

PREBOARD EXAMINATION (2025-2026) COMPUTER SCIENCE (083)

GRADE: 12

Date:

Time allowed: 3 hours

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.	<p>What will be output of the following code:</p> <pre>d1={1:2,3:4,5:6} d2=d1.get(3,5) print(d2)</pre> <p>(A) 3 (B) 4 (C) 5 (D) Error</p>	1
2.	<p>Consider the given expression:</p> <pre>L = [10, 20, 30] print(20 in L or 40 in L and 10 not in L)</pre> <p>Which of the following will be the correct output of the given expression?</p> <p>(A) False (B) True (C) Error</p>	1

	(D) None	
3.	<p>Which of the following statement(s) would give an error during the execution of the following code?</p> <pre>R = {'pno':52,'pname':'Virat', 'expert': ['Badminton', 'Tennis'],'score':(77,44)} print(R) #Statement 1 R['expert'][0]='Cricket' #Statement 2 R['score'][0]=50 #Statement 3 R['pno']=50 #Statement 4</pre> <p>(A) Statement 1 (B) Statement 2 (C) Statement 3 (D) Statement 4</p>	1
4.	<p>Consider the statements given below and then choose the correct output from the given options:</p> <pre>pride = "#G20 Presidency" print(pride[-2:2:-2])</pre> <p>(A) ndsr (B) ceieP0 (C) ceieP (D) yndsr</p>	1
5.	<p>What will be the output of the following Python code?</p> <pre>S = "PYTHON2025" print(S[1:6:2])</pre> <p>(A) YH0 (B) YHN (C) PTO (D) H02</p>	1
6.	<p>Select the correct output of the code:</p> <pre>a = "Year 2022 at All the best" a = a.split('2') b = a[0] + ". " + a[1] + ". " + a[3] print (b)</pre> <p>(A) Year . 0. at All the best</p>	1

	<p>(B) Year 0. at All the best</p> <p>(C) Year . 022. at All the best</p> <p>(D) Year . 0. at all the best</p>	
7.	<p>What possible output from the given options is expected to be displayed when the following Python code is executed ?</p> <pre>import random Signal = ['RED' , 'YELLOW' , 'GREEN'] for K in range(2, 0, -1): R = random.randrange(K) print (Signal[R], end="#")</pre> <p>(A) YELLOW # RED #</p> <p>(B) RED # GREEN #</p> <p>(C) GREEN # RED #</p> <p>(D) YELLOW # GREEN #</p>	1
8.	<p>Which of the following mode keeps the file offset position at the end of the file?</p> <p>(A) r+</p> <p>(B) r</p> <p>(C) w</p> <p>(D) a</p>	1
9.	<p>_____ command is used to remove primary key from the table in SQL.</p> <p>(A) update</p> <p>(B) remove</p> <p>(C) alter</p> <p>(D) drop</p>	1
10.	<p>Which aggregate function in SQL displays the number of values in the specified column ignoring the NULL values?</p> <p>(A) len ()</p> <p>(B) count ()</p> <p>(C) number ()</p> <p>(D) num ()</p>	1

11.	<p>Which of the following statement(s) would give an error after executing the following code?</p> <pre> S="Welcome to class XII" # Statement1 print(S) # Statement2 S="Thank you" # Statement 3 S[0]= '@' # Statement 4 S=S+"Thank you" # Statement 5 </pre> <p>(A) Statement 3 (B) Statement 4 (C) Statement 5 (D) Statement 4 and 5</p>	1
12.	<p>The correct syntax of seek() is:</p> <p>(a) file_object.seek(offset [, reference_point]) (b) seek(offset [, reference_point]) (c) seek(offset, file_object) (d) seek.file_object(offset)</p>	1
13.	<p>The SELECT statement when combined with _____ clause, returns records without repetition.</p> <p>(a) DESCRIBE (b) UNIQUE (c) DISTINCT (d) NULL</p>	1
14.	<p>_____ is a communication methodology designed to deliver both voice and multimedia communications over Internet protocol.</p>	1
15.	<p>The modem at the sender's computer end acts as a</p> <p>(a) Model (b) Modulator (c) Demodulator (d) Convertor</p>	1

16.	<p>Which function is used to display the total number of records from table in a database?</p> <p>(a) sum(*) (b) total(*) (c) count(*) (d) return(*)</p>	1
17.	<p>Consider the code given below:</p> <pre>b = 100 def test(a): #missing statement b = b + a print(a, b) test(10) print(b)</pre> <p>Which of the following statements should be given in the blank for #Missing Statement, if the output produced is 110?</p> <p>(a) global a (b) global b = 100 (c) global b (d) global a = 100</p>	1
18.	<p>State whether the following statement is True or False:</p> <p>While handling exceptions in Python, name of the exception has to be compulsorily added with except clause.</p>	1
19.	<p>Which of the following network topologies requires a central controller or hub, where all nodes are connected directly to this central device?</p> <p>A) Bus Topology (B) Star Topology (C) Ring Topology (D) Mesh Topology</p>	1
	<p>Q20 and Q21 are Assertion(A) and Reason(R) based questions. Mark the correct choice as:</p> <p>(A) Both A and R are true and R is the correct explanation for A</p>	

	<p>(B) Both A and R are true and R is not the correct explanation for A</p> <p>(C) A is True but R is False</p> <p>(D) A is False but R is True</p>	
20.	<p>Assertion (A):- For a binary file opened using ' rb' mode, the pickle. dump () method will display an error.</p> <p>Reason (R): The pickle . dump () method is used to read from a binary file.</p>	1
21.	<p>Assertion (A): We can retrieve records from more than one table in MYSQL.</p> <p>Reason (R): Foreign key is used to establish a relationship between two tables.</p>	1
Q No	Section-B (7 x 2=14 Marks)	Marks
22.	<p>Write the output displayed on execution of the following Python code:</p> <pre> LS= ["HIMALAYA", "NILGIRI", "ALASKA", "ALPS"] D ={ } for S in LS : if len(S)%4 = 0: D[S] = len(S) for K in D: print(K,D[K], sep = "#") </pre>	2
23.	<p>The code given below accepts five numbers and displays whether they are even or odd:</p> <p>Observe the following code carefully and rewrite it after removing all syntax and logical errors : Under line all the corrections made.</p> <pre> def EvenOdd () for i in range(S) num=int (input ("Enter a number") if num/2=0: print ("Even") else: print ("Odd") EvenOdd() </pre>	2

26.	<p>Identify the correct output(s) of the following code. Also write the minimum and the maximum possible values of the variable b.</p> <pre>import random a="Wisdom" b=random.randint(1,6) for i in range(0,b,2): print(a[i],end='#')</pre>	2
27.	<p>Differentiate between count() and count(*) functions in SQL with appropriate example.</p> <p style="text-align: center;">OR</p> <p>Ms. Veda created a table named Sports in a MySQL database, containing columns Game_id, P_Age and G_name.</p> <p>After creating the table, she realized that the attribute, Category as to be added. Help her to write a command to add the Category column. Thereafter, write the command to insert the following record in the table :</p> <p>Game_id : G42 P_Age : Above 18 G_name : Chess Category : Senior</p>	2
28.	<p>Give two points about the difference between circuit switching and packet Switching.</p> <p style="text-align: center;">OR</p> <p>Expand and define the following terms: XML & PPP</p>	2
Q No.	Section-C (3 x 3 = 9 Marks)	Marks
29.	<p>Write a function in Python to read a text file, Alpha.txt and displays those lines which begin with the word 'You'.</p> <p style="text-align: center;">OR</p> <p>Write a function, vowelCount() in Python that counts and displays the number of vowels in the text file named Poem.txt.</p>	3

30.	<p>A) You have a stack named BooksStack that contains records of books. Each book record is represented as a list containing book_title,author_name, and publication_year.</p> <p>Write the following user-defined functions in Python to perform the specified operations on the stack BooksStack:</p> <p>(I) push_book(BooksStack, new_book): This function takes the stack BooksStack and a new book record new_book as arguments and pushes the new book record onto the stack.</p> <p>(II) pop_book(BooksStack): This function pops the topmost book record from the stack and returns it. If the stack is already empty, the function should display "Underflow".</p> <p>(III) peek(BookStack): This function displays the topmost element of the stack without deleting it. If the stack is empty, the function should display 'None'.</p> <p style="text-align: center;">OR</p> <p>(B) What output will be generate when the following Python code is executed?</p> <pre>def ChangeList (): l =[] l1=[] l2 =[] for i in range(1, 10): l.append(i) for i in range(10, 1, -2): l1.append(i) for i in range(len (l1)): l2.append(l1[i] + l[i]) l2.append (len(l)- len(l1)) print(l2) ChangeList()</pre>	3
31.	<p>Predict the output of the Python code given below:</p> <pre>Text1 = "IND-23" Text2 = "" I = 0 while I < len(Text1):</pre>	3

	<pre> 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: def Changer(P, Q = 10): P = P / Q Q = P % Q return P A = 200 B = 20 A = Changer(A, B) print(A, B, sep = '\$') B = Changer(B) print(A, B, sep = '\$', end = '###') </pre>	
Q No.	Section-D (4 x 4 = 16 Marks)	Marks
32.	<p>What is difference between tell() and seek() methods?</p> <p>A Binary file “lottery.dat” stores details of lottery ticket holders . The file stores the following details : TicketNo State Type Prizemoney</p> <p>Write a program using two functions to operate the file data.</p> <p>(a) AddBuyers(State) : To accept more ticket details and store them into the file only if the ticket is not from state passed as parameter to the function.</p> <p>(b) TicketSearch(tid) : To open the file “lottery.dat” and display details of the ticket whose id is supplied as the parameter to the function.</p>	4
33.	<p>Assume that you are working in the IT Department of a Creative Art Gallery (CAG), which sells different forms of art creations like Paintings, Sculptures</p>	4

etc. The data of Art Creations and Artists are kept in tables Articles and Artists respectively. Following are few records from these two tables

Table : Articles

Code	A_Code	Article	DOC	Price
PL001	A0001	Painting	2018-10-19	20000
SC028	A0004	Sculpture	2021-01-15	16000
QL005	A0003	Quilling	2024-04-24	3000

Table : Artists

A_Code	Name	Phone	Email	DOB
A0001	Roy	595923	r@CrAG.com	1986-10-12
A0002	Ghosh	1122334	ghosh@CrAG.com	1972-02-05
A0003	Gargi	121212	Gargi@CrAG.com	1996-03-22
A0004	Mustafa	33333333	Mf@CrAg.com	2000-01-01

- The tables contain many more records than shown here.
- DOC is Date of Creation of an Article

As an employee of CAG, you are required to write the SQL queries for the following:

- To display all the records from the Articles table in descending order of price.**
- To display the details of Articles which were created in the year 2020.**
- To display the structure of Artists table.**
- (a) To display the name of all artists whose Article is Painting through Equi Join.**

OR

- (b) To display the name of all Artists whose Article is 'Painting' through Natural Join**

34.

Consider the tables PRODUCT and BRAND given below:

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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) Display the name, price, and rating of products in descending order of rating.

OR

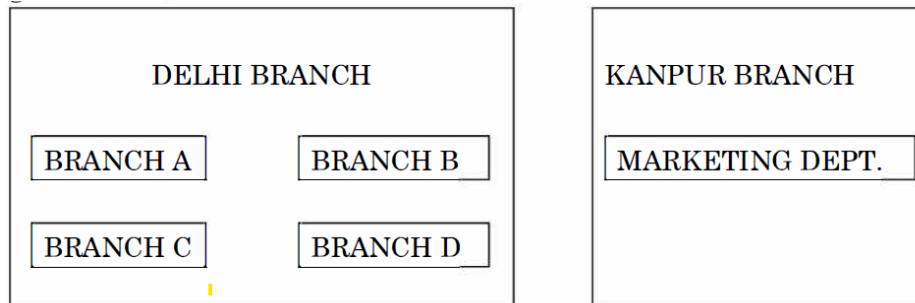
(B) To display the Cartesian Product of these two tables.

35.	<p>A table, named THEATRE, in CINEMA database, has the following structure</p> <table border="1" data-bbox="518 201 1077 548"> <thead> <tr> <th>Field</th> <th>Type</th> </tr> </thead> <tbody> <tr> <td>Th_ID</td> <td>char (5)</td> </tr> <tr> <td>Name</td> <td>varchar (15)</td> </tr> <tr> <td>City</td> <td>varchar (15)</td> </tr> <tr> <td>Location</td> <td>varchar (15)</td> </tr> <tr> <td>Seats</td> <td>int</td> </tr> </tbody> </table> <p>Write a function Delete_Theatre (), to input the value of Th_ID from the user and permanently delete the corresponding record from the table. Assume the following for Python-Database connectivity: Host: localhost, User: root, Password: Ex2025</p>	Field	Type	Th_ID	char (5)	Name	varchar (15)	City	varchar (15)	Location	varchar (15)	Seats	int	4
Field	Type													
Th_ID	char (5)													
Name	varchar (15)													
City	varchar (15)													
Location	varchar (15)													
Seats	int													
Q.No	SECTION E (2 X 5 = 10 Marks)	Marks												
36.	<p>Sangeeta is a Python programmer working in a computer hardware company. She has to maintain the records of the peripheral devices. She created a csv file named Reason (R):, to store the details.</p> <p>The structure of Peripheral . csv is : [P_id, P_name, Price] where P_id is Peripheral device ID (integer) P_name is Peripheral device name (String) Price is Peripheral device price (integer)</p> <p>Sangeeta wants to write the following user defined functions :</p> <p>Add_Device () : to accept a record from the user and add it to a csv file, Peripheral.csv.</p> <p>Count_Device () : To count and display number of peripheral devices whose price is less than 1000.</p>	5												

37.

Quickdev, an IT based firm, located in Delhi is planning to set up a network for its four branches within a city with its Marketing department in Kanpur. As a network professional, give solutions to the questions (i) to (v), after going through the branches locations and other details which are given below

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Distance between various branches is as follows :

Branch	Distance
Branch A to Branch B	40 m
Branch A to Branch C	80 m
Branch A to Branch D	65 m
Branch B to Branch C	30 m
Branch B to Branch D	35 m
Branch C to Branch D	15 m
Delhi Branch to Kanpur	300 km

Number of computers in each of the branches:

Branch	Number of Computers
Branch A	15
Branch B	25
Branch C	40
Branch D	115

- (i) **Suggest the most suitable place to install the server for the Delhi branch with a suitable reason.**
- (ii) **Suggest an ideal layout for connecting all these branches within Delhi.**
- (iii) **Which device will you suggest, that should be placed in each of these branches to efficiently connect all the computers within these branches?**
- (iv) **Delhi firm is planning to connect to its Marketing department**

in Kanpur which is approximately 300 km away. Which type of network out of LAN, WAN or MAN will be formed ? Justify your answer.

(v) Suggest a protocol that shall be needed to provide help for transferring of files between Delhi and Kanpur branch.