

Marking Scheme Sample paper -3

COMPUTER SCIENCE

Answers

1. Option b for
2. [82,89,45,67]
3. Pickle module is used to work with binary files. It is used to use the inbuilt functions of this module which is required for storing and retrieving the data from the binary file. Storing is known as dumping and retrieving is known as loading and the functions are pickle.dump() and pickle.load().
4. Option a in
5. Option a ['M','e','D',10,'o'] ['M','e','D',10,'o']
6. Vowels={'a':10,'e':20,'i':30,'o':40,'u':50}
7. max(P) 70 len(P) 5
8. islower() split()
9. VoIP = Voice over Internet Protocol
10. Hacking
11. DISTINCT
12. BETWEEN clause is used to specify the range of values for a numeric attribute. Ex. If we want to display the names of employees whose salary is inbetween 3000 to 6000 then the following command is used. `SELECT EMPNAME FROM EMP WHERE SALARY BETWEEN 3000 AND 6000;` here both the values 3000 and 6000 are inclusive.
13. UPDATE command is used to modify/update an attribute in a table. EX: `UPDATE EMP SET SALARY=3000 WHERE SALARY<2000;`
This will update the salary attribute to 3000 for only those employees whose salary is less than 2000.
14. The five aggregate functions are max(), min(), sum(), avg() and count().
15. Infrared waves and Satellite Link
16. <class 'str'>
17. L=[87,76,34,65,23]
18. DROP TABLE BOOKS;
19. STP- Shielded Twisted Pair
WiMAX- Worldwides Interoperability for Microwave Access
RJ-45 – Registered Jack 45
GSM-Global System for Mobile Communications

20. WHERE clause is used to specify certain conditions for extracting the tuples from a relation whereas HAVING clause is used to specify condition when GROUP BY clause is used for Grouping the tuples based on a certain condition. EX: SELECT * from EMP WHERE SALARY>4000;

```
SELECT MAX(SALARY) FROM EMP
GROUP BY DEPT
HAVING GRADE='E1';
```

21. Two differences between 3G and 4G

3G	4G
Third Generation of Mobile Technology	Fourth Generation of Mobile Technology
Data transfer, CDMA, Integrated high quality a/v data	Multimedia data transfer, Real time Audio/Video, Voice call, Video call, Fast data streaming, LTE tech with broadband
Comparatively low speed	Very high speed

22. SQL questions

- PID can be declared as the Primary Key because it has unique values and it truly identifies each tuple in a relation.
- Degree is 6 Cardinality is 5
- INSERT INTO PRODUCTS (PID,PNAME,QTY) VALUES(106,'IPAD',200);
- UPDATE PRODUCTS
SET PRICE=PRICE+500
WHERE QTY>100;
- SELECT * FROM PRODUCTS ORDER BY PRICE DESC;

23. Csv file questions and answers

- import pickle
- 'w' or 'a'
- 'r'
- csv.reader() and fout.close()
- addcontents(101,"PHYSICS") to call the function to add the book details and readcontents() to call the function readcontents().

PART – B

Section – I

24. evaluate

- 4
- 9

25. Worms:- Worm is a program designed to replicate. They do not require any host. They travel from computer to computer across network connections. It is activated by creating process.

Trojan Horses:- It is code hidden in a program such as a game , utility tools , which looks to be helpful but has hidden side effects. It does not require any host. It spreads through email and exchange of disks and information between computers. Worms could also spread Trojan Horses.

OR

TCP/IP – Transmission Control Protocol and Internet Protocol. Used in networks to transfer data from sender to receiver. TCP breaks the message into small data packets and IP is used to take these data packets to the correct destination using the address.

FTP- File Transfer Protocol. Used for transferring the files from the remote file server to the client. Used for sharing of files across Internet. When files are uploaded or downloaded, the FTP protocol is used for this purpose using the file server. It offers reliable data transfer across the Internet.

26. CDMA- Code Division Multiple Access

ARPANET- Advanced Research Project Agency Network

IRC-Internet Relay Chat

GPRS-General Packet Radio Service.

27. Actual Parameter- The variables declared in the function call statement is called as actual parameter.

Formal Parameter- The variables declared in the function definition statement is called as formal parameter.

Ex: def chk(a,b):-----→ Formal Parameters

 c=a

 a=b

 b=c

 #main

 a=9

 b=10

 print(a,b)

 chk(a,b)----→Actual Parameters

 print(a,b)

OR

The three types of formal arguments are : Default arguments, Positional arguments, Keyword(named) arguments.

Scope means the range in which the variables are available to be used i.e. the block of the code in which the variables are available to be used.

Parts of the program within which a name is legal and accessible is called scope of the variable. The types are local scope and global scope.

28. Code after editing

Salary=4000, Bonus=8900

```
for l in range(0,6) :  
    if Bonus>=5000:  
        print(Salary+400)  
    elif Bonus<5000:  
        print(Salary+500)  
    else:  
        print("No increment")
```

29. Possible output is option (ii) and (iv) maximum value of HIGH = 4 LOW = 3

30. Difference between Primary Key and Candidate Key is

Primary Key – it is used to uniquely identify each row in a table. It contains unique value.

Candidate Key- all the attributes in a relation which are eligible to become Primary Key are called as Candidate Key.

EX:

Admno	Rollno	Name	Class
101	1	Priya	4
102	2	Sneha	4
103	3	Tina	4
104	4	Jaggu	4
105	5	Ramesh	4
106	6	Umesh	4

In this table the attribute Name and Class are not unique. Only the attribute Admno and Rollno is unique. It can be used to uniquely identify the records in the table. So Admno and Rollno are eligible to become Primary keys , so they are the candidate keys but Rollno may get repeated for a different class. So only Admno can be chosen as the Primary Key.

31. Postfix expression using stacks

Sln0	Input symbol	Operation	Stack	
1	120	Push	120	
2	45	Push	120,45	
3	20	Push	120,45,20	
4	+	Pop 2 and push	120,65	45+20=65

5	25	Push	120,65,25	
6	15	Push	120,65,25,15	
7	-	Pop 2 and push	120,65,10	25-15=10
8	+	Pop 2 and push	120,75	65+10=75
9	*	Pop 2 and push	9000	120*75=9000
10	End of Exp	Pop the result		

Result=9000

32. Difference between DROP and DELETE is:

DROP TABLE command is a DDL command used to delete a table/relation completely from a database. It deletes all records/tuples from the table and removes the structure of the table also.

Ex: DROP TABLE EMP; --→ will delete the records as well as the structure of EMP table.

DELETE FROM command is a DML command used to delete the tuples/records from a table. Here we can either delete all records or delete only few records based on a condition.

Ex: DELETE * FROM EMP; ---→ deletes all the records from EMP table.

DELETE FROM EMP WHERE SALARY>3000; --→ will delete only those records from EMP table whose SALARY is greater than 3000 only.

33. Output : U*i*e* Nations a*i*n*

Section – II

34. Function question

```
def Chk(Arr,n):
    l=len(Arr)
    l1=[]
    for i in range(0,l):
        if Arr[i]%n==0:
            l1.append(Arr[i])
    print("New list",l1)
```

```
L=[25,30,19,56,80,33]
```

```
Chk(L,5)
```

35. Function to count the number of 'A' or 'a' present in a text file 'letter.txt'

```
fin=open('letter.txt','r')
l=fin.read()
w=l.split()
```

```

c=0
for i in w:
    for j in i:
        if j=='a' or j=='A':
            c=c+1
print("Total no of 'a' or 'A' is",c)

```

OR

```

fin=open('letter.txt','r')
l=fin.read()
w=l.split()
c=0
for i in w:
    for j in i:
        if j in ['a','e','i','o','u','A','E','I','O','U']:
            c=c+1
print("Total no of vowels is",c)

```

36. SQL outputs

- a. TYPE COUNT(*)
- | | |
|--------------|---|
| Double Bed | 2 |
| Baby Cot | 3 |
| Office Table | 2 |
| Sofa | 1 |
| Dining Table | 1 |
- b. NO ITEMNAME PRICE
- | | | |
|---|--------------|-------|
| 4 | Decent | 25000 |
| 7 | Royal Finish | 18000 |
| 8 | Royal Tiger | 31000 |
- c. MAX(PRICE) MIN(PRICE)
- | | |
|-------|------|
| 31000 | 6500 |
|-------|------|

37. Answer the following questions:

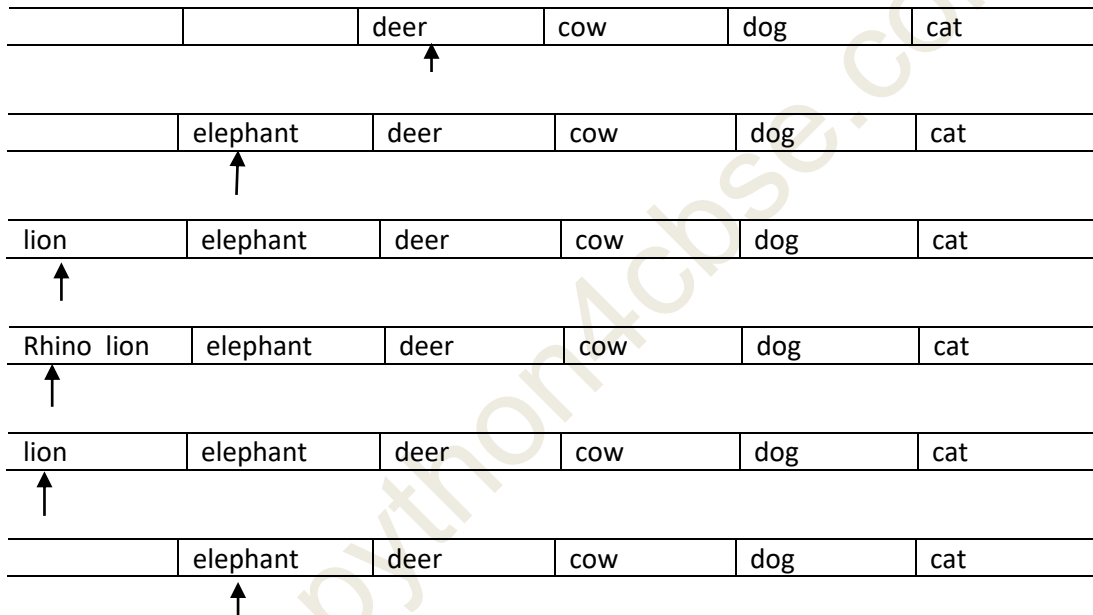
- a. Postfix notation

Slno	Input symbol	Operation	Stack	
1	TRUE	PUSH	TRUE	
2	FALSE	PUSH	TRUE,FALSE	
3	NOT	POP 1 AND PUSH	TRUE, TRUE	NOT FALSE=TRUE
4	OR	POP2 AND PUSH	TRUE	TRUE OR TRUE= TRUE
5	FALSE	PUSH	TRUE,FALSE	
6	TRUE	PUSH	TRUE,FALSE,TRUE	

7	OR	POP 2 AND PUSH	TRUE, TRUE	FALSE OR TRUE=TRUE
8	AND	POP2 AND PUSH	TRUE	TRUE AND TRUE=TRUE
9	END OF EXP	POP THE RESULT		

RESULT= TRUE

- b. Stack of animals (students will depict top position as well as value which is popped out also in the answer- I have not depicted it here)



Section – III

38. Grand Consultants

- Building “JAMUNA”, following the 80:20 rule , place where the maximum computers are placed.
- Cable layout – Drawing , connecting Jamuna to other 2 buildings.
- Answers
 - Switch is needed to be placed in each and every building to interconnect the computers within that building.
 - Repeater is needed to be placed between “Jamuna” and “Ravi” as the distance is more than 90m.
- Optical fiber
- WAN because the distance between the Indian campus and London is beyond the range of LAN and MAN.

39. SQL queries

- SELECT * FROM PRODUCTS WHERE TYPE=“Baby Cot”;
- SELECT ITEMNAME FROM PRODUCTS WHERE TYPE=“Double Bed”;

- c. SELECT ITEMNAME FROM PRODUCTS ORDER BY PRICE DESC;
- d. SELECT * FROM PRODUCTS GROUP BY TYPE;
- e. SELECT NO,ITEMNAME,PRICE,DISCOUNT WHERE DISCOUNT>20;

40. Binary file question.

```
import pickle
def Addcontents():
    fobj=open("EMP.dat", "ab")
    Empno=int(input("Enter the Employee number"))
    Empname=input("Enter the Employee name")
    Dept=input("Enter the department")
    Salary=float(input("Enter the salary"))
    rec=[Empno,Empname,Dept,Salary]
    pickle.dump(rec,fobj)
    fobj.close()
```

```
def Disp(dept):
    fobj=open("EMP.dat", "rb")
    ctr=0
    try:
        while True:
            rec=pickle.load(fobj)
            if dept==rec[2]:
                ctr=ctr+1
    except EOFError:
        fobj.close()
    return ctr
```

OR

```
import pickle
def CountFunds():
    fobj=open("UNIVERSITY.dat", "rb")
    ctr=0
    try:
        while True:
            rec=pickle.load(fobj)
            if rec[3]>10000:
                print(rec[0],rec[1],rec[2])
                ctr=ctr+1
    except EOFError:
        fobj.close()
    return ctr
```