

KENDRIYA VIDYALAYA SANGATHAN, CHENNAI REGION

CLASS: XII SESSION: 2025-26

PREBOARD-II

COMPUTER SCIENCE (083)

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	State True or False: Using the statistics module, the output of the below statements will be 6. import statistics print(statistics.mean([2, 4, 6, 8,10]))	1
2	Identify the output of the following code snippet: L = ["CBSE", "School", "Education"] print(L[-1][3] + L[2][-1]) a)ESEn b)tn c)cn d) error	1
3	Consider the given expression. print(not 4 < 2 or 10 == 5 and 8 < 7) Which of the following will be the correct output of the given expression? a) True b) False c) Null d) No output	1
4	Which join uses a condition with = operator to match columns?	1
5	What is the output of the following Python code: x="computer network" print(x[:-10:-2]) a)kotn rt b)kotnr c)cmue d) cmutr	1
6	Predict the output: for i in range(1,5):	1

	<pre> if i == 3: continue print(i, end=' ') </pre>	
7	What will be the output of the following code: <pre>print((10 - 3) ** 2 // 5)</pre>	1
8	Consider the given SQL Query: SELECT empname from employee where salary=NULL; Jeevan is executing the query but not getting the correct output. Write the correction.	1
9	What will be the output of the following python code? <pre> try: a = int("123") print("X",end="") except ValueError: print("Y",end="") finally: print("Z") </pre> a) ValueError b)XYZ c)XZ d) YZ	1
10	What will be the output of the following python code? <pre> dict1={"name": "Mike", "salary": 8000} temp =dict1.get("age") print(temp) </pre> a) Name b)Error c)None d)8000	1
11	What possible output(s) is expected to be displayed on the screen at the time of execution of the Python program from the following code? <pre> import random data=[20,30,40,50,60,70,80,90,100] a=random.randint(2,5) b=random.randint(1,4) for i in range(a,b+2): print(data[i],end="#") </pre> a)30#40#50# b)50#60#70# c)60#70#80 d)20#30#40#	1
12	What will be the output of the following code: <pre> def update(m, n=40): global a a+=m n-=a m=n+a print(n,m,sep='#') a=30 update(20) </pre> a)10#40 b) 40#-10 c)-10#40 d)-10 40 #	1
13	Which SQL command can increase the cardinality of an existing relation? a) Insert b) Delete c) Update d) Both a and c	1
14	What will be the output of the following python code?	1

	<pre>s="programming language python" d=s.split('a',2) print(d)</pre> a) ['progr', 'mming l', 'ngu', 'ge python'] b) ['progr', 'mming language python'] c) ['progr', 'mming l', 'nguage python'] d) Error	
15	In SQL, if a relation has degree 7 and cardinality 15, and 2 rows are deleted, the new cardinality is: a) 15 b) 17 c) 13 d) 7	1
16	Which SQL command is used to remove a table completely from a database? a) DELETE b) DROP c) UPDATE d) ALTER	1
17	----- protocol is used to transfer files over the internet.	1
18	In a bus topology, all devices are connected to a) A central hub b) A single backbone cable c) Each other directly d) Switches	1
19	The process of making a website available on the internet is called a) Web Designing b) Web Hosting c) Web Browsing d) Web Surfing	1
	Q20 and 21 are ASSERTION AND REASONING 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):- Accessing a list index that does not exist raises an error. Reasoning (R):- List indices must be within the valid range.	1
21	Assertion (A):- In SQL, the WHERE clause is used to filter rows. Reasoning(R):- The WHERE clause is applied after grouping the rows in a table.	1
Q.No	Section-B (7 x 2=14 Marks)	Marks
22	A. What is debugging? Write an example for syntax error and runtime error. OR B. What is the use of range() function? Explain with example.	2
23	The code provided below is intended to accept a list from the user. From the list, the even numbers are copying to another list and displaying the list contains even numbers. However, there are syntax and logical errors in the code.	2

	Rewrite it after removing all the errors. Also, underline all the corrections made <pre> L=list(eval(input("enter the list elements"))) j=[] def evenlist(): for i in L: if i%2==1: j.append(i) Print(j) evenlist() </pre>	
24	A. Answer using built-in functions only - Write python statement to remove the last element in the given list, L. - Write python statement to display the number characters in the given string str. OR B. Predict the output of the following code: <pre> d="computer science preboard exam 2025 " x=d.partition("exam") y=len(x) print(y,type(x)) print(x[0]) </pre>	2
25	A. Write a function add_element() in Python that accepts a list L and a number n. If the number n not exists in the list, it should be added to the 3rd position in the list. If it exist, print a message saying "Element already exist in the list". OR B. Write a Python function letter_count(). The function builds a dictionary containing the frequency of each alphabetic character from a string. The dictionary should treat uppercase and lowercase letters as the same.	2
26	Predict the output of the given python code: <pre> data = ("alpha", "beta", "gamma", "delta", "epsilon") result = [] for item in data: if item.count('a') >= 2: result.append(item[::-1][:3]) print(result) </pre>	2
27	A. Write SQL command to do the following in MYSQL. - To delete all records from a table Fees. - To display all databases, present in MySQL OR B. Differentiate between char(n) and varchar(n).	2
28	A. - List out the components of data communication. - Define bandwidth.	2

	OR B. i. Expand the following: SMTP and TCP/IP ii. Differentiate between hub and switch.	
Q.No	Section-C (3 x 3 = 9 Marks)	Marks
29	Write a Python function that extracts and displays all the words present in a text file “notes.txt” that contains exactly three vowels. OR Write a Python function that read a text file ‘novel.txt’ and display number of lines starting with letter A.	3
30	Sharma has created a dictionary containing district and state as key value pairs of 6 states. Write a program, with separate user defined functions to perform the following operations: • add_district()-Push the keys (name of the district) of the dictionary into a stack, where district belongs to state “TAMIL NADU”. • display()-Pop and display the content of the stack. For example: If the sample content of the dictionary is as follows: R={"KOLLAM":"KERALA", "MADURAI":"TAMIL NADU", "MYSURU":"KARNATAKA", "KURNOOL":"ANDRA PRADESH", "COIMBATORE":"TAMIL NADU", "VELLORE":"TAMIL NADU"} The output from the program should be: VELLORE COIMBATORE MADURAI stack empty	3
31	A. Predict the output: <pre>str1="PREboard 2" str2="Computer" msg="" for i in range(0,len(str2)+1): if str1[i]>='A' and str1[i]<='F': msg=msg+str1[i] elif str1[i]>='N' and str1[i]<='Z': msg=msg+str2[i] elif str1[i]>'a' and str1[i]<='z': msg=msg+"#" else: msg=msg+"*" print(msg)</pre> OR	3

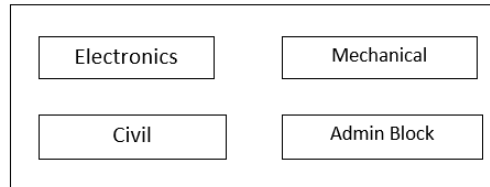
	B. Predict the output: <pre>data = {"Monday": 1, "Tuesday": 2, "Thursady": 4, "Friday": 5} str1 = "" d=data.setdefault('Wednesday',3) for i in data: str1 = str(data[i])+'#'+str1 str2 = str1[:-3]+str(d) print(str1) print(str2)</pre>																															
Q.NO	Section-D (4 x 4 = 16 Marks)	Marks																														
32	Consider the table ITEMS, given below: <table><tr><th>No</th><th>itemname</th><th>Type</th><th>Price</th><th>stockdate</th></tr><tr><td>1</td><td>Chaises</td><td>Living</td><td>12000</td><td>2020/02/19</td></tr><tr><td>2</td><td>Accent Chairs</td><td>Living</td><td>30000</td><td>2021/02/15</td></tr><tr><td>3</td><td>Baker Racks</td><td>Kitchen</td><td>25000</td><td>2019/01/01</td></tr><tr><td>4</td><td>Sofa</td><td>Living</td><td>8000</td><td>2020/10/18</td></tr><tr><td>5</td><td>Nightstand</td><td>Bedroom</td><td>NULL</td><td>2021/07/23</td></tr></table> Based on the given table, write SQL queries for the following: I. To display total price of items purchased under living type. II. To display the itemname whose itemname ends with letter ‘s’. III. To display the maximum price and minimum price of items. IV. To increase the price of sofa by 10%. OR Write output for the following SQL queries. I. Select * from ITEMS where price is NULL; II. Select avg(price) from ITEMS where Type=”Living”; III. Select type, count(*) from ITEMS GROUP BY Type; IV. Select itemname,type , stockdate from ITEMS where type in (‘Kichen’,’Bedroom’);	No	itemname	Type	Price	stockdate	1	Chaises	Living	12000	2020/02/19	2	Accent Chairs	Living	30000	2021/02/15	3	Baker Racks	Kitchen	25000	2019/01/01	4	Sofa	Living	8000	2020/10/18	5	Nightstand	Bedroom	NULL	2021/07/23	4
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33	Aravind is a recruitment officer for various software company. He wants to store the details of candidates who applied through offline mode in a csv file named “registration.csv”. The file contains the following column: • C_name-Candidate Name • Qualification-qualification of the candidate • Role-Role for which the candidate applied(eg: software engineer, team lead, testing) • Experience-experience in years. E.g. [‘Libin’, ‘B Tech MCA’, ’team lead’, 10] As a python programmer, help him to efficiently manage the data by creating the following python functions: a. Get_data() - which accepts candidate’s data from the user and add the details to the csv file, ‘registration.csv’. b. Disp_list() function- display the details of candidate who applied for software engineer role having more than 5 years of experience. Also return total number of candidates applied for software engineer role.	4																														

34	Hemanth is managing the details of teachers in a database. He needs to extract some information from the table Teacher and placement. Help him, by writing appropriate SQL queries as per the data required. Table : Teacher <table><tr><th>T_ID</th><th>Name</th><th>Age</th><th>Department</th><th>Date_of_join</th><th>Salary</th><th>Gender</th></tr><tr><td>1</td><td>Arunan</td><td>34</td><td>Computer Sc</td><td>2019-01-10</td><td>12000</td><td>M</td></tr><tr><td>2</td><td>Saman</td><td>31</td><td>History</td><td>2017-03-24</td><td>20000</td><td>F</td></tr><tr><td>3</td><td>Randeep</td><td>32</td><td>Mathematics</td><td>2020-12-12</td><td>30000</td><td>M</td></tr><tr><td>4</td><td>Samira</td><td>35</td><td>History</td><td>2018-07-01</td><td>40000</td><td>F</td></tr><tr><td>5</td><td>Raman</td><td>42</td><td>Mathematics</td><td>2021-09-05</td><td>25000</td><td>M</td></tr><tr><td>6</td><td>Shyam</td><td>50</td><td>History</td><td>2019-06-27</td><td>30000</td><td>M</td></tr><tr><td>7</td><td>Shiv</td><td>44</td><td>Computer Sc</td><td>2019-02-25</td><td>21000</td><td>M</td></tr><tr><td>8</td><td>Shalakha</td><td>33</td><td>Mathematics</td><td>2018-07-31</td><td>20000</td><td>F</td></tr></table> Table : Placement <table><tr><th>P_ID</th><th>Department</th><th>Place</th></tr><tr><td>1</td><td>History</td><td>Ahmedabad</td></tr><tr><td>2</td><td>Mathematics</td><td>Jaipur</td></tr><tr><td>3</td><td>Computer Sc</td><td>Nagpur</td></tr></table> I. To display the details of teachers in mathematics department whose age below 35. II. To remove the details of teachers joined in the year 2019. III. To display the name of teachers in the descending order of age. IV. A. To display name, department and place of teachers. OR B. Display the department that have more than 2 teachers..	T_ID	Name	Age	Department	Date_of_join	Salary	Gender	1	Arunan	34	Computer Sc	2019-01-10	12000	M	2	Saman	31	History	2017-03-24	20000	F	3	Randeep	32	Mathematics	2020-12-12	30000	M	4	Samira	35	History	2018-07-01	40000	F	5	Raman	42	Mathematics	2021-09-05	25000	M	6	Shyam	50	History	2019-06-27	30000	M	7	Shiv	44	Computer Sc	2019-02-25	21000	M	8	Shalakha	33	Mathematics	2018-07-31	20000	F	P_ID	Department	Place	1	History	Ahmedabad	2	Mathematics	Jaipur	3	Computer Sc	Nagpur	4
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35	MySQL database named companydb has a table named emp_details in MySQL which contains the following attributes: • Empno(employee number)- integer • name(Name) – string • Designation-String • DOJ (Date of Joining) – Date • Salary – integer Note the following to establish connectivity between Python and MySQL: • Username – root • Password – admin • Host - localhost Write a Python program to increase the salary of employee to 10% for those employees whose designation is “clerk”.																																																																												
	Question 36 to 37: 5 mark																																																																												
36	Mrs.Seema, is a system administrator in engineering college. She needs to maintain the details of books in a file books.dat. The details of books include: Bookid, book_Name, author_name and yearofpublication. Write the Python functions to: I. Input the book_details and append it to a binary file. II. Update the book_name of bookid ‘CS1004’ to “Data structures and algorithm”.	5																																																																											

37

Thejas institute of science and technology has just set up a new Campus in Jaipur. The new campus includes the following departments, electronics department, civil department, mechanical department and admin block. The head office of this new campus is in Chennai.

You, as a network expert, need to suggest the best network-related solutions for them to resolve the issues/problems mentioned in points (I) to (V), keeping in mind the distances between various departments/blocks and other given parameters.



No of computers in each block/department is given as follows.

Electronics	80
Mechanical	15
Civil	20
Admin	120

Distance between department and block

Admin to Mechanical	40 m
Civil to Electronics	120 m
Electronics to Admin	70m
Mechanical to civil	55m
Admin to civil	65m
Electronics to Mechanical	85m

- I. Suggest and draw the cable layout to efficiently connect various departments and block within the Jaipur campus.
- II. Which fast and effective wireless transmission medium should preferably be used to connect the head office with the campus in Jaipur?
- III. Suggest the suitable location to place the server. Justify.
- IV. Suggest the placement of the following devices with justification:
 - a. Switch/Hub
 - b. Repeater
- V. What type of network (PAN, LAN, MAN, or WAN) will be setup if the Jaipur campus is connected with its head office.?

OR

What is the use of TELNET?

5
