

KENDRIYA VIDYALAYA SANGATHAN, LUCKNOW REGION
PRE-BOARD EXAMINATION-2025-26

SUB: COMPUTER SCIENCE (083)

CLASS: XII

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 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: The <i>while</i> loop is used along with a built-in function <i>range()</i> .	1
2	What will be the output of the following code? <pre>import statistics statistics.mode([12,18,10,18,18,11,20,22,18])</pre>	1
3	Consider the given expression: $6 * 3 + 4 ** 2 // 5 - 8$ Which of the following will be the correct output of the given expression? a. 12 b. 13 c. -98 d. 14	1
4	<i>if ((a>b) and (b>c) and (c>d))</i> , it means: a. b is the smallest number b. a is the smallest number c. d is the greatest number d. a is the greatest number	1
5	What will be the output of the following Python code? <pre>for j in range (2 , 5): print (j , end = " ")</pre>	1
6	Write the output of the following Python code: <pre>p=24 b=10 h=26 if(p*p+b*b==h*h): print("Right angled triangle") else: print("Scalene triangle")</pre>	1
7	When the given value is not suitable to perform an operation, Python will generate an error message which is known as: a. NameError b. ValueError c. TypeError d. IndexError	1
8	A string is assigned as: <code>st="Hold"</code> and if <code>st[0]="F"</code> then what will be the result? a. It will replace the character at first index	1

	b. The word 'Hold' will become 'Fold' c. It will remove 'H' and keep rest of the characters d. The assignment <code>st[0]='F'</code> will result in <code>TypeError</code>	
9	A field with data type <code>varchar(25)</code> contains 5 characters. What will happen to the rest spaces of the field? a. Will be truncated b. Will be trailing with 5 characters c. Will be added to other field whose value exceeds the defined length d. None of the above	1
10	You want to write a list of strings <code>data = ["apple", "banana", "cherry"]</code> to a text file <code>fruits.txt</code>, each string on a new line. Which code snippet correctly accomplishes this? a. with <code>open("fruits.txt", "w")</code> as <code>f</code>: <code>f.write(data)</code> b. with <code>open("fruits.txt", "w")</code> as <code>f</code>: <code>f.writelines(data)</code> c. with <code>open("fruits.txt", "w")</code> as <code>f</code>: for item in data: <code>f.write(item + "\n")</code> d. Both b and c	1
11	What will be the output of the following code? <pre>try: print(5/2) print(undefined_var) except ZeroDivisionError: print("Zero Division Error") except NameError: print("Name Error")</pre> a. 2.5 followed by Zero Division Error b. 2.5 followed by Name Error c. Only Zero Division Error d. Only Name Error	1
12	Which of the following Python code snippets will return the square of a given number correctly? a. <pre>def square(x): return x * x</pre> b. <pre>def square(x): print(x * x)</pre> c. <pre>def square x: return x * x</pre> d. <pre>def square(): return x * x</pre>	1
13	Which SQL command clause affects the degree of a table? a. ADD b. DROP c. Both a and b d. DELETE	1
14	Which clause returns unique values from a field(s) of the table? a. UNIQUE b. DISTINCT	1

	c. Both a and b d. GROUP BY	
15	Mr. Krishna is creating a field that contains alphanumeric values and fixed lengths. Which MySQL data type should he choose for the same? (A) VARCHAR (B) CHAR (C) LONG (D) NUMBER	1
16	Which of the following is not an aggregate function? a. MIN() b. SUM() c. PRODUCT() d. AVG()	1
17	<i>A company needs to transfer files between branches located in different cities over the Internet. Which network protocol should they use to ensure encrypted and safe transmission?</i> a. FTP b. HTTP c. VoIP d. SMTP	1
18	A company needs to extend its network signal to cover a larger area because the current signal is weak in some parts of the building. Which device should they use to strengthen and retransmit the network signal? a. Switch b. Router c. Repeater d. Bridge	1
19	A school's computer lab is set up so that every computer is connected to a central device, and all communication must pass through this device. Which network topology and device are being used? a. Bus topology with Hub b. Star topology with Switch c. Ring topology with Repeater d. Mesh topology with Router	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): Global variables are accessible in the whole program. Reason (R) : Local variables are accessible only within a function or block in which it is declared.	1
21	Assertion(A): SQL queries are performed in table created under a database. Reasoning(R): The database is a folder that is created in MYSQL workbench. Thereafter, the tables are created in a database where various queries can be performed using SQL commands.	1
Q No.	Section-B (7 x 2 = 14 Marks)	Marks
22	A. Differentiate between break and continue statements in Python with an example. OR B. Differentiate between keys() and values() functions.	2
23	Rewrite the following code in Python after removing all the syntax error(s). Underline each correction done in the code: Value=30 for VAL in range(0, Value) if val%4==0: print(VAL*4) Elseif val%5==0: print(VAL+3)	2

	<pre> else print(VAL+10) </pre>	
24	A. (Answer using Python built-in-Function/Method only) I. Write a python statement to remove preceding characters (*) from the string (tops="*****Zurassic Park*****"). II. Write a python statement to search for the first occurrence of the specified substring (i.e. "learning") and splits entire string (i.e. wd="We are learning new technologies") into a tuple (wd1) containing three elements. OR B. Predict the output of the following Python code: <pre> wrd="" str="Random Only Memory" str=' '+str p=len(str) for i in range(0,p): if(str[i]!=' '): wrd=wrd+str[i+1] print(wrd) print(wrd.count("R")) </pre>	2
25	A. Write a python function count_element() to accept a set of negative as well as positive numbers in a list. Display the sum of negative even numbers and positive odd numbers available in the list. (Both sum separately). OR B. Write a Python function to create a dictionary which accepts months and days with month as key and days as value. Display the months having 31 days.	2
26	Predict the output of the following Python function snippet: <pre> def Show(n): for k in range(1,n,2): if(k%7==0): print(k**2) else: print(k+7) Show(10) </pre>	2
27	A. Write suitable commands to do the following in MYSQL. I. To add a column (Grade char(2)) in table 'EXAM' II. To view the table structure OR B. Differentiate ORDER BY and GROUP BY query in SQL with a suitable example.	2
28	A. Define the following terms: I. Topology II. Protocol OR B. I. Expand the following terms: SMTP and SSL II. Write similarity and difference between switch and Hub.	2
Q No.	Section-C (3 x 3 = 9 Marks)	Marks
29	A. Write a Python function Longest() to read lines from a text file 'Story.txt' and display the longest line available in the file.	3

	OR B. The file 'Name.txt' stores the names of all students of class XII. Write a python function Count() to read the records from the file. Display the number of all the Uppercase and Lowercase letters available in the file.	
30	A list containing records of Books as: BList=[("Fireworks",45),("Meadows",12),("Space Adventure",43),("The Ghost",89)] Write the following user-defined function to perform operations on a stack named Books to: I. Push_element()- To push an Book item containing Book Name and Quantity having more than 20 into the stack. II Pop_element()- To pop the Book item from the stack and display them. Also, display "Stack Empty" when there are no elements in the stack. Output: ("Fireworks",45) ("Space Adventure",43) ("The Ghost",89) Stack Empty	3
31	A. What will be the output of the code when the values of 'a' are given 3 and 5 as two different arguments to Fun(NList,a) at two different instances? <pre>def Fun(MyList,n): if(n==0): return MyList[1] else: p=Fun(MyList,n-1) if(p<MyList[n-3]): return p else: return(MyList[n-2]) #main NList=[12,34,52,55,68] print(Fun(NList,a))</pre> OR B. Predict the output of the Python code given below : 3 <pre>s="CBSE Exam 2025" n = len(s) m="" for i in range (0, n) : if (s[i] >= '0' and s[i] <= '9'): m=m+str(int(s[i])%2) elif (s[i] >= 'a' and s[i] <= 'r') : m = m + s [i].upper() elif (s[i] >= 'r' and s[i] <= 'z') : m = m +s [i-1] elif (s[i].isupper()): m = m + s[i].lower() else: m = m + '@' print(m)</pre>	3
Q No.	Section-D (4 x 4 = 16 Marks)	Marks

32	Consider the table STUDENT as given below: <table><tr><th>StuID</th><th>Name</th><th>Gender</th><th>Age</th><th>AvgMark</th></tr><tr><td>CB01</td><td>Abhijeet</td><td>Boy</td><td>19</td><td>87</td></tr><tr><td>CB02</td><td>Monal</td><td>Girl</td><td>18</td><td>91</td></tr><tr><td>CB03</td><td>Divya</td><td>Girl</td><td>17</td><td>89</td></tr><tr><td>CB04</td><td>Sujata</td><td>Girl</td><td>18</td><td>78</td></tr><tr><td>CB05</td><td>Chirag</td><td>Boy</td><td>18</td><td>89</td></tr><tr><td>CB06</td><td>Mohan</td><td>Boy</td><td>19</td><td>85</td></tr><tr><td>CB07</td><td>Rohini</td><td>Girl</td><td>18</td><td>78</td></tr></table> A. Write the SQL queries FOR following tasks: I. To display StuID, Name and AvgMark for all student. II. To display Name, Age and AvgMark of the student having AvgMark more than 80. III. To display StuID, name, Gender and age of the students whose age is 18 or more. IV. To display all the records with Gender Boy. OR B. Predict the output of the following SQL Queries: I. SELECT Gender, count(*) FROM Student GROUP BY Gender; II. SELECT Name, Age FROM Student ORDER BY Age; III. SELECT Name, AvgMark FROM Student WHERE Age in(17,19); IV. SELECT Age, AVG(AvgMark) FROM Student GROUP BY Age;	StuID	Name	Gender	Age	AvgMark	CB01	Abhijeet	Boy	19	87	CB02	Monal	Girl	18	91	CB03	Divya	Girl	17	89	CB04	Sujata	Girl	18	78	CB05	Chirag	Boy	18	89	CB06	Mohan	Boy	19	85	CB07	Rohini	Girl	18	78	4								
StuID	Name	Gender	Age	AvgMark																																														
CB01	Abhijeet	Boy	19	87																																														
CB02	Monal	Girl	18	91																																														
CB03	Divya	Girl	17	89																																														
CB04	Sujata	Girl	18	78																																														
CB05	Chirag	Boy	18	89																																														
CB06	Mohan	Boy	19	85																																														
CB07	Rohini	Girl	18	78																																														
33	The file 'InterSchool.csv' keeps records of the number of medals won by each school in an Inter School Sports Meet. Help the computer operator of Venue School to define the following functions: I. Medals()- to read the records and store in csv file. II. Display()- to display the details of medals won by schools.	4																																																
34	Manoli is Exam In charge in a school and needs to access certain information from the Student and Marks tables for an upcoming Parents-Teacher Meeting. Help her to extract the required information by writing the appropriate SQL queries as per the tasks mentioned below: TABLE: STUDENT <table><tr><th>Roll No</th><th>Name</th><th>Class</th><th>DOB</th></tr><tr><td>1</td><td>Julia</td><td>12 A</td><td>'12-10-2008'</td></tr><tr><td>2</td><td>Robert</td><td>12 A</td><td>'01-07-2007'</td></tr><tr><td>3</td><td>Maxwell</td><td>12 B</td><td>'26-16-2008'</td></tr><tr><td>4</td><td>Obama</td><td>12 C</td><td>'11-04-2008'</td></tr><tr><td>5</td><td>Mikey</td><td>12 B</td><td>'06-05-2008'</td></tr></table> TABLE: MARKS <table><tr><th>Roll No</th><th>PHYSICS</th><th>MATHS</th><th>CHEMISTRY</th></tr><tr><td>1</td><td>85</td><td>89</td><td>87</td></tr><tr><td>2</td><td>54</td><td>56</td><td>57</td></tr><tr><td>3</td><td>84</td><td>75</td><td>76</td></tr><tr><td>4</td><td>85</td><td>82</td><td>73</td></tr><tr><td>5</td><td>95</td><td>75</td><td>85</td></tr></table>	Roll No	Name	Class	DOB	1	Julia	12 A	'12-10-2008'	2	Robert	12 A	'01-07-2007'	3	Maxwell	12 B	'26-16-2008'	4	Obama	12 C	'11-04-2008'	5	Mikey	12 B	'06-05-2008'	Roll No	PHYSICS	MATHS	CHEMISTRY	1	85	89	87	2	54	56	57	3	84	75	76	4	85	82	73	5	95	75	85	4
Roll No	Name	Class	DOB																																															
1	Julia	12 A	'12-10-2008'																																															
2	Robert	12 A	'01-07-2007'																																															
3	Maxwell	12 B	'26-16-2008'																																															
4	Obama	12 C	'11-04-2008'																																															
5	Mikey	12 B	'06-05-2008'																																															
Roll No	PHYSICS	MATHS	CHEMISTRY																																															
1	85	89	87																																															
2	54	56	57																																															
3	84	75	76																																															
4	85	82	73																																															
5	95	75	85																																															

	a. To display all the records of table ‘Student’ and matching records of ‘Marks’ based on key field ‘Roll No’. b. To display Name, Total marks for each student. c. To display the class wise highest score. d. To display the Name and class of Students with Highest score in Maths.																															
35	A Table is given below with details as: Database: ‘certification’ Table: ‘Professional’ <table><tr><th>Code</th><th>Course</th><th>Duration</th><th>Eligibility</th><th>Fee</th></tr><tr><td>C001</td><td>B.Tech.</td><td>4</td><td>12</td><td>850000</td></tr><tr><td>C002</td><td>BBA</td><td>3</td><td>12</td><td>550000</td></tr><tr><td>C003</td><td>M.Com</td><td>2</td><td>Graduate</td><td>70000</td></tr><tr><td>C004</td><td>MBA</td><td>2</td><td>Graduate</td><td>100000</td></tr><tr><td>C005</td><td>MCA</td><td>2</td><td>Graduate</td><td>80000</td></tr></table> Based on the above table, your teacher has given a code to perform some queries. In the code, you have left some places blank marked with (i), (ii), (iii) and (iv) to be filled with appropriate variable/argument/statement. The incomplete code is as: <pre>import mysql.connector as mycon mydb=mycon.connect(host='localhost', database='class12', user='root', passwd='mukund123') mycursor=mydb.cursor() mycursor.execute("Select * From(i).....") # to fetch all the records record=.....(ii)..... # fetch only first three records rc=.....(iii)..... print("Number of rows in the table: ",.....(iv).....) print("First three records of the table are:") for i in record: print(i)</pre> Write appropriate variable/argument/statement to be filled in the above blank spaces.	Code	Course	Duration	Eligibility	Fee	C001	B.Tech.	4	12	850000	C002	BBA	3	12	550000	C003	M.Com	2	Graduate	70000	C004	MBA	2	Graduate	100000	C005	MCA	2	Graduate	80000	4
Code	Course	Duration	Eligibility	Fee																												
C001	B.Tech.	4	12	850000																												
C002	BBA	3	12	550000																												
C003	M.Com	2	Graduate	70000																												
C004	MBA	2	Graduate	100000																												
C005	MCA	2	Graduate	80000																												
Q No.	Section-E (2 x 5 = 10 marks)	Marks																														
36	A binary file ‘Phone.dat’ contains Model and Old price of the various smartphones. The company has decided to enhance the phone prices by 20%. Write the following Python functions: a. Create_Phone() to create binary file with data b. Phone_update() to retrieve each record and display the Model, Old Price and New Price in the following format: <table><tr><td>Model</td><td>Old Price</td><td>New Price</td></tr><tr><td>-----</td><td>-----</td><td>-----</td></tr><tr><td>-----</td><td>-----</td><td>-----</td></tr></table>	Model	Old Price	New Price	-----	-----	-----	-----	-----	-----	2+3																					
Model	Old Price	New Price																														
-----	-----	-----																														
-----	-----	-----																														
37	ABC Infratech Pvt Ltd is an Construction Company. It is planning to setup its India campus at Varanasi with its head office at Bhopal. The Varanasi campus has 4 main buildings: ADMIN, ENGINEERING, BUSINESS and MEDIA.	5																														

Block to Block Distances (in Metres):

FROM	TO	DISTANCE
ADMIN	ENGINEERING	55 m
ADMIN	BUSINESS	90 m
ADMIN	MEDIA	50 m
ENGINEERING	BUSINESS	55 m
ENGINEERING	MEDIA	50 m
BUSINESS	MEDIA	45 m
BHOPAL HEAD OFFICE	VARANASI CAMPUS	700 km

Number of Commuters in each block is as follows:

BLOCK/OFFICE	NO. OF COMUTERS
ADMIN	40
ENGINEERING	75
BUSINESS	12
MEDIA	7
BHOPAL HEAD OFFICE	20

- I. Suggest and draw the cable layout to connect each block with Varanasi campus for connecting digital devices.
- II. Which network device will be used to connect computers in each block to form a local area network?
- III. Which block in Varanasi campus should be made Server? Justify your answer.
- IV. Is there any requirement of installation of repeater inside the Varanasi campus between the blocks? Justify your answer.
- V.
 - A. Which fast and very effective transmission medium should preferably be used to connect the head office at Bhopal with the campus in Varanasi?

OR

- B. Which type of network (PAN, LAN, MAN or WAN) will be formed while connecting Bhopal Head Office to Varanasi Campus?