

**Computer Science (083)**  
**Class – XII**  
**PreBoard**

Max. Marks: 70  
Time Allowed: 3 hours

**General Instructions:**

1. This question paper contains two parts A and B. Each part is compulsory.
2. Both Part A and Part B have choices.
3. Part-A has 2 sections:
  - a. Section – I is short answer questions, to be answered in one word or one line.
  - b. Section – II has two case studies questions. Each case study has 4 case-based sub-parts. An examinee is to attempt any 4 out of the 5 subparts.
4. Part - B is Descriptive Paper.
5. Part- B has three sections
  - a. Section-I is short answer questions of 2 marks each in which two question have internal options.
  - b. Section-II is long answer questions of 3 marks each in which two questions have internal options.
  - c. Section-III is very long answer questions of 5 marks each in which one question has internal option.
6. All programming questions are to be answered using Python Language only

Question No.	Part-A	Marks allocated
	<b>Section-I</b> <b>Select the most appropriate option out of the options given for each question.</b> <b>Attempt any 15 questions from question no 1 to 21.</b>	
1.	Find the valid identifier/s from the following: a) MySum b) true c) Last@sum d) 123Sum	1
2.	Given the lists L= [1, 3, 6, 82, 5, 7, 11, 92], write the output of print(L[2:5]) print(L[-2:-8:-2])	1
3.	_____statement is given for importing comma separated module into your program.	1
4.	Identify the valid identity operator/s in Python from the following.	1

	a)and b)is c) or d)in	
5.	Suppose a tuple T is declared, which of the following is incorrect? a) T=(10) b) T=(10,) c) T=[10,11] d) T=(10,11,12)	1
6.	Which of the following is/are valid declaration of a dictionary? a) D = {'StuName': 'Alan', 'StuAge': 30, 'StuCity': 'Vizag'} b) D = ['StuName': 'Alan', 'StuAge': 30, 'StuCity': 'Vizag'] c) D = ('StuName': 'Alan', 'StuAge': 30, 'StuCity': 'Vizag') d) D = {'StuName'; 'Alan', 'StuAge': 30, 'StuCity': 'Vizag'}	1
7.	A tuple is declared as T = (2,66,77,55,6,9,55,8) Write the output of print(T.index(55))	1
8.	Name the built-in mathematical function / method that is used to return the number of times the given element appears in the tuple	1
9.	Name the protocol that is used to transfer voice.	1
10.	Fraudsters build a fake website and send the link to victims via email. Victims click on the link believing it is legitimate and enter personal information. Identify the type of cybercrime	1
11.	In SQL, name the clause that is used to display the tuples in descending order of an attribute.	1
12.	In SQL, what is the use of Check constraint?	1
13.	Which of the following functions is not an aggregate function? (i) Round() (ii) Sum() (iii) Count () (iv) Avg ()	1
14.	Which of the following is/are a DML command? a) CREATE b) DROP c) UPDATE d) INSERT	1
15.	Name any two types of wired transmission media.	1
16.	Which of the following is/are valid declaration of a tuple? a) (1, 2, 3, [8, 9]) b) (1, 2, 3, ' Good' ) c) (11, ) d) (111)	1

17.	If the following code is executed, what will be the output of the following code? Title="Online Teaching 2020" print(Title[6:10], Title[-2:-4:-1])	1																																				
18.	In SQL, write the query to list all databases on the sql server.	1																																				
19.	Write the expanded form of WiMAX.	1																																				
20.	Which of the following in SQL is used to switch to a database named employee. a) Show employee b) Use employee c) Describe employee d) Create employee	1																																				
21.	Rearrange the following terms in decreasing order of data transfer rates. Gbps, Mbps, Tbps, Kbps, bps, Bps	1																																				
<b>Section-II</b>																																						
<b>Both the Case study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark</b>																																						
22.	A residential school is considering to maintain their inventory using SQL to store the data. As a database administrator, Anil has decided that: <ul style="list-style-type: none"> <li>Name of the database - myschool</li> <li>Name of the table - SCHOOL</li> <li>The attributes of SCHOOL are as follows: RollNo - numeric Name_student – character of size 20 Stream - character of size 20 Average – numeric</li> </ul> Table: SCHOOL <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>RollNo</th> <th>Name_student</th> <th>Stream</th> <th>Average</th> </tr> </thead> <tbody> <tr> <td>101</td> <td>Sita Sharma</td> <td>Science</td> <td>95</td> </tr> <tr> <td>102</td> <td>Gita Verma</td> <td>Commerce</td> <td>94</td> </tr> <tr> <td>103</td> <td>Jay Shah</td> <td>Commerce</td> <td>96</td> </tr> <tr> <td>104</td> <td>Smita Roy</td> <td>Science</td> <td>97</td> </tr> <tr> <td>105</td> <td>Suresh Menon</td> <td>Science</td> <td>89</td> </tr> <tr> <td>106</td> <td>Sneha Patel</td> <td>Commerce</td> <td>67</td> </tr> <tr> <td>107</td> <td>Sudhir Guha</td> <td>Humanities</td> <td>87</td> </tr> <tr> <td>108</td> <td>Hina Verma</td> <td>Humanities</td> <td>77</td> </tr> </tbody> </table>	RollNo	Name_student	Stream	Average	101	Sita Sharma	Science	95	102	Gita Verma	Commerce	94	103	Jay Shah	Commerce	96	104	Smita Roy	Science	97	105	Suresh Menon	Science	89	106	Sneha Patel	Commerce	67	107	Sudhir Guha	Humanities	87	108	Hina Verma	Humanities	77	
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(a)	Identify the attribute best suitable to be declared as a primary key.	1																																				
(b)	Write the degree and cardinality of the table SCHOOL	1																																				

(c)	Insert the following data into the attributes RollNo, Name_student and Average respectively in the given table SCHOOL. RollNo=110, Name_student="Ravi Shah" and Average=94	1
(d)	Anil wants to delete the database myschool. Which command will he use from the following: i. DELETE FROM myschool; ii. DROP TABLE myschool; iii. DROP DATABASE myschool; iv. DELETE store FROM myschool;	1
(e)	Anil now wants to create a new database named MyNewSchool. Write the command to create the database.	1
23.	Shantanu of class 12 is writing a program to create a CSV file "BoardDetails.csv" which will contain BoardRollNo, StuName, DateOfBirth for some entries. He has written the following code. As a programmer, help him to successfully execute the given task.	
	<pre> import _____ #Line 1 def addCsvFile(BoardRollNo,StuName, DateOfBirth):     f=open('_____', 'a', newline='') #Line 2     x = csv.writer(f)     x.writerow([BoardRollNo,StuName, DateOfBirth])     f.close()  def readCsvFile():     f=open('BoardDetails.csv', '___') #Line 3     y = csv._____ #Line 4     for row in y:         if (int(row[0])&gt;9107750):             print(row[0],row[1])     f.close() addCsvFile(9107752,"Sita Sharma","2003/10/21") addCsvFile(9107751,"Gita Patel","2004/11/01") addCsvFile(9107750,"Suresh Rao","2003/10/25") readCsvFile() #Line 5 </pre>	
(a)	Name the module he should import in Line 1.	1
(b)	Fill in the blank in Line 2 to open the file to write/add data into the file.	1
(c)	Fill in the blank in line 3 to read from the csv file.	1
(d)	Fill in the blank in Line 3 to read data from the csv file	1
(e)	Write the output he will obtain while executing Line 5.	1

<b>Part – B</b>		
<b>Section-I</b>		
24.	Evaluate the following expressions: (a) $5 + 5 ** 3 + 4 * 2 // 5 - 6$ (b) $10 < 5$ or not $70 > 12$ and $18 > 3$	2
25.	What is the difference between E-mail & chat? OR Differentiate between Spyware and Trojan Horses	2
26.	Expand the following terms: a. POP b. DHTML c. WLAN d. IPR	2
27.	Differentiate between List and tuple. OR Differentiate between append() and extend().	2
28.	Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code. <pre>def Tot (Number)     Sum1=0     for C in Range (1, Number+1):         sum1+=C     Return Sum1 print Tot[3]           #Function Calls Print Tot[6]</pre>	2
29.	What possible outputs(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the minimum value that can be assigned to BEGIN and maximum value that can be assigned to LAST. <pre>import random POINTS=[20,40,10,30,15]; POINTS=[30,50,20,40,45]; BEGIN=random.randint(0,3) LAST=random.randint(2,3) for C in range(BEGIN, LAST+1):     print (POINTS[C], "#", end="") (i)      20 #40 # (ii)     50 #20 #40 # (iii)    30 #50 #20 # (iv)     50 #20 #40 #45 #</pre>	2
30.	Differentiate between Primary and Candidate key.	2
31	Differentiate between fetchall() and fetchmany() methods with suitable examples for each.	2

32.	Differentiate between Order By command and Group By clause.	2
33.	<p>Find and write the output of the following Python code:</p> <pre>def makenew(mystr):     newstr = " "     count = 0     for i in mystr:         if count%2 ==0:             newstr = newstr+i.lower()         else:             if i.islower():                 newstr = newstr+i.upper()             else:                 newstr = newstr+i         count +=1     newstr = newstr+mystr[:3]     print ("The new string is :",newstr) makenew("St@akis2020")</pre>	2
<b>Section- II</b>		
34.	<p>Write a python method/function REVERSAR(Number) to find a new number Reverse from Number with each of the digits of Number in reversed order and display the content of Reverse on screen.</p> <p>Sample Input Data: Number = 3451 Output 1543</p>	3
35.	<p>Write a function in Python that counts the number of vowels present in a text file "File2.TXT".</p> <p style="text-align: center;">OR</p> <p>Write a function AMCount() in Python, which should read each character of a text file STORY.TXT, should count and display the occurrence of alphabets A and M (including small cases a and m too).</p> <p>Example: If the file content is as follows: Updated information As simplified by official websites. The AMCount() function should display the output as: A or a:4 M or m :2</p>	3

36. Write the outputs of the SQL queries (i) to (iii) based on the relations FACULTY and COURSES given below: 3

Table: FACULTY

F_ID	FNAME	LNAME	HIREDATE	SALARY
102	Manoj	Sharma	12-10-2012	12000
103	Jaya	Arora	15-12-2014	9000
104	Sanjeev	Chand	01-01-2016	14000
105	Rashmi	Malhotra	02-04-2000	20000
106	Nithin	Rao	12-12-2013	10000

Table: COURSES

C_ID	F_ID	CNAME	DEPARTMENT	FEES
C21	102	Boolean Algebra	ICT	14000
C22	106	Computer Network	ICT	20000
C23	104	Biology	Science	18000
C24	106	Python Programming	ICT	25000
C25	102	BioTech	Science	30000
C26	103	Accountancy	Commerce	15000

- (i) SELECT Department, count(\*) from Courses  
Group BY Department;
- (ii) SELECT max(HireDate), min(HireDate) from Faculty;
- (iii) SELECT Faculty.Fname, Faculty.Lname, Courses.F\_ID,  
Courses.Cname from Faculty, Courses where Faculty.F\_ID=Course.F\_ID  
and Courses.Department="ICT";

37. Write a function in Python PUSH(Arr), where Arr is a list of numbers. From this list if the number is odd then multiply with two, if the number is even numbers find its square and push into stack. Display the stack if it has at least one element, otherwise display appropriate error message. 3

OR

Write a function in Python POP(Arr), where Arr is a stack implemented by a list of numbers. The function returns the value deleted from the stack.

**Section-III**

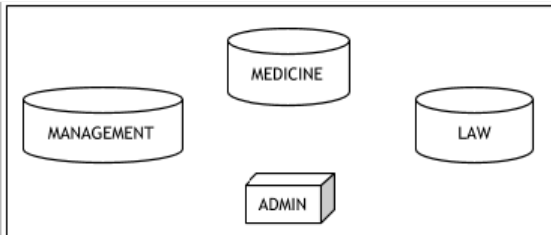
38. Jonathan and Jonathan Training Institute is planning to set up its centre in Amritsar with four specialised blocks for Medicine, Management, Law courses along with an Admission block in separate buildings. The physical distances between these blocks and the number of computers to be installed in these blocks are given below. You as a network expert have to answer the queries raised by their board of directors as given in (i) to (v).

Shortest distances between various locations in metres:

Admin Block to Management Block	60
Admin Block to Medicine Block	40
Admin Block to Law Block	60
Management Block to Medicine Block	50
Management Block to Law Block	110
Law Block to Medicine Block	40

Number of Computers installed at various locations are as follows:

Admin Block	150
Management Block	70
Medicine Block	20
Law Block	50



- (i) Suggest the most suitable location to install the server of this institute with a suitable reason.
- (ii) Suggest an ideal layout for connecting these blocks for a wired connectivity.
- (iii) Suggest the most suitable wired medium for efficiently connecting each computer installed in every building out of the following network cables:
  - Coaxial Cable
  - Ethernet Cable
  - Single Pair Telephone Cable.
- (iv) Is a Repeater needed in the network? Justify
- (v) The institute is planning to start a new branch in another country. Which type of network out of LAN, MAN, or WAN will be formed? Justify your answer.



39. Write SQL commands for the following queries (i) to (v) based on the relations FACULTY and COURSES given below: 5

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- (i) To show all information of ICT department
- (ii) To list Course ID and Faculty ID of Science department.
- (iii) To list the Fname of teachers in Descending order of Fname.
- (iv) To display Course ID, Course name and Fees for ICT department.
- (v) To display First name, Last name and Bonus where bonus for each faculty is 15% of salary.

40. A binary file "Student.dat" has structure [RollNo, StName, Stream, Percentage]. 5

- i. Write a user defined function CreateFile() to input data for a record and add to Student.dat .
- ii. Write a function CountRec(Stream) in Python which accepts the Stream name as parameter and count and return number of students who have chosen the stream stored in the binary file "Student.dat"