

KENDRIYA VIDYALAYA SANGATHAN, DELHI REGION
2nd PREBOARD EXAMINATION 2020-21
Class XII
Subject: Computer Science (083)

Maximum 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 5 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

Q.No	Part A	Marks
Section-I		
Select the most appropriate option out of the options given for each question. Attempt any 15 questions from question no 1 to 21.		
1	Which one of the following is a valid identifier: i. _name ii. Roll.no iii. while iv. No#1	1
2	Write any two immutable data type of python.	1
3	Consider a list L=[1,2,[3,4],5] What will be the output of print(L[2]).	1
4	Consider a dictionary: D={1: "JAN", 2: "FEB",3: "MAR",4: "APR"} Write python code to add one more key-value pair in the above dictionary with key 5 and value "MAY".	1
5	Name the built-in function / method that is used to return the length of the given object.	1
6	Identify the valid declaration of Data: Data=(1,"Flower","Plant",2,3,"Tree") (a)List (b) Tuple (c) Dictionary (d) String	1
7	Which one of the following is the valid relational operator in Python? i. and	1

	<ul style="list-style-type: none"> ii. += iii. != iv. = 	
8	<p>Consider a list List=[10,20,30,40], which of the following statement will result in an error:</p> <ul style="list-style-type: none"> i) L[0]=L[0]+2 ii) L=L+2 iii) L=L*2 iv) L[1]=50 	1
9	Which Switching Technique establishes a dedicated path between sender and receiver?	1
10	Which software program helps website to store the information about visitors like user name, password and other details?	1
11	<p>If the following codes are executed, what will be the answer:</p> <pre>>>> Str="StayHomeStaySafe" >>> print(Str[3:13:2])</pre>	1
12	In MYSQL this constraint does not allow NULL Values in a column.	1
13	<p>In RDBMS a row is also known as:</p> <ul style="list-style-type: none"> i. Attribute ii. Relation iii. Field iv. Tuple 	1
14	<p>Write the output of following code:</p> <pre>def func(): global X X=10 X=5 func() print(X)</pre>	1
15	In MYSQL, this clause is used to display the data of table in ascending or descending order.	1
16	In MYSQL, this command is used to add rows in a table.	1
17	With reference to the RDBMS, define Alternate Key.	1
18	<p>Roshan wants to display the details of those students whose PHONE_NO are not mentioned in table STU_DATA. He wrote the following query but not getting the output:</p> <pre>SELECT * FROM STU_DATA WHERE PHONE_NO = NULL;</pre> <p>Help Roshan to remove the error in above query.</p>	1
19	<p>Rearrange the following terms in increasing order of their scope of network:</p> <p>WAN,PAN,MAN,LAN</p>	1
20	Harassing, Demeaning, Defaming, embarrassing or intimidating someone using computer or electronic devices comes under which type of the cyber-crime?	1
21	<p>Which one of the following is a malicious program that can self-replicate:</p> <p>(i)Virus (ii) Worm (iii)Trojan Horse (iv) Spam</p>	1
Section-II		
	Both the Case study based questions are compulsory. Attempt any 4 sub parts from each question. Each question carries 1 mark.	

22	<p>A library uses database management system using SQL to store the details of its books. The database administrator has decided the following arrangements for this database:</p> <p>Name of database: Library Name of Table: BOOKS</p> <p>The attributes of the table Books are:</p> <p>BOOK_ID: numeric TITLE: varchar AUTHOR_NAME varchar QUANTITY numeric</p> <table border="1" data-bbox="204 562 1315 1005"> <thead> <tr> <th colspan="4">Table:BOOKS</th> </tr> <tr> <th>BOOK_ID</th> <th>TITLE</th> <th>AUTHOR_NAME</th> <th>QUANTITY</th> </tr> </thead> <tbody> <tr> <td>B1103</td> <td>Glimpses of World History</td> <td>Jawaharlal Nehru</td> <td>25</td> </tr> <tr> <td>B1104</td> <td>Hind Swaraj</td> <td>M K Gandhi</td> <td>22</td> </tr> <tr> <td>B1105</td> <td>Exam Warrior</td> <td>Narendra Modi</td> <td>22</td> </tr> <tr> <td>B1106</td> <td>Wings of Fire</td> <td>A P J Abdul Kalam</td> <td>29</td> </tr> <tr> <td>B1107</td> <td>Gitanjali</td> <td>Rabindranath Tagore</td> <td></td> </tr> <tr> <td>B1108</td> <td>Malgudi Days</td> <td>R K Narayan</td> <td>34</td> </tr> <tr> <td>B1109</td> <td>India of My Dreams</td> <td>M K Gandhi</td> <td>30</td> </tr> <tr> <td>B1110</td> <td>Gora</td> <td>Rabindranath Tagore</td> <td></td> </tr> </tbody> </table>	Table:BOOKS				BOOK_ID	TITLE	AUTHOR_NAME	QUANTITY	B1103	Glimpses of World History	Jawaharlal Nehru	25	B1104	Hind Swaraj	M K Gandhi	22	B1105	Exam Warrior	Narendra Modi	22	B1106	Wings of Fire	A P J Abdul Kalam	29	B1107	Gitanjali	Rabindranath Tagore		B1108	Malgudi Days	R K Narayan	34	B1109	India of My Dreams	M K Gandhi	30	B1110	Gora	Rabindranath Tagore		
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	a) Identify the attribute which best suitable to be declared the primary key of table BOOKS.	1																																								
	b) Write the degree and cardinality of the above table 'BOOKS'.	1																																								
	c) Which command out of the following will be used if Mr Amit wants to increase the quantity of BOOK_ID B1103: i. Alter table ii. Update iii. Modify iv. Change	1																																								
	d) Write MYSQL query to display unique AUTHOR_NAME from table BOOKS.	1																																								
	e) Write the output of the following query: SELECT AVG(QUANTITY) FROM BOOKS;	1																																								
23	<p>Puneeta is storing the data of her gift store in a csv file named gift.csv which will store Gift_code and Gift_name of items of her gift store. She has written the following code .As a programmer help her to successfully execute her program in python:</p> <pre> import _____ # Line 1 def writeFile(Gift_code,Gift_name): F=open("gift.csv",'____') #Line 2 FW=csv._____(F) #Line 3 FW.writerow([Gift_code,Gift_name) F.close() #CSV file for reading def readFile(): with _____('gift.csv','r') as newF #Line 4 </pre>																																									

	<pre> FR=csv.reader(newF) for row in FR: if row[0]==101: print(row) newF.close() writeFile(101,"Photoframe") writeFile(102,"Soft Toys") writeFile(103,"Flower Pot") readFile() #Line 5 </pre>	
	a) Name the module she should import in line 1.	1
	b) In which mode Puneeta should open the file to add data in it?	1
	c) Fill in the blanks in Line 3 to write data to csv file gift.csv.	1
	d) Fill in the blank in Line 4 to open the csv file from the disk.	1
	e) Write the output she would obtain after executing the code of line 5.	1
Part B		
Section 1		
24	<p>Evaluate the following expression:</p> <p>(a) $22\%4**2//4+8$</p> <p>(b) $((4>5) \text{ and } (3!=3) \text{ or } (4>=3))$</p>	2
25	<p>Write two points of difference between HTML and XML.</p> <p style="text-align: center;">OR</p> <p>Write any two activities which are punishable under cyber crime.</p>	2
26	<p>Write the full forms of the following terms:</p> <p>(i) IPR (ii)VOIP (iii)HTTP (iv) GPRS</p>	2
27	<p>What do you mean by the default parameters in python? Describe with example.</p> <p style="text-align: center;">OR</p> <p>Differentiate between arguments and parameters in python with suitable example.</p>	2
28	<p>Rewrite the following codes in python after removing all the syntax errors. Underline each correction done in the code:</p> <pre> def func(n) sum=0 for x in range(0: n): sum+=x Return sum </pre>	2
29	<p>What possible output(s) are expected to be displayed on the at the time execution of the program from the following code. Also specify the minimum and maximum value of variable X.</p>	2

```
import random
AR=["MON", "TUE", "WED", "THU", "FRI", "SAT"]
X=random.randint(0,4)
```

```
for I in range(1,X+1):
    print(AR[I]+"#",end="")
```

- (i) TUE#WED#THU#FRI#
- (ii) MON#TUE#WED#THU#
- (iii) TUE#WED#THU#FRI#SAT#
- (iv) TUE#WED#

30 Mr Mehta is running two queries in mysql to obtain total number of values in column SALARY of EMP table using COUNT function, but he is getting variation in output:

Table: EMP

ENO	SALARY
101	50000
102	60000
103	51000
104	
105	45000

- (I) SELECT COUNT(*) FROM EMP; OUTPUT-5
- (II) SELECT COUNT(SALARY) FROM EMP; OUTPUT-4

Explain the reason of variation in the output of above queries.

31 Explain the following functions:

- (i) fetchall()
- (ii) rowcount()

32 Differentiate between the where and having clause in MYSQL with suitable example.

33 Find and write the output of following python code:

```
def convert(S):
    newS=""
    L=len(S)
    for i in range(L):
        if S[i].isupper():
            newS=newS+S[i].lower()
        elif S[i].islower():
            newS=newS+S[i+1]
        elif S[i].isdigit():
            newS=newS+"*"
        else:
            newS=newS+"%"
    return newS
mainS="Go#Covid@2019"
print(convert(mainS))
```

34	<p>Write a function ChangeL(Arr) which accepts Arr, a list of numbers. Replace all the even element of Arr by the half of values of even elements and odd elements by the twice of values of odd elements. Display the elements of array.</p> <p>Sample input data of Arr: [5,8,7,10,12]</p> <p>Output should be: [10,4,14,5,6]</p>	3																																																																																								
35	<p>Write a function COUNT_is_am_are() that reads the content of the file story.txt and display the occurrence of is,am and are present in the file.</p> <p>If the contents of the story.txt are as follows: Children are studying while I am doing my work. What is Ravi doing? The output should be: Count of is/am/are in file are:3</p> <p style="text-align: center;">OR</p> <p>Write a function countlines5() that reads the content of file poem.txt and count those lines which are having 5 or less words.</p> <p>If the contents of the poem.txt are as follows:</p> <p>If only desire of it Makes you quite mad enough Never to tire of it, Makes you hold all other things tawdry and cheap for it</p> <p>The output should be: Number of lines having words 5 or less are:3</p>	3																																																																																								
36	<p>Write the outputs of the SQL queries (i) to (iii) based on the relations TEACHER and DEPT given below:</p> <table border="1" data-bbox="204 1227 1236 1599"> <thead> <tr> <th colspan="7">Table : TEACHER</th> </tr> <tr> <th>T_ID</th> <th>NAME</th> <th>AGE</th> <th>DEPT_ID</th> <th>DOJ</th> <th>SALARY</th> <th>GENDER</th> </tr> </thead> <tbody> <tr><td>101</td><td>AKSHYA</td><td>39</td><td>10</td><td>2018-08-01</td><td>55000</td><td>F</td></tr> <tr><td>102</td><td>NANDINI</td><td>38</td><td>20</td><td>2016-03-22</td><td>40000</td><td>F</td></tr> <tr><td>103</td><td>SAMAR</td><td>40</td><td>30</td><td>2017-12-12</td><td>30000</td><td>M</td></tr> <tr><td>104</td><td>AAROHI</td><td>38</td><td>20</td><td>2015-11-07</td><td>45000</td><td>F</td></tr> <tr><td>105</td><td>AKSHITA</td><td>42</td><td>30</td><td>2007-09-11</td><td>57000</td><td>F</td></tr> <tr><td>106</td><td>BHANU</td><td>45</td><td>20</td><td>2007-09-19</td><td>38000</td><td>M</td></tr> <tr><td>107</td><td>DIVANSH</td><td>41</td><td>10</td><td>2017-02-23</td><td>29000</td><td>M</td></tr> <tr><td>108</td><td>YASH</td><td>36</td><td>30</td><td>2018-07-26</td><td>44000</td><td>M</td></tr> </tbody> </table> <table border="1" data-bbox="204 1599 820 1827"> <thead> <tr> <th colspan="3">Table: DEPT</th> </tr> <tr> <th>DEPT_ID</th> <th>DNAME</th> <th>LOC</th> </tr> </thead> <tbody> <tr><td>10</td><td>COMPUTER</td><td>MUMBAI</td></tr> <tr><td>20</td><td>PHYSICS</td><td>Raipur</td></tr> <tr><td>30</td><td>MATHEMATICS</td><td>Delhi</td></tr> <tr><td></td><td></td><td></td></tr> </tbody> </table>	Table : TEACHER							T_ID	NAME	AGE	DEPT_ID	DOJ	SALARY	GENDER	101	AKSHYA	39	10	2018-08-01	55000	F	102	NANDINI	38	20	2016-03-22	40000	F	103	SAMAR	40	30	2017-12-12	30000	M	104	AAROHI	38	20	2015-11-07	45000	F	105	AKSHITA	42	30	2007-09-11	57000	F	106	BHANU	45	20	2007-09-19	38000	M	107	DIVANSH	41	10	2017-02-23	29000	M	108	YASH	36	30	2018-07-26	44000	M	Table: DEPT			DEPT_ID	DNAME	LOC	10	COMPUTER	MUMBAI	20	PHYSICS	Raipur	30	MATHEMATICS	Delhi				
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	(i) SELECT DEPT_ID, COUNT(*) FROM Teacher GROUP BY DEPT_ID;	1																																																																																								
	(ii) SELECT MAX(DOJ),MIN(DOJ) FROM TEACHER;	1																																																																																								
	(iii) SELECT NAME,DNAME FROM TEACHER T, DEPT D WHERE T.DEPT_ID=D.DEPT_ID AND SALARY>50000;	1																																																																																								
37	Write a function in python push(Arr), where Arr is a list of numbers. From this list push all those numbers which are multiples of 4 into a stack implemented by using a	3																																																																																								

list. Display the stack if it has at least one element, otherwise display appropriate error message.

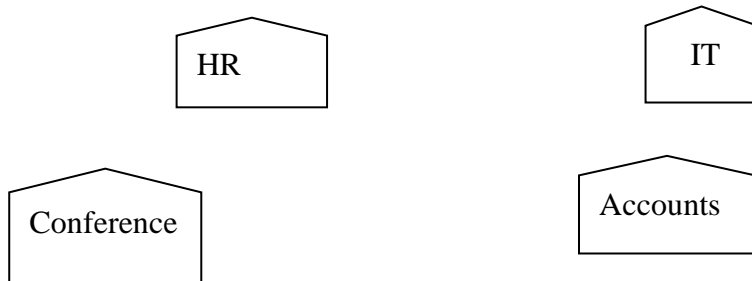
OR

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

38

SuperTech Marketing Ltd. Is established in Jabalpur. It has four branches in its campus named HR, Conference, Accounts and IT .SuperTech Marketing Ltd. wants to establish the networking between all the four branches. A layout of the same is as follows:

5



Approximate distances between these offices as per network survey team are as follows:

Place From	Place To	Distance
HR	IT	45 m
HR	Conference	95 m
HR	Accounts	72 m
IT	Conference	110 m
IT	Accounts	115 m
Accounts	Conference	60 m

In continuation of the above, the company experts have planned to install the following number of computers in each of their offices:

HR	40
IT	200
Accounts	30
Conference	45

- i. Suggest the most suitable place (i.e., Block/a-) to install the server of this organization with a suitable reason.
- ii. Suggest an ideal layout for connecting these blocks/Centers for a wired connectivity.
- iii. Which device will you suggest to be placed/installed in each of these offices to efficiently connect all the computers within these offices?
- iv. Suggest the placement of a Repeater in the network with justification.
- v. The organization is planning to connect its new office in Jabalpur itself, which is around 20 km away from the current location. Which type of network out of LAN, MAN, or WAN will be formed?

39

Write the outputs of the SQL queries (i) to (v) based on the relations TEACHER and DEPT given below:

5

Table : TEACHER						
T_ID	NAME	AGE	DEPT_ID	DOJ	SALARY	GENDER
101	AKSHYA	39	10	2018-08-01	55000	F
102	NANDINI	38	20	2016-03-22	40000	F
103	SAMAR	40	30	2017-12-12	30000	M
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106	BHANU	45	20	2007-09-19	38000	M
107	DIVANSH	41	10	2017-02-23	29000	M
108	YASH	36	30	2018-07-26	44000	M

Table: DEPT		
DEPT_ID	DNAME	LOC
10	COMPUTER	MUMBAI
20	PHYSICS	Raipur
30	MATHEMATICS	Delhi

	<ul style="list-style-type: none"> i. To display all information from table TEACHER whose name starts with "S". ii. To display T_ID, NAME of all Female Teachers who belong to DEPT_ID 10. iii. To display T_ID,NAME and SALARY from table TEACHER and Corresponding DNAME from table DEPT for those teachers who are getting salary more than 45000. iv. To display all information of TEACHER table in descending order of column AGE. v. To display number of teachers in each Department(DEPT_ID) from table TEACHER. 	
40	<p>A Binary file TOYS.DAT has some records of structure [TOY_ID,TYPE,PRICE]</p> <ul style="list-style-type: none"> (i) Write a user defined function ADD_DATA() to input data for a new record and add to file TOYS.DAT. (ii) Write a function DISPLAY(TYPE) in Python that would accept TYPE as parameter. The function will read contents of the file "TOYS.DAT" and calculate and display the sum of PRICE of all toys of that TYPE. <p style="text-align: center;">OR</p> <p>A Binary File BANK.DAT has some records of structure: [CUST_ID,NAME,ACCT_NO,BALANCE]</p> <p>Write a user defined function MAXDATA() that will read the content of file BANK.DAT. The function will display the total number of records in the file and also the details of that customer whose BALANCE is maximum.</p>	5

*****End*****