

KENDRIYA VIDYALAYA SANGATHAN
BENGALURU REGION
SECOND PRE- BOARD EXAMINATION 2020-21

Class :XII

Max. Marks: 70

Subject: Computer Science (083)

Time: 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 questions 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	Mark Allotted
	<p style="text-align: center;">Section-I</p> <p>Select the most appropriate option out of the options Given for each question. Attempt any 15 questions from question no 1 to 21.</p>	
1	<p>Find the valid identifier from the following</p> <p>12myschool Class_ My*school Myschool123</p> <p>Ans: b, d [½ marks each]</p>	1
2	<p>What will be the output of the following?</p> <pre>a=[1,2,3] b=[2,3] c=2 a.extend(b) print(a) a.append(c) print(a)</pre> <p>Ans: [1, 2, 3, 2, 3] [½ marks] [1, 2, 3, 2, 3, 2] [½ marks]</p>	1
3	<p>Rearrange the following terms in increasing order of data transfer rates.</p> <p>Gbps, Mbps, Tbps, Kbps, Bps</p> <p>Ans: Bps, Kbps, Mbps, Gbps, Tbps</p>	1
4	<p>Which of the following is a valid Exponentiation operator in Python?</p> <pre>// % ** /</pre> <p>Ans: c [1 mark]</p>	1
5	<p>Consider a tuple</p> <p>T=(1,2,3)</p>	1

	<p>Take an integer 'n' from user and add integer 'n' to the tuple. For eg if n=12. Then T=(1,2,3,12)</p> <p>Ans: t=(1,2,3) n=int(input("Enter a number")) t=t+(n, print(t)</p>	
6	<p>Write a statement in Python to declare a dictionary with keys as 1 2 and 3 and values as "Monday", "Tuesday", "Wednesday". After declaring ,write statements to print the key and value in the following format 1 Monday 2 Tuesday 3 Wednesday</p> <p>Ans: d={1:"monday",2:"tuesday",3:"Wednesday"} for i in d: print(i,"....",d[i])</p>	1
7	<p>A tuple is declared as T = (2,5,6,9,8) Write a statement to delete the tuple.</p> <p>Ans: T = (2,5,6,9,8) del T</p>	1
8	<p>Name the built-in mathematical function / method that is used to return the remainder of x/y Ans: math.fmod()</p>	1
9	<p>Name the protocol used in Dial Up connections. Ans: PPP</p>	1
10	<p>Copying information from a web site or printed</p>	1

	<p>material and pretending it is yours is an example of _____?</p> <p>Ans: plagiarism</p>	
11	<p>The _____ operator is a shorthand for multiple OR conditions in SQL.</p> <p>Ans: IN operator</p>	1
12	<p>Ans: The <u>UPDATE</u> statement is used to modify the existing records in a table in SQL.</p>	1
13	<p>Except for _____ aggregate function , all other aggregate functions ignore null values</p> <p>Ans:count(*)</p>	1
14	<p>Which of the following are DML commands? INSERT b) ALTER c) CREATE d) UPDATE</p> <p>Ans: INSERT and UPDATE</p>	1
15	<p>Name any two wireless transmission media?</p> <p>Ans: Radio wave, microwave, satellite communication, infrared transmission or any other [½ mark each for any 2 correct options]</p>	1
16	<p>Consider the following list n_list = ["Happy", [2, 0, 1, 5]] Write a python statement to print 2 from the nested list.</p> <p>Ans: n_list = ["Happy", [2, 0, 1, 5]] print(n_list[1][0])</p>	1
17	<p>If the following code is executed, what will be the output of the following code?</p> <p>String ='ASTRING' print(String[1:5:2])</p> <p>Ans: SR</p>	1
18	<p>Using_____ command in SQL we are able to see the structure of a table.</p>	1

	Ans Describe or Desc																
19	Write the expanded form of WiMax. Ans: Worldwide Interoperability for Microwave Access)																
20	The _____ constraint in SQL specifies that the column cannot have NULL or empty values in table. Ans: Not null	1															
21	_____ file mode opens a file for reading only in binary format. Ans: rb	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 Bookstore named Sapna is considering maintaining their inventory using SQL to store the data.</p> <p>As a database administer, Swati has decided that :</p> <ul style="list-style-type: none"> • Name of the database – Sapna • Name of the table – Collection • The attributes of Collection are as follows: Bookno - numeric BookName – character of size 20 Bcode - numeric Quantity – numeric Price-Numeric <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="5" style="text-align: center;">Table :Collection</th> </tr> <tr> <th>Bookno</th> <th>BookName</th> <th>Bcode</th> <th>Quantity</th> <th>Price</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1234</td> <td>You can heal your life</td> <td style="text-align: center;">12</td> <td style="text-align: center;">12</td> <td style="text-align: center;">189</td> </tr> </tbody> </table>	Table :Collection					Bookno	BookName	Bcode	Quantity	Price	1234	You can heal your life	12	12	189	
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Bookno	BookName	Bcode	Quantity	Price													
1234	You can heal your life	12	12	189													

	678	The power of now	78	33	678	
	345	Introductory python	123	33	576	
	234	Gone girl	14	5	345	
	1279	The Monk who sold his Ferrari	19	15	238	
Identify the attribute best suitable to be declared as a primary key? Ans:Bookno						1
Write the degree and cardinality of the table Collection. Ans: Degree-5 Cardinality-5						1
Write a query to increase the price of Bookno 1279 by 10 rupees Ans: Update collection set Price=price+10 where Bookno=1279;						1
Write a query to calculate the total books available in the Table Collection Ans: Select sum(quantity) from collection;						1
Swati wants to remove all the data from the Table Collection. Which query will she have to use for the same Ans: Delete from collection;						1
23	<p>Kumar is writing a program to create a CSV file "student.csv" which will contain rollno, name and age of some students. He has written the following code. As a programmer, help him to successfully execute the given task</p> <pre>import _____ # Line 1 f=open('student.csv','w',newline='')</pre>					

	<pre> p=csv._____(f) # Line 2 ch='y' while ch=='y': l=[] rollno=int(input('enter rollno')) name=input('enter name') age=int(input('enter age')) l.append(rollno) l.append(name) l.append(age) p._____(l) # Line 3 ch=input('want to continue y/n?') if ch=='y': continue else: break f._____() f=open('student.csv','r+') c=list(csv.reader(f)) for i in c: k=i[2] if int(k)>15: print(i) f.close() </pre>	
	<p>(a) Name the module he should import in Line 1 Ans: import csv</p>	1
	<p>) which function is used in Line 2 to create a writer object Ans p=csv.writer(f)</p>	1
	<p>The method which is to be used in line 3 to writes a row of data into the specified file Ans: p.writerow(l)</p>	1
	<p>) Fill in the blank in Line 4 to close the file. Ans: f.close()</p>	1
	<p>(e) What is the output if the list 'c' has the</p>	1

	<p>following data [['1', 'maya', '12'], ['2', 'sachin', '19']] Ans: ['2', 'sachin', '19']</p>			
	Part -B			
	Section-I			
24	Evaluate the following expressions:	2		
	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> (a) k= 6+2*3+4**2//5- 8 print(k) Ans: 7 [1 mark] </td> <td style="width: 50%; vertical-align: top;"> (b) p=9 or 4 > 1 print(p) Ans: 9 [1 mark] </td> </tr> </table>	(a) k= 6+2*3+4**2//5- 8 print(k) Ans: 7 [1 mark]	(b) p=9 or 4 > 1 print(p) Ans: 9 [1 mark]	
(a) k= 6+2*3+4**2//5- 8 print(k) Ans: 7 [1 mark]	(b) p=9 or 4 > 1 print(p) Ans: 9 [1 mark]			
25	<p>Trojans are malicious programs created to spy on other users, it gain illegal access to the system and extracts sensitive data. Worm is also a malicious program that self replicates itself and infect other computers.</p> <p style="text-align: center;">OR</p> <p>Create complex password / install antivirus / install firewall / always update your system / not share personal details online etc</p>	2		
26	<p>Expand the following: (a)HTML (b) GPRS (c) FTP (d) PAN Ans: Hypertext Markup Language[½ marks] General Packet Radio Service[½ marks] File Transfer Protocol[½ marks] Personal Area Network[½ marks]</p>	2		
27	<p>What will be the output of the following program def check(): global num num=1000 print(num) num=100</p>			


```
print(num)
check()
print(num)
Ans:
100 [ ½ mark]
1000 [ ½ mark]
1000 [ 1 mark]
```

OR

Consider the following program

```
a = 10
def function( ):
    a = a+20
    print( a )
function( )
print(a)
```

while running this program Sourabh encountered UnboundLocalError. Guess the reason of the error and how to resolve it. After resolving the error the output of the program should be

```
30
30
```

```
Ans:
a = 10
def function( ):
    global a [2 mark]
    a = a+20
    print( a )
function( )
print(a)
```

the program tried to assign the value to the global variable. We can resolve by using the keyword global.

28	<p>Rewrite the following code in Python after removing all syntax error(s). Underline each correction done in the code.</p> <pre> STRING=""WELCOME NOTE" for S in range[0,8]: print (STRING(S)) Ans: STRING="WELCOME" [½ marks] NOTE="" [½ mark] for S in range(0,8): [½ mark] print(STRING[S]) [½ mark] </pre>	2
29	<p>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 maximum values that can be assigned to each of the variables a, b and c.</p> <pre> from random import randint LST=[5,10,15,20,25,30,35,40,45,50,60,70] a = randint(3,8) b = randint(4,9) c = randint(6,11) print(a,"#",b,"#",c,"#") </pre> <p>Ans: 1 mark for each correct response 35#40#60# Maximum Values: a: 40,b: 45, c: 60</p>	2
30	<p>What is the role of Foreign key in SQL table?</p> <p>Ans: A FOREIGN KEY is a key used to link two tables together. A FOREIGN KEY is a field (or collection of fields) in one table that refers to the PRIMARY KEY in another table. The table containing the foreign key is</p>	2

	called the child table, and the table containing the candidate key is called the referenced or parent table. [2 mark for correct explanation]	
31	<p>What are the various parameters we can pass to connect () function while establishing connection with MySQL using python?</p> <p>Ans:</p> <p>host : it is the servername or ip address on which MySQL is running.</p> <p>user : username of MySQL server</p> <p>password : password of MySQL server</p> <p>database (optional) : database name to which you want to connect.</p>	2
32	<p>Identify the category of following SQL Commands (DDL/DML)</p> <p>select</p> <p>alter table</p> <p>insert into</p> <p>delete</p> <p>Ans:</p> <p>Select : DML</p> <p>alter table : DDL</p> <p>insert into : DML</p> <p>delete : DML</p> <p>[½ mark each]</p>	2
33	<p>Find and write the output of the following python code.</p> <pre>def fun(s): k=len(s) m="" for i in range(0,k): if(s[i].isupper()): m=m+s[i].lower() elif s[i].isalpha(): m=m+s[i].upper() else:</pre>	2

	<pre>m=m+'bb' print(m) fun('Board@2021') Ans: bOARDbbbbbbbbbb [2 mark]</pre>	
	Section-II	
34	<p>Write a function CountFrequency() in Python which accepts a list as argument and the function will calculate and display the frequency of each item in a list .</p> <p>For eg if 'a' is the list passed as argument=[1,2,2,3,4,4,5] then the output must display as shown below</p> <pre>1#1 2#2 3#1 4#2 5#1</pre> <p>Ans: [Any relevant code student can write] 1 mark for function definition with argument Loop : 1mark Logic : 1mark</p> <pre>def CountFrequency(my_list): # Creating an empty dictionary freq = {} for item in my_list: if (item in freq): freq[item] += 1 else: freq[item] = 1 for key, value in freq.items(): print (key, value,sep='#') my_list=[1,2,2,3,4,4,5] CountFrequency(my_list)</pre>	3

35	<p>Write a function that counts and display the number of 5 letter words in a text file "Sample.txt"</p> <p>Ans: [Any correct logic can be awarded full mark]</p> <pre>def count_words(): ½ marks c = 0 ½ marks f = open("Sample.txt") ½ marks line = f.read() ½ marks word = line.split() ½ marks for w in word: if len(w) == 5: ½ mark c += 1 print(c) count_words()</pre> <p style="text-align: center;">OR</p> <p>Write a function to display those lines which start with the letter "S" from the text file "MyNotes.txt"</p> <p>Ans:[any correct logic full mark]</p> <pre>def count_lines(): ½ mrks f = open("MyNotes.txt") ½ marks line = f.readlines() ½ amrks for w in line: ½ marks if w[0] == 'S': # w.startswith('S'): ½ marks print(w) ½ marks count_lines()</pre>	3																				
36	<p>Write the outputs of the SQL queries (i) to (iii) based on the relations Stationery and Consumer given below:</p> <p style="text-align: center;">Table Name : Stationery</p> <table border="1" data-bbox="505 1608 1300 1864"> <thead> <tr> <th>S_ID</th> <th>StationeryName</th> <th>Company</th> <th>Price</th> <th>StockDate</th> </tr> </thead> <tbody> <tr> <td>DP01</td> <td>Dot Pen</td> <td>ABC</td> <td>10</td> <td>2020-03-31</td> </tr> <tr> <td>PL02</td> <td>Pencil</td> <td>XYZ</td> <td>6</td> <td>2010-01-01</td> </tr> <tr> <td>ER05</td> <td>Eraser</td> <td>XYZ</td> <td>7</td> <td>2010-02-14</td> </tr> </tbody> </table>	S_ID	StationeryName	Company	Price	StockDate	DP01	Dot Pen	ABC	10	2020-03-31	PL02	Pencil	XYZ	6	2010-01-01	ER05	Eraser	XYZ	7	2010-02-14	3
S_ID	StationeryName	Company	Price	StockDate																		
DP01	Dot Pen	ABC	10	2020-03-31																		
PL02	Pencil	XYZ	6	2010-01-01																		
ER05	Eraser	XYZ	7	2010-02-14																		

PL01	Pencil	CAM	5	2009-01-09
GP02	Gel Pen	ABC	15	2009-03-19

Table Name: Consumer			
C_ID	ConsumerName	Address	P_ID
01	Good Learner	Delhi	PL01
06	Write Well	Mumbai	GP02
12	Topper	Delhi	DP01
15	Write & Draw	Delhi	PL02
16	Motivation	Bengaluru	PL04

select sum(Price), StationaryName from Stationary
group by StationaryName having
StationaryName="Pencil";

Ans: [1 mark]

sum(Price)	StationaryName
11	Pencil

select Company,Price ,Address from
Stationary,Consumer where
Stationary.S_ID=Consumer.P_ID;

Ans: [1mark]

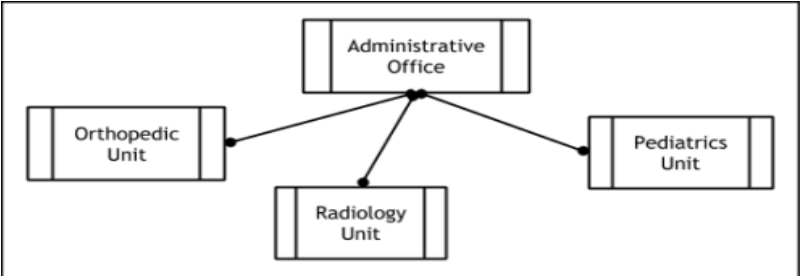
Company	Price	Address
ABC	10	Delhi
XYZ	6	Delhi
CAM	5	Delhi

Select max(StockDate), min(StockDate) from
Stationary;

Ans: [1 mark]

max(StockDate)	min(StockDate)
2020-03-31	2009-01-09

37	<p>Write a function in Python PUSH(Arr), where Arr is a list of numbers. From this list push all even numbers into a stack implemented by using a list. Display the stack if it has at least one element, otherwise display appropriate error message. Ans: [Any correct logic full marks]</p> <pre>def PUSH(Arr):[½ amrk] s=[] [½ mark] for i in Arr: [½ mark] if i%2==0: [½ mark] s.append(i) [½ mark] if s==[]: [½ mark] print("No element in stack") else: print(s) Arr=[1,2,3,4,5] PUSH(Arr)</pre> <p style="text-align: center;">OR</p> <p>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. Ans: [Any correct logic full marks]</p> <pre>def popStack(st) : ½ mark # If stack is empty if len(st)==0: ½ marks print("Underflow") else: L = len(st) val=st[L-1] [1mark] print(val) st.pop(L-1) 1 mark</pre>	3
38	<p>Suggest the most suitable location to install the main server of this institution to get efficient connectivity. Ans: Administrative Office</p>	5

	<p>Suggest the best cable layout for effective network connectivity of the building having server with all the other buildings.</p> <p>Ans:</p>  <p>Suggest the devices to be installed in each of these buildings for connecting computers installed within the building out of the following :</p> <p>Gateway Modem Switch</p> <p>Ans: Switch</p> <p>Suggest the topology of the network for efficiently connecting each computer installed in each of the buildings out of the following :</p> <p>Topologies : Bus Topology, Star Topology</p> <p>Ans: Topology : Star Topology</p> <p>Suggest the best network cable for efficiently connecting each computer installed in each of the buildings out of the following :</p> <p>Network Cable : Single Pair Telephone Cable, Coaxial Cable, Ethernet Cable.</p> <p>Ans: Network Cable: Ethernet Cable / Coaxial Cable</p>	
39	<p>To display details of all transactions of TYPE Deposit from Table TRANSACT.</p> <p>Ans. SELECT * FROM TRANSACT WHERE TYPE = 'Deposit ' ;</p> <p>To display the ANO and AMOUNT of all Deposits and</p>	5

Withdrawals done in the month of October 2017 from table TRANSACT.

Ans. SELECT ANO,AMOUNT FROM TRANSACT WHERE DOT >= '2017-10-01' AND DOT <= ' 2017-10-31' ;

OR

SELECT ANO,AMOUNT FROM TRANSACT WHERE DOT BETWEEN '2017-10-01' AND '2017-10-31' ;

To display the last date of transaction (DOT) from the table TRANSACT for the Accounts having ANO as 103.

Ans. SELECT MAX(DOT) FROM TRANSACT WHERE ANO = 103;

To display all ANO, ANAME and DOT of those persons from tables ACCOUNT and TRANSACT who have done transactions less than or equal to 3000.

Ans. SELECT ACCOUNT.ANO,ANAME,DOT FROM ACCOUNT, TRANSACT WHERE ACCOUNT.ANO=TRANSACT.ANO AND AMOUNT <=3000;

OR

SELECT A.ANO,ANAME,DOT FROM ACCOUNT A,TRANSACT T WHERE A.ANO=T.ANO AND AMOUNT <=3000;

To display ANO and ANAME FROM ACCOUNT table whose Address is not from Chennai or Bangalore.

Ans: select ANO, ANAME from ACCOUNT where address not in ('Chennai', 'Bangalore');

40	<p>Write a function Display(Code) in Python which will accept the code as parameter and search and display the details of the corresponding code on screen from Items.dat.</p> <p>Ans:</p> <pre>def Display(code): f = open("Items.dat", "rb") Item = [] found = False while True: try: Item = p.load(f) except: break for e in Item: if e[0] == code : print(e[0],"\t",e[1],"\t",e[2]) found = True break if found == False: print("No such record")</pre> <p style="text-align: center;">OR</p> <p>Write a python program to create binary file "dvd.dat".The details of dvd.dat includes, Dvd_id,Dvd_name,qty,price. Display the details of those dvds whose price is more than 25.</p> <p>Ans:</p> <pre>import pickle f=open("pl.dat","ab") ch="Y" while ch=="Y": l=[] pi=int(input("enter dvd id ")) pnm=input("enter dvd name ") sp=int(input("enter qty ")) p=int(input("enter price(in rupees) "))</pre>	5
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	<pre>l.append(pi) l.append(pnm) l.append(sp) l.append(p) pickle.dump(l,f) ch=input("do you want to enter more rec(Y/N): ").upper() if ch=="Y": continue else: break f.close() f=open("pl.dat","rb+") try: while True: l=pickle.load(f) if l[3]>25: print(l) except EOFError: pass f.close()</pre>	
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