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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 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	Mark Allotted
	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	Find the valid identifier from the following a. 12myschool b. Class_ c. My*school d. Myschool123	1

2	What will be the output of the following? a=[1,2,3] b=[2,3] c=2 a.extend(b) print(a) a.append(c) print(a)	1
3	Rearrange the following terms in increasing order of data transfer rates. Gbps, Mbps, Tbps, Kbps, Bps	1
4	Which of the following is a valid Exponentiation operator in Python? a. // b. % c. ** d. /	1
5	Consider a tuple T=(1,2,3) Take an integer 'n' from user and add integer 'n' to the tuple. For eg if n=12. Then after execution of statement T=(1,2,3,12)	1
6	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	1
7	A tuple is declared as T = (2,5,6,9,8) Write a statement to delete the tuple.	1
8	Name the built-in mathematical function / method that is used to return the remainder of x/y	1
9	Name the protocol often used for Dial Up connections?	1
10	Copying information from a web site or printed material and pretending it is yours is an example of _____?	1

11	The _____ operator is a shorthand for multiple OR conditions in SQL.	1
12	The _____ statement is used to modify the existing records in a table in SQL.	1
13	Except for _____ aggregate function , all other aggregate functions ignore null values	1
14	Which of the following are DML commands? a) INSERT b) ALTER c) CREATE d) UPDATE	1
15	Name any two wireless transmission media?	1
16	Consider the following list n_list = ["Happy", [2, 0, 1, 5]] Write a python statement to print 2 from the nested list.	1
17	If the following code is executed, what will be the output of the following code? String ='ASTRING' print(String[1:5:2])	1
18	Using_____ command in SQL we are able to see the structure of a table.	1
19	Write the expanded form of WiMax.	1
20	The _____constraint in SQL specifies that the column cannot have NULL or empty values in table.	1
21	_____ file mode opens a file for reading only in binary format.	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	A Bookstore named Sapna is considering maintaining their inventory using SQL to store the data. As a database administer, Swati has decided that : • 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 :Collection

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

a) Identify the attribute best suitable to be declared as a primary key? — 1

b) Write the degree and cardinality of the table Collection. — 1

c) Write a query to find out total price spent forall books in collection table. — 1

d) Write a query to calculate the total books available in the Table Collection — 1

e) Swati wants to remove all the data from the Table Collection. Which query she has to use for the same — 1

23 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

```
import _________________          # Line 1
f=open('student.csv','w',newline="")
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()	

	a) Name the module he should import in Line 1	1
	b) Which function is used in Line 2 to create a writer object	1
	c) The method which is to be used in line 3 to writes a row of data into the specified file	1
	d) Fill in the blank in Line 4 to close the file.	1
	e) What is the output if the list 'c' has the following data [['1', 'maya', '12'], ['2', 'sachin', '19']]	1
	Part -B	
	Section-I	
24	Evaluate the following expressions: (a) k= 6+2*3+4**2//5-8 print(k) (b) p=9 or 4 > 1 print(p)	2
25	Differentiate between Trojan & worms OR Write at least two precautions people should take to stay safe while online.	2
26	Expand the following: (a) HTML (b) GPRS (c) FTP (d) PAN	2

27	What will be the output of the following program
	def check():
	global num
	num=1000
	print(num)
	num=100
	print(num)
	check()
	print(num)
	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
		2

28	Rewrite the following code in Python after removing all syntax error(s).Underline each correction done in the code. STRING=""WELCOME NOTE = ‘ for S in range[0,8]: print (STRING(S))	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 maximum values that can be assigned to each of the variables a, b and c. from random import randint LST=[5,10,15,20,25,30,35,40,45,50,60,70]	2

	a = randint(3,8) b = randint(4,9) c = randint(6,11) print(LST[a], “#”,LST[b], “#”,LST[c], “#”) (i) 20#25#25# (ii) 30#40#70# (iii) 15#60#70# (iv) 35#40#60#	
30	What is the role of Foreign key in SQL table?	2
31	What are the various parameters we can pass to connect ( ) function while establishing connection with MySQL using python?	2
32	Identify the category of following SQL Commands (DDL/DML) 1. select 2. alter table 3. insert into 4. delete	2

33	Find and write the output of the following python code.
	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:
	m=m+'bb'
	print(m)
	fun('Board@2021')
		2

	Section-II	3
34	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 . 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	

1#1
2#2
3#1
4#2
5#1

35 Write a function that counts and display the number of 5 letter words in a text file “Sample.txt” 3

OR

Write a function to display those lines which start with the letter “S” from the text file “MyNotes.txt

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

Table Name : Stationary

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

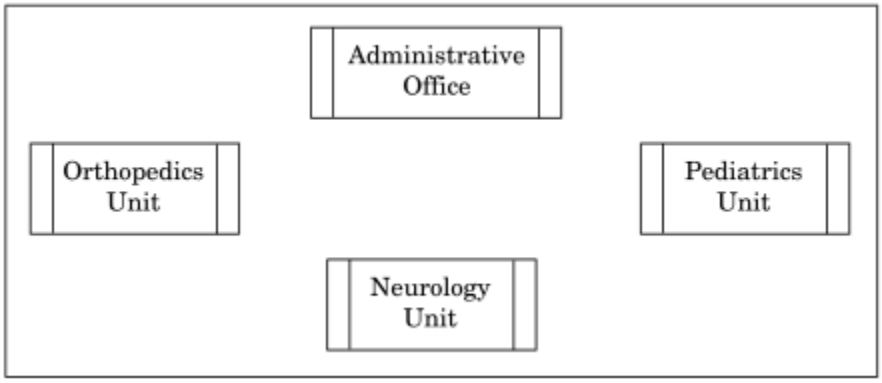
C_ID	ConsumerName	Address	P_ID
01	Good Learner	Delhi	PL01
06	Write Well	Mumbai	GP02
12	Topper	Delhi	DP01
15	Write & Draw	Delhi	PL02
16	Motivation	Bengaluru	PL04

i. select sum(Price), StationaryName from Stationary group by StationaryName having StationaryName=”Pencil”;

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

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

<table>
<tr>
<td>37</td>
<td>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.
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.</td>
<td>3</td>
</tr>
<tr>
<td>38</td>
<td>Ayurveda Training Educational Institute is setting up its centre in Hyderabad with four specialised departments for Orthopaedics, Neurology and Paediatrics along with an administrative office in separate buildings. The physical distances between these department buildings and the number of computers to be installed in these departments and administrative office are given as follows. You, as a network expert, have to answer the queries as raised by them in (1) to (5).
Shortest distances between various locations in metres :
<table>
<tr><td>Administrative Office to Orthopaedics Unit</td><td>55</td></tr>
<tr><td>Neurology Unit to Administrative Office</td><td>30</td></tr>
<tr><td>Orthopaedics Unit to Neurology Unit</td><td>70</td></tr>
<tr><td>Paediatrics Unit to Neurology Unit</td><td>50</td></tr>
<tr><td>Paediatrics Unit to Administrative Office</td><td>40</td></tr>
<tr><td>Paediatrics Unit to Orthopaedics Unit</td><td>110</td></tr>
</table>
Number of Computers installed at various locations are as follows :
<table>
<tr><td>Paediatrics Unit</td><td>40</td></tr>
<tr><td>Administrative Office</td><td>140</td></tr>
<tr><td>Neurology</td><td>50</td></tr>
<tr><td>Orthopaedics Unit</td><td>80</td></tr>
</table>
</td>
<td>5</td>
</tr>
</table>



1. Suggest the most suitable location to install the main server of this institution to get efficient connectivity.
2. Suggest the best cable layout for effective network connectivity of the building having server with all the other buildings.
3. Suggest the devices to be installed in each of these buildings for connecting computers installed within the building out of the following :
   Gateway
   Modem
   Switch
4. Suggest the topology of the network for efficiently connecting each computer installed in each of the buildings out of the following :
   Topologies : Bus Topology, Star Topology
5. Suggest the best network cable for efficiently connecting each computer installed in each of the buildings out of the following :
   Network Cable : Single Pair Telephone Cable, Coaxial Cable, Ethernet Cable.

39 Write SQL queries for (1) to (5) based on the Relations ACCOUNT and TRANSACT — 5

TABLE : ACCOUNT

ANO	ANAME	ADDRESS
101	Nirja Singh	Bangalore
102	Rohan Gupta	Chennai

103	Ali Reza	Hyderabad	
104	Rishabh jain	Chennai	
105	Simran Kaur	Chandigarh	

TABLE : TRANSACT

TRNO	ANO	AMOUNT	TYPE	DOT
T001	101	2500	Withdraw	2017-12-21
T002	103	3000	Deposit	2017-06-01
T003	102	2000	Withdraw	2017-05-12
T004	103	1000	Deposit	2017-10-22
T005	101	12000	Deposit	2017-11-06

1. To display details of all transactions of TYPE Deposit from Table TRANSACT.
2. To display the ANO and AMOUNT of all Deposits and Withdrawals done in the month of October 2017 from table TRANSACT.
3. To display the last date of transaction (DOT) from the table TRANSACT for the Accounts having ANO as 103.
4. 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.
5. To display ANO and ANAME FROM ACCOUNT table whose Address is not from Chennai or Bangalore.

40	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. OR 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.	5