Second Model Examination 2023-2024

Maximum Marks: 70   **Computer Science[083]**
Marking Scheme   Time Allowed:3 Hours

Qst. No.	Question	Mark
	Section A	
1.	Which of the following cannot be a variable? (b) print	1
2.	Consider the code given below and write the output: >>>L=[1,2,3,4,5] >>>L.insert(10,2) >>>L (c) [1,2,3,4,5,2]	1
3.	What will be the output of: >>>print("red pen with red ink" . partition('red')) (a) ('' ,'red', ' pen with red ink'	1
4.	Which of the following statement is false? (b) one block of except statement cannot handle multiple exceptions	1
5.	Which of the following statement(s) would give an error during the execution of the following code? R={'pno':52, 'pname':'Virat', 'expert':['Badminton', 'Tennis'], 'score':(77,44)} print(R) #statement 1 R['expert'][0]='Cricket' #statement 2 R['score'][0]=50 #statement 3 R['pno'] =50 #statement 4 (c) statement 3	1
6.	_ _ _ _ _ is used for point-to-point communication or unicast communication such as radar and satellite. (c) Microwave	1
7.	fetchall() method fetches all rows in a result set and return a: (a) Tuple of lists	1
8.	In mysql database, if a table **Alpha** has degree 5 and cardinality 3, and another table **Beta** has degree 3 and cardinality 5, what will be the degree and cardinality of the cartesian product of Alpha and Beta? (b) 8,15	1
9.	The correct syntax of seek() is: (a) file_object.seek(offset[,reference point])	1
10.	Consider the expression: **not 5 or 4 and 10 and 'bye'** Which of the following will be the correct output if the expression is evaluated? (d) 'bye'	
11.	Expand the following terms: (i) PPP Point-Point Protocol (ii) VoIP Voice over Internet Protocol	

12.	What will be the following expression be evaluated to in python? >>>print((-33//13)*(35%2-2)*15/3) (c) 15.0	1
13.	_ _ _ _ _ is a communication methodology designed to establish a direct and dedicated communication between an internet user and his/her ISP. (c) PPP	1

14.	Consider the code given below:
	b=100
	def Test(a):
	    _ _ _ _ _ #missing statement
	  b=b+a
	  print(a,b)
	Test(10)
	print(b)
	Which of the following statement should be given in the blank for #missing statement, if the output produced is 110?
	(c) global b
		1

15.	Which of the following statement is FALSE about keys in a relational database? (c) a candidate key that is not a primary key is a foreign key	1
16.	import random alpha = ['T', 'U', 'V', 'W'] dig = [2,6,7,3] print('The winner is:',end=" ") print(alpha[random.randint(0,3)], end=" ") for i in range(4): print(dig[i + random.randint(0,3)], end=" ") What possible output(s) is expected to be displayed on screen at the time of execution of the program from the above code: (i) The winner is: T 7 3 6 (ii) The winner is: W 2 6 7 5 (iii) The winner is: V 6 6 0 (iv) The winner is: U 2 7 3 (b) i and iv	1
17.	Assertion (A) : If the arguments in function call statement match the number and order of arguments as defined in the function definition, such arguments are called positional arguments. Reasoning(R) : During a function call, the argument list is first conatins default argument(s) followed by positional arguments. (c) A is True but R is False	
18.	Assertion (A) : with statement can be used to open a file and should be preferred over other ways to open a file. Reasoning(R) : with statement is a block of statement that makes sure the file is closed in case of any run-time error and buffer is cleared to avoid data loss. (a) Both A and R are true and R is the correct explanation for A	

	Section B	

19.	Rewrite the following code in pythonafter removing all syntax or logical error(s). Underline each correction done in code.
	
	``python
	def determine(s):
	    d={"UPPER":0, "LOWER":0}
	    for c in s:
	        if c.isupper():
	            d["UPPER"]+=1
	        elif c.islower():
	            d["LOWER"]+=1
	        else:
	            pass
	    print("Original string:",s)
	    print("Upper case count:",d["UPPER"])
	    print("Lowewr case count:",d["LOWER"])
	determine("These are HAPPY Times")
	``
		2

20.	Write two points of difference between circuit switiching and packet switiching. Ans: | Circuit switiching	Packet switchig
---	---
is the method of switiching which is used for establishing a dedicated communication path between sender and receiver	is the method of switiching where no dedicated path is established from the source to destination.
data is processed and transmitted at source only	data is processed and transmitted not only at the source but at each switching station
It is more reliable	it is less reliable | **OR** Write two points of difference between XML and HTML. | XML(eXtensible markup language)	HTML(hypertext Markup Language)
---	---
tags are not predefined, they are user defined	tags are predefined
stores and transfer data	HTML is about displaying data
dynamic in nature	static in nature		2
21.	(a) Given is the python string declaration: wish = " ##Wishing All Happy Diwali @#$" Write the output of wish[-6::-6] Ans: lyli# (b) Write the output of the code given below: my_dict = {"name" : "Aman", "age" : 26} my_dict["age"]=27 my_dict["address"]="Delhi" print(my_dict.items()) Ans: dict_items([('name', 'Aman'), ('age', 27), ('address', 'Delhi')])	1 1
22.	Explain the use of 'foreign key' for performing table joins, giving a suitable example to support your answer. Ans: The foreign key constaraint is used to ensure referential integrity of the data in the table. It matches the value of the column designated as the foreign key in one table with another table's primary key. (1 mark for example)	2
23.	(a) Write the full form of (i) SMTP and (ii) IMAP. (i)Simple Mail Transfer Protocol (ii) Internet message access protocol (b) Name two top level domain names with their area of applications. Ans: Top Level Domain refers to the last segment of a domine name. .com - commercial business .org - organizations	1 1

24.	Give the *output* of the following python code:	2

```python
def comp(N1, N2=10):
    return N1>N2
Num=[10, 23, 14, 54, 32]
for var in range(4,0,-1):
    A=Num[var]
    B=Num[var-1]
    if var>len(Num)//2:
        print(comp(A,B),"#", end='')
    else:
        print(comp(B,A),"%",end='')
```

Ans: False#True#True%False%

OR

Write the *output* of the following:

```python
tuple1=([7,6], [4,4], [5,9], [3,4], [5,5], [6,2], [8,4])
listy=list(tuple1)
new_list=list()
for ele in listy:
    tot=0
    for value in ele:
        tot+=value
        if ele.count(value)==2:
            new_list.append(value)
            tot=0
else:
    print(tuple(new_list))
```

Ans: (4,4,5,5)

25.	Consider the following two commands with reference to a table, named Students, having a column named Section:	2

(a) select count(section) from Students;

(b) select count(*) from Students;

If these two commands are producing different results,

  (i) What may be the possible reason?

  (ii) Which command, (a) or (b), might be giving high value?

Ans: The COUNT(*) function returns the number of rows in a dataset using the SELECT statement. The function counts rows with NULL, duplicate, and non-NULL values. Count(section) will not accept NULL values.

(b) having high value

OR

Differentiate between WHERE and HAVING clauses in Mysql.

Ans: Where clause is used to filter the records from the table or used while joining more than one table. Only those records will be extracted who are satisfying the specified condition in where clause. It can be used with select, update delete statements. Having clause is used to filter the records from the groups based on the given condition in the having clause. Those groups who will satisfy the given condition will appear in the final result. It can be used only with group by clause.

Section C

26.						1

Ucode	Uname	Ucolour	Size	Prize
1	Shirt	White	L	550
1	Shirt	White	M	500
2	Pant	Grey	L	850
2	Pant	Grey	M	810

	(i) Select distinct sports from sportsclub;	½
	(ii) Select sports, max(Salary) from sportsclub groupby sports having sports <>'Snooker';	½
	(iii) Select pname sports salary from sportsclub where country='INDIA' order by salary DESC;	½
	(iv) Select sum(salary) from sportsclub where rating='B';	½

27.		3

```
def COUNT():                            (½)
    F=open('Gratitude.txt', 'r')        (½)
    T=F.readlines()                     (½)
    x=1
    for i in T:                         (½)
        print("line ", x, ':', i.count('e'))   (½)
        x+=1
    F.close()                           (½)
COUNT()
```

OR

```
def START_WITH_I():                     (½)
    F=open('Gratitude.txt', 'r')        (½)
    T=F.readlines()                     (½)
    for i in T:                         (½)
        if i[0] in 'I':                 (½)
            print(i)
    F.close()                           (½)
START_WITH_I()
```

28.		3

(a)

(i)   ½

FID	MIN(FEES)	MAX(FEES)
F01	12000	40000
F04	15000	17000
F03	8000	8000
F05	NULL	NULL

(ii) AVG(Salary   ½
29500

(iii)   ½

FNAME	CNAME
Neha	Python
Neha	Computer Network

(iv)   ½

FNAME	CNAME	FEES
Anishma	Grid Computing	40000
Neha	Python	17000

(b) DESC or DESCRIBE command   1

29.	`def index_List(L):` (½)	3
	`    in_list=[]`	
	`    for i in range(len(L)):` (1)	
	`        if L[i]%3!=0:` (1)	
	`            in_list.append(i)`	
	`    return in_list` (½)	
30.	`N=[12,13,34,56,21,79,98,22,35,38]`	3
	`def push(S, N):`	
	`    S.append(N)`	
	`def pop(S):`	
	`    if S!=[]`	
	`        return S.pop()`	
	`    else:`	
	`        return None`	
	`ST=[]`	
	`for k in N:`	
	`    if k%2==0:`	
	`        push(ST,k)`	
	`while True:`	
	`    if ST!+[]`	
	`        print(pop(ST),end=' ')`	
	`    else:`	
	`        break`	

<div align="center">OR</div>

```
R={"Niki" : 76, "Manu" : 45, "Bilu" : 54, "Ani" : 65, "Kanu" : 90, "Hok" : 82}
def push(S,N):
    S.append()
def pop(S):
    if S!+[]:
        return S.pop()
    else:
        return None
ST=[]
for k in R:
    if R[k]>75:
        push(ST,k)
while True:
    if ST!=[]:
        print(pop(ST), end=' ')
    else:
        break
```

	Section D	

31.	(a) What will be the *output* of the follwoing code?
	value=100
	def display(N):
	  global value
	  value=150
	  if N%7==0: Ans: 100#100
	    value = value+N
	  else:
	    value = value -N
	  print(value, end='#')
	display(50)
	print(value)
		2

	(b) The code given below inserts the following record in the table student: Rollno - integer, Name - string, class - integer, Marks - integer Note the following to establish connectivity between Python and Mysql: username is root, password is tiger The table exists in a mysql database named school The details (Rollno, Name, Class and Marks) are to be accepted from the user. Write the following missing statements to complete the code: statement 1 - to form the cursor object statement 2 - to write a query to insert records into the table statement 3 - to execute the query statement 4 - to add record permanently in the database	
| | ```
import musql.connector as mysl
def sql_data():
    con1 = mysl.connect(host = "localhost", user = "root", password = "tiger",
        database = "school")
    mycursor = _ _ _ _ _ _ _ _ _ _ #statement 1        con1.cursor()  (½)
    rno = int(input("Enter the roll number:"))
    name = input("Enter the name:")
    class = int(input("Enter the class:"))
    marks = int(input("Enter the marks:"))
    query = _ _ _ _ _ _ _ _ _ _ #statement 2
    _ _ _ _ _ _ _ _ _ _ _ _ _ _ _#statement 3
    _ _ _ _ _ _ _ _ _ _ _ _ _ _ _#statement 4
    print("Data added successfully")
``` *"insert into student values({}, '{}', {},{})".format(rno, name, class, marks) (1)*<br><br>*mycursor.execute(query)          (½)*<br>*con1.commit()                    (1)* | 3 |
| | **OR** | |
| | (a) Give the *output* for the following:
   cBsEe#2#eXAM   (2)
(b) ALmost same as the (b) part of the other question (3)
   marks for connection object (½), cursor object(1), executing query (½), commit(1). | |

32.	Fun Media Services Ltd. is an event planning organization. It is planning to set up its campus in Mumbai with its head office in Delhi. The Mumbai campus will have four blocks/buildibgs - Admin, Decorators, Food and Media.
	You as a network expert need to suggest the best network related solutions for them to resolve the issue/problems mentioned in points (i) to (iv), keeping in mind the distance between various blocks / locations and other given parameters.
	
	(i) Linear / Bus topology (145m)
	    Ethernet cable
	(ii) Firewall
	(iii) Admin (max. number of computers, mention 80-20 rule)
	    WAN
	(iv) Video Conferencing
	    H.320 / H.323 / SIP
	(v) Switch / Hub in each building.
	    As per layout no need of repeater because distance between each building can't ex ceed 70m
		5

33.	(a) The reader object reads data from a csv file on storage disk and removes the delimiter and loads the data into a python iterator from which the data can be fetched row by row. (1)
	(b) import csv (½)
	    def write():
	        fout=open("Record.csv", "a", newline="\n") (½)
	        wr=csv.writer(fout) (½)
	        roll=int(input("Enter roll number:"))
	        name=input("Enter name of student:")
	        aggregate=int(input("Enter aggregate:"))
	        lst=[roll, name, aggregate] (½)
	        wr.writerow(lst) (½)
	        fout.close()
	    def count():
	        fin=open("Record.csv","r",newline="\n") (½)
	        data=csv.reader(fin) (½)
	        ctr=0
	        for i in data:
	            if int(i[2])>75: (½)
	                ctr+=1
	        print(ctr)
	        fin.close()
	    write()
	    count()
		5

	(a) Files are limited resource managed by the OS, so it is imporatant to close them to avoid reaching the open limit and impacting program performance. Files left unintentionally open become vulnerable to loss data, and changes to files cannot be readable until closed.
	
	(b) import cvs
	   def Add_Book():
	   f=open("book.csv","a",newline=' ')
	   wo=csv.writer(f)
	   book_id=input("Enter book id:")
	   b_name=input("Enter book name:")
	   pub=input("Enter publisher:")
	   wo.writerow([book_id, b_name, pub])
	   f.close()
	   def search_Book():
	      f=open("book.csv", 'r')
	      ro=csv.reader(f)
	      pn=input("Enter publisher:")
	      cnt=0
	      for i in ro:
	         if i[2]==pn:
	            cnt+=1
	            print(i[0], i[1],i[2])
	      print("Total books published by", pn,"are", cnt)
	      f.close()
	   Add_Book()
	   search_Book()	

	Section E	

34.	(i) sid (1)
	(ii) degree -8
	    cardinality-5 (1)
	(iii) (a) update Result set sem2=sem2+(sem2*0.04) where sname like "P%"; (1)
	     (b) Delete from Result where division='iv'; (1)
	                     OR
	    (a) Alter Table Result rename column Division to Grade;
	    (b) Select * from result order by sem1, sem2;
		4

35.	Satya is a python programmer. He has written a code and created a binary file 'Record.dat' with employeeid, ename and salary. The file contains 10 records. He now has to update a record based on the employeeid entered by the user and update the salary. The updated record is then to be written in the file 'temp.dat'. If the employeeid is not found, an appropriate message should to be displayed. As a python expert, help him to complete the following code based on the requirement given below.	4

```
import pickle
def update_data():
    rec={}
    fin = open("Record.dat","rb")
    fout = open(" _ _ _ _ _ _ _ _ ")----------------- >#1
    found = False
    eid = int(input("Enter the employee id to update:"))
    while True:
        try:
            rec = _ _ _ _ _ _ _ _ _ _ ------------- >#2
            if rec["Employeeid"]==eid:
                found = True
                rec["Salary"] = int(input("Enter the new salary:"))
                _ _ _ _ _ _ _ _ _              -------------->#3
            else:
                pickle . dump(rec, fout)
        except:
            break
    if _ _ _ _ _: ------------------------------- >#4
        print("The salary of employee id", eid, "has been updated")
    else:
        print("No such employee exists")
    fin.close()
    fout.close()
```

(i) Write correct statement require to open the temporary file temp.dat(**statement #1**)

fout=open("Emp.dat", "wb")   (1)

(ii) Which statement should Satya fill in **statement #2** to read data from binary file Record.dat and in **statement #3** to write the updated data?

pickle.load(fin)   (1)
pickle.dump(rec,fout)   (1)

(iii) Which statement should Satya fill in **statement #4** so that he can display the proper message.

found==True   (1)