Roll No. ☐☐☐☐☐☐☐

Candidates must write the Code on the title page of the answer-book.

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.

COMPUTER SCIENCE

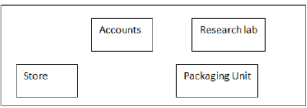Time allowed: 3 hours   Maximum Marks: 70

Qn No.	Part A	Marks Allocated
	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 of the following is a logical operator? i. OR ii. AND iii. False iv. not	1
2	Write the type of tokens from the following. i. elif ii. :	1
3	Name the python library module which is to be imported to invoke the following functions. i. writerow()	1

	ii. dump()	

4	Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.
	To=50
	   for K IN range(0, To)
	     if k%4 = 0:
	        Z = K* 4
	      else
	        Z == K+3
	Print("Z = ", Z)
		1

5	Find the output of the following code:
	Tup1=(30,50,22,18,17)
	s=0
	tot=0
	for j in range(s,5):
	   tot=tot+Tup1[j]
	   print(j,"#",t)
	print(tot)
		1

6	Name the operations performed over a Stack.	1
7	Identify the odd one out in Python from the following: i) int ii) while iii) float iv) str	1
8	Write the expansion of Voip	1
9	What do you mean by DISTINCT clause in SQL?	1
10	Write a statement in Python to create a dictionary STORE with "RICE", "WHEAT", "SUGAR" as keys and 60, 40 and 80 as values.	1
11	What do you mean by channel?	1
12	Given the tuple SalaryList = (5025,4985,3990,4150,3735,6390,1750) write the output of the following code: print(SalaryList[4:]) print(MarkList[2:7:3])	1
13	What do you mean by Alternate Key?	1
14	Find the valid identifier(s) from the following a) price2 b) while c) Else d) 5Max	1
15	What will be the output of the following code? X= (25,32,40,35,40,50,35,15,20) print (max (X))	1
16	What do you mean by ORDER BY clause in SQL?	1
17	List any two DDL commands.	1
18	Define: IPR	1
19	What are the Wildcard characters used in SQL with LIKE clause?	1
20	Write any two libraries that can be imported to Python.	1
21	How will you prevent your network from security threats?	1

Section-II
Both the Case study based questions are compulsory.

22	Consider the following table STATIONARY:	4

ItemNo	Item	Dcode	Qty	UnitPrice	StockDate
5005	Ball Pen 0.5	102	100	16	2018-03-10
5003	Ball Pen 0.25	102	150	20	2017-05-17
5002	Gel Pen Premium	101	125	14	2018-04-20
5006	Gel Pen Classic	101	200	22	2018-10-08
5001	Eraser Small	102	210	5	2018-03-11
5004	Eraser Big	102	60	10	2017-11-18
5009	Sharpener Classic	NULL	160	8	2017-06-12

Identify the Primary keys from the above table

What is the degree and cardinality of the above table?

Insert a record in the above table for ITEMNO : 5021, ITEM : PAPER CLIP and Stock Date : 05/Sep/2019.

Add a new column Status with character data type of size 30.

Find output:
SELECT DCODE, SUM(QTY) FROM STATIONARY GROUP BY DCODE
HAVING SUM(QTY) > 500;

| 23 | ```
import _____ #Line1
F1=open("emp.csv",_____newline="\n")   #Line2 open the file for writing records
    dt = writer(f)
    while True:
        ecode= int(input("Enter emp code"))
        ename = input("Enter emp name:")
        sal = int(input("Enter salary:"))
        dt._____([ecode, ename, sal])   #Line3 to write a record
        print("Record has been added.")
        print("Want to add more record?Type YES!!!")
        ch = input()
        ch = ch.upper()
        if ch=="YES":
            print("************************")
        else:
            break
F1._____   #Line4 to close the file
record = list()
with open('emp.csv', _____) as f:     #Line5 to open the file in read mode
    data = csv.reader(f)
    for row in data:
        record.append(row)
``` | 4 |

Fill in the blank in Line1

Fill in the blank in Line2

Fill in the blank in Line3

	Fill in the blank in Line4	
	Fill in the blank in Line5	
	Part – B	
	Section – I	

24	What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also specify the minimum values that can be assigned to each of the variables Max and Min.
	import random
	D = [28,32,45,16,70,92,85]
	Lower=random.randint(2,4)
	Upper=random.randint(Lower, 5)
	for I in range (Lower, Upper):
	    print(D[I],"&")
	  (i) 32&45&16&70&92 (ii) 32&45&16&70&
	  (iii) 45&16&70&92& (iv) 45&16&70&
		2

25	Explain about referential integrity in dbms,	2
26	Expand the following terms: a. ICMP b. WLL c. IRC d. GSM	2

27	Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.
	30=To
	For K in range(0,To)
	  IF k%4==0
	    print (K*4)
	  else:
	    print (K+3)
		2

28	Explain about Trojan horse	2
29	What do you mean by connector and cursor object in Python SQL connectivity?	2

30	Find and write the output of the following Python code:
	def fun1(s):
	    k=len(s)
	    m=" "
	    for i in range(0,k):
	      if(s[i].islower()):
	        m=m + s[i].upper()
	      elif s[i].isdigit():
	        m=m + "%"
	      else:
	        m=m + 'space'
	    print(m)
	fun1('Indian School Dubai 2020 Expo')
		2

31	Explain about function definition in Python.	2
32	Evaluate the following expressions: a) 48 // 10 * (35 + 5) - 25	2

	b) 15 > -15 or 25 < 50 and not 16 > 25	
33	Explain about default constraint in mysql with example.	2
	Section – II	
34	Write outputs for SQL queries (i) to (iii), which are based on the following tables, CUSTOMERS and PURCHASES: CUSTOMERS	3

CUSTOMERS

CNO	CNAME	CITY
C1	SANYAM	DELHI
C2	SHRUTI	DELHI
C3	MAHER	MUMBAI
C4	SAKSHI	CHENNAI
C5	RITESH	INDORE
C6	RAHUL	DELHI
C7	AMEER	CHENNAI
C8	MINAKSHI	BANGALORE
C9	ANSHUL	MUMBAI

PURCHASES

SNO	QTY	PUR_DATE	CNO
S1	15	2018-11-25	C2
S2	10	2018-11-10	C1
S3	12	2018-11-10	C4
S4	7	1019-01-12	C7
S5	11	2019-02-12	C2
S6	10	2018-10-12	C6
S7	5	2019-05-09	C8
S8	20	2019-05-09	C3
S9	8	2018-05-09	C9
S10	15	2018-11-12	C5
S11	6	2018-08-04	C7

i)SELECT DISTINCT CITY FROM CUSTOMERS;
ii) SELECT SUM(QTY), AVG(QTY) FROM PURCHASES;
iii) SELECT CNAME, CITY, QTY FROM CUSTOMERS, PURCHASES WHERE CUSTOMERS.CNO=PURCHASE.CNO AND PUR_DATE > "2018-11-03";

35	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.	3
36	Write a method/function THECOUNT () in python to read contents from a text file EVENT.TXT, to count and display the occurrence of the word ''THE''. (not Case sensitive)	3
37	Write a python method/function SumDiv5(A, B) to find and display the sum of all numbers divisible by 5 which are between the range A and B.	3
	Section – III	

| 38 | Riana Medicos Centre has set up its new centre in Riyadh. It has four buildings as shown in the diagram given below: | 5 |

Distances between various buildings are as follows:

Accounts to Research Lab	5 m
Accounts to Store	50 m
Store to Packaging Unit	60 m
Packaging Unit to Research Lab	60 m
Accounts to Packaging Unit	25 m
Store to Research Lab	80 m

Number of computers:

Accounts	25
Research Lab	100
Store	15
Packaging Unit	60

As a network expert, provide the best possible answer for the following queries:
i) Suggest the type of network established between the buildings.
ii) Suggest the most suitable place (i.e., building) to house the server of this organization.
iii) Suggest the placement of the following devices with justification:
(a) Repeater (b) Hub/Switch.
iv) Suggest a system (hardware/software) to prevent unauthorized access to or from the network.
v) Also suggest the suitable cable layout for the above setup.

39

id	coachname	age	sports	date	pay	sex
1	Kukreja	35	Karate	1996-03-27	1000	M
2	Ravina	34	Karate	1998-01-20	1200	F
3	Karan	34	Squash	1998-02-19	2000	M
4	Tarun	33	Basketball	1998-01-01	1500	M
5	Zubin	36	Swimming	1998-01-12	750	M
6	Ketaki	36	Swimming	1998-02-24	800	F
7	Ankita	39	Squash	1998-02-20	2200	F
8	Zareen	37	Karate	1998-02-22	1100	F
9	Kush	41	Swimming	1998-01-13	900	M
10	Shaliya	37	Basketball	1998-02-19	1700	M

Write SQL queries for (i) to (v) based on the table 'CLUB' given above.
i. To display records from club in alphabetical order of coach name.
ii. To display coach name, date and sports whose pay is between 1000 and 2000.
iii. To display sports and total number of coaches who have pay more than 1500, sports wise.
iv. To show the increase pay of all coaches by 100 whose sports is "swimming".
v. To display the different sports available in the table without duplication.

5

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40 A binary file "Hotel.dat" has structure (roomid, customername, roomtype, roomcharges). Write a function CountCustomers(rtype) in Python which accepts the room type as parameter, count and return number of customers who are staying in the given roomtype which are stored in the binary file "Hotel.dat".

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All the Best

I.VERY SHORT ANSWER: - 15x1=15