wired connection. Which transmission medium should be used and why? V. a) What is the purpose of a Firewall in a network? OR b) Identify the type of network (PAN / LAN / MAN / WAN) formed between the Pune campus and Mumbai head office.	From	To	Distance (in meters)	Admin	Research Lab	80	Admin	Training	150	Admin	Support	100	Research Lab	Training	70	Research Lab	Support	60	Training	Support	85	Block	No. of Computers	Admin	50	Research Lab	120	Training	75	Support	30	5
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