

MODEL EXAMINATION
Computer Science (083)

Class – XII

Max. Marks:70
Time Allowed: 3 hours

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A have 18 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 05 Short Answer type questions carrying 03 marks each.
6. Section D has 03 Long Answer type questions carrying 05 marks each.
7. Section E has 02 questions carrying 04 marks each
8. All programming questions are to be answered using Python Language only.

SECTION A		18
1	State True or False “The keys of a dictionary must be of immutable types”	1
2	Which of the following is an invalid data type in Python? (a) int (b) bool (c)char (d)None	1
3	P={0:'RED',2:'GREEN',1:'YELLOW'} Q={3:'WHITE',2:'BLUE'} Q.update(P) print(Q) What will the output of the above python code? (a) {0:'RED', 2: 'GREEN', 0: 'RED', 1: 'YELLOW'} (b) {3: 'WHITE', 2: 'BLUE', 0: 'RED', 1: 'YELLOW'} (c) {0: 'RED', 2: 'BLUE', 1: 'YELLOW', 3: 'WHITE'} (d) {3: 'WHITE', 2: 'GREEN', 0: 'RED', 1: 'YELLOW'}	1
4	Consider the given expression: not False and True or True Which of the following will be correct output if the given expression is evaluated? (a) True (b) False (c) None (d) null	1
5	The list Lst=[60,70,80,90,100] stores the marks of a student. Choose statement to display the average of marks (a) print(avg(Lst)) (b) print(sum(Lst)/len(Lst)) (c)print(average(Lst)) (d) print(total(Lst)/5)	1
6	Roshan wants to open his binary file myfile.dat for both reading and writing. If no such file exists in his folder, which opening mode he must use: a) 'w+' b) 'rb+' c) 'ab' d) 'wb+'	1
7	Rahul has given the following SQL command to display Name of students whose address is not available. SELECT NAME FROM STUDENT WHERE ADDRESS=NULL;	1

	Identify the error in above command and rewrite the command.	
8	Which of the following commands will display the structure of the table HOTEL? (a) SELECT * FROM HOTEL; (b) DESCRIBE HOTEL (c) SHOW HOTEL (d) VIEW HOTEL	1
9	Which of the following statement(s) would give an error after executing the following code? T=(3,5,2) # Statement 1 T=T+(8,9) # Statement 2 print(T) # Statement 3 T[1]=6 # Statement 4 print(T) # Statement 5 (a) Statement 2 (b) Statement 2 and 4 (c) Statement 3 and 4 (d) Statement 4	1
10	Fill in the blank: The rows of a relation is called _____ in RDBMS. (a) Attribute (b) Tuple (c) Cardinality (d) Degree	1
11	The function tell() _____ (a) tells the path of file (b) tells the current position of the file pointer within the file (c) tells the end position within the file (d) move the file pointer to the given position	1
12	Fill in the blank: To arrange the records in descending order, _____ clause is used with order by clause. (a) DESC (b) REVERSE=True (c) DESCEND (d) REVERSE	1
13	Fill in the blank: _____ is used for transferring files over a TCP/IP network. (a) HTTP (b) SMTP (c) PPP (d) FTP	1
14	What will the following expression be evaluated to in Python? print(10.0//2+5**2) (a) 0.0 (b) 30.0 (c) 5.0 (d) 30	
15	Select the correct statement, with reference to RDBMS: a) NOT NULL and PRIMARY KEY constraints are same. b) UNIQUE and PRIMARY KEY constraints are same. c) In a UNIQUE column, duplicate entry of NULL value is not allowed d) PRIMARY KEY is UNIQUE and NOT NULL	
16	In Python - MySQL connectivity, the function fetchall() returns a) A tuple b) A list c) A string d) None	
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct	

	<p>choice as</p> <p>(a) Both A and R are true and R is the correct explanation for A</p> <p>(b) Both A and R are true and R is not the correct explanation for A</p> <p>(c) A is True but R is False</p> <p>(d) A is False but R is True</p>	
17	<p>Assertion (A):- Actual parameter is a parameter, which is used in function call statement .</p> <p>Reason (R):- we can use only identifiers as Actual parameter.</p>	
18	<p>Assertion (A):- fr.seek(35) shall move the file pointer to 35th byte in the file (where fr is the file pointer).</p> <p>Reason (R):- seek() function is used to change the position of the file pointer to a given specific position</p>	
SECTION B		14
19	<p>Alaka has written a code to display the multiplication table (up to 10) of a number inputted by the user. Her code is having errors. Rewrite the correct code and underline the corrections made.</p> <pre>n=input('Enter the number:') i=1 while i>=10: print(i,'x',n,'=',i*n') i=i+1</pre>	2
20	<p>Distinguish between URL and domain name.</p> <p>OR</p> <p>Write two points of difference between circuit switching and packet switching</p>	2
21	<p>a)Given the list L=[['Roshan',89],['Vimal',65],['Jimmy',70]], what will be the result of the following print statement</p> <pre>>>print(L[1][1])</pre> <p>b)Write the output of the following code:</p> <pre>D={'Roshan':89,'Vimal':65,'Jimmy':70} for x,y in D.items(): print(x,end='#')</pre>	1 1
22	<p>Define candidate key and primary key. Give example to support your answer.</p>	2
23	<p>a)Expand the following terms:</p> <p>i. HTTP ii. VOIP</p> <p>b) What is ARPANET?</p>	1 1
24	<p>Predict the output of the python code given below:</p> <pre>Data = ["P",20,"R",10,"S",30] Times = 0 Alpha = "" Add = 0 for C in range(1,6,2): Times = Times + C Alpha = Alpha + Data[C-1]+"*" Add = Add + Data[C] print(Times,Add,Alpha)</pre>	2

```

OR
Predict the output of the python code given below:
def Changer(P,Q=10):
    P=P//Q
    Q=P%Q
    print (P,"#",Q)
    return P
A=200
B=20
A=Changer(A,B)
print (A,"*",B)
B=Changer(B)
print (A,"*",B)

```

25 Differentiate between WHERE clause and HAVING clause in SQL with appropriate example.
 OR
 Differentiate between DDL and DML commands in RDBMS

SECTION C

26 a) Consider the following tables – Sales and Product:

Table: Sales

SCODE	NAME	PCODE
S01	Joseph	1001
S02	Syam	1002
S03	Sam	1001

Table: Product

PCODE	PRODUCT
1001	shampoo
1002	Soap
1003	Talc

What will be the output of the following statement?
 SELECT * FROM Sales NATURAL JOIN Product;

(b) Write the output of the queries (i) to (iv) based on the table, VEHICLE given below:

Table : VEHICLE

CODE	TYPE	PERKM
101	VOLVO BUS	160
102	AC DELUXE BUS	150
103	NULL	60
104	SUV	NULL
105	CAR	20

(i) SELECT COUNT (TYPE) FROM VEHICLE ;
 (ii) SELECT MIN(PERKM) FROM VEHICLE WHERE PERKM<100;
 (iii) SELECT CODE,PERKM FROM VEHICLE ORDER BY PERKM;
 (iv) SELECT TYPE,PERKM*2 FROM VEHICLE WHERE PERKM <100;

27 Write function definition for WORD4CHAR() to read the content of a text file FUN.TXT, and display all those words, which has four characters in it.

Example :

If the content of the file fun.TXT is as follows :

When I was a small child, I used to play in the garden with my grand mom . Those days were amazingly funful and I remember all the moments of that time

The function WORD4CHAR() should display the following :

When used play with days were that time

OR

Write a method/function DISPLAY() in python to read a text file MYFILE.TXT, and display those lines, which are starting either with T or starting with U along with line numbers.

Example:

If the content of the file MYFILE.TXT is as follows :

Twinkle twinkle little star
 How I wonder what you are
 Up above the world so high
 Like a diamond in the sky
 Twinkle twinkle little star

The function DISPLAY() should display the following

1 Twinkle twinkle little star
 3 Up above the world so high
 5 Twinkle twinkle little star

28 (a) Write the outputs of the SQL queries (i) to (iv) based on the relations ACCOUNT and TRANSACT given below:

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

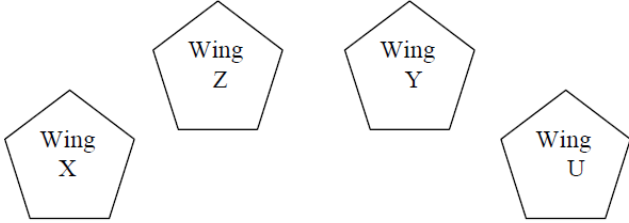
- (i) SELECT DISTINCT ADDRESS FROM ACCOUNT;
- (ii) SELECT TYPE, MAX(AMOUNT), Min(AMOUNT) FROM TRANSACT GROUP BY TYPE;
- (iii) SELECT A.ANO, ANAME, TYPE FROM ACCOUNT A, TRANSACT T WHERE A.ANO=T.ANO and TYPE='Withdraw' ;
- (iv) SELECT COUNT(*), SUM(AMOUNT) FROM TRANSACT WHERE DOT <= '2017-06-01';

(b) Write SQL command to display the last date of transaction (DOT) from the table TRANSACT for the Accounts having ANO as 103.

2+1

29 Write the definition of a function SumEO(VALUE) which should display the sum of even values and sum of odd values of the list VALUES separately.
 Example : If the list VALUES contains

3

	<p>25,20,22,21,53</p> <p>Then the functions should display the output as :</p> <p>Sum of even values = 42</p> <p>Sum of odd values = 99</p>	
30	<p>A list EMAIL contains some email ids.</p> <p>Write the following user defined functions to perform given operations on the stack named 'IDLIST':</p> <p>(i) Push () - To Push all the email ids which are ending with '.com' into the stack IDLIST.</p> <p>(ii) Pop- To Pop and display the content of the stack. Also, display "Stack Empty" when there are no elements in the stack.</p> <p>For example:</p> <p>If the list EMAIL contains the following details:</p> <p>['aaaa@gmail.com','bbbb@yahoo.co.in','cccc@outlook.com','dddd@yahoo.com']</p> <p>The output should be:</p> <p>dddd@yahoo.com</p> <p>cccc@outlook.com</p> <p>aaaa@gmail.com</p> <p>Stack Empty</p> <p style="text-align: center;">OR</p> <p>Write a function in Python, Push (USERS) where USERS is a dictionary containing username and password of some users: {username:password}.</p> <p>The function should push the username of those users in the stack whose password contains only alphabets. Also display the count of elements pushed into the stack.</p> <p>For example:</p> <p>If the dictionary contains the following data:</p> <p>USERS={'john':'JKP123','samthomas':'myname','ramkumar':'1234','manu':'abcdef' }</p> <p>The stack should contain</p> <p>manu</p> <p>samthomas</p> <p>The output should be:</p> <p>The count of elements in the stack is 2</p>	3
	SECTION D	15
31	<p>The Cyber Mind Organization has set up its new Branch at Mizoram for its office and web based activities. It has 4 Wings of buildings as shown in the diagram:</p>  <p>Shortest distances between various wings in meters :</p>	5

Wing X to Wing Z	40 m
Wing Z to Wing Y	60 m
Wing Y to Wing X	135 m
Wing Y to Wing U	70 m
Wing X to Wing U	165 m
Wing Z to Wing U	80 m

Number of Computers installed at various wings are as follows :

Wing X	50
Wing Z	130
Wing Y	40
Wing U	15

- (i) Suggest the most suitable location to install the main server of this organization to get efficient connectivity. Justify your answer.
- (ii) Suggest the best wired medium and draw the cable layout (wing to wing) to economically connect various wings.
- (iii) Suggest a device/software to be installed in the Mizoram branch to take care of data security.
- (iv) Suggest the placement of the following devices with appropriate reasons:
 - a. Switch / Hub
 - b. Repeater
- (v) Cyber Mind Organization is planning to connect all it's offices which are located in Delhi, Mumbai, Chennai and Mizoram. Out of LAN, MAN and WAN, which type of network is formed when they are connected?

32

a) write the output for the following

```
def FUN(A=5,B=10):
    global Q
    Q=A+B
    P=A-B
    print(P,Q,sep='*')
P=100
Q=200
Q=FUN(P)
print(P,Q,sep='*')
```

b) The code given below inserts the following record in the table Patient:

PID – integer

NAME – string

PLACE–string

MOBILENO – 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 Hospital .
- The details (PID, NAME, PLACE and MOBILENO) are to be accepted from the user.

Write the following missing statements to complete the code:

Statement 1 – to execute the command that inserts the record in the table Patient.

Statement 2 - to add the record permanently in the database

2+3

```

Statement 3 – to close the connection
import mysql.connector as mydb
def insert_data():
    mycon=mydb.connect(host="localhost",user="root",\
                       password="tiger", database="Hospital")
    mycur=mycon.cursor()
    PID=int(input("Enter PID :: "))
    NAME=input("Enter name :: ")
    PLACE=input("Enter place :: ")
    MOBILENO=int(input("Enter Mobile number:: "))
    query="insert into Patient \
          values({},'{}','{}',{})".format(PID,NAME,PLACE,MOBILENO)
    _____ #Statement 1
    _____ # Statement 2
    print("Record Added successfully")
    _____ # Statement 3
insert_data()

```

OR

```

a) s="PreBoard-2"
m=""
for i in range(0, len(s)):
    if s[i] in 'aeiouAEIOU':
        m = m +s[i].upper()
    elif s[i].isupper() :
        m = m +s[i-1]
    elif s[i].isdigit():
        m = m +str(int(s[i])+1)
    else:
        m = m +'#'
print(m)

```

b) The code given below reads the table named Patient then display total number of records whose MOBILENO contains NULL. The structure of the table as follows.

PID – integer primary key

NAME – string

PLACE–string

MOBILENO – integer

Note the following to establish connectivity between Python and MYSQL:

- Username - root
- Password – tiger
- The table exists in a MYSQL database named Hospital.

Write the following missing statements to complete the code:

Statement 1 –function to establish the connection between python and MySQL

Statement 2 – to write the correct query for the search

Statement 3 – to count the no: of rows fetched


```

def count_null():
    import mysql.connector
    mydb= mysql.connector._____ (host='localhost',user='root',password='tiger',\
        database='Hospital ') # Statement 1
    mycur=mycon.cursor()
    mycur.execute(_____) # Statement 2
    data=mycur.fetchall()
    print(_____) # Statement 3
    mydb.close()
count_null():

```

- 33 a) What is the advantage of using binary files for data storage?
b) Write a Program in Python that defines and calls the following user defined functions:
- i) ADDREC() – To accept and add details of a blood donor to a CSV file ‘donors.csv’. Each record consists of a list with field elements as DNO, NAME and BG to store Donor number, name and blood group respectively.
 - ii) COUNTREC() – To count and display the number of donors whose blood group is ‘A+ve’ present in the CSV file named ‘donors.csv’. (do not consider case)
- OR
- a) What is the advantage of using a csv file for permanent storage?
 - b) Write a Program in Python that defines and calls the following user defined functions:
ADDREC() – To accept and add data of a member of a residence association to a CSV file ‘members.csv’. Each record consists of a list with field elements as MID,NAME,HNO,AGE to store member id,name,house number and age respectively .
SEARCH()- To display the records of members whose age is more than 60 present in the CSV file named ‘members.csv’.

SECTION E

- 34 John creates a table PLUS2 with a set of records to maintain the student details. After creation of the table, he has entered 4 record in the table.
- Table: STUDENT
- | NO | MNAME | STREAM |
|------|---------|------------|
| M001 | JAYA | SCIENCE |
| M002 | ADITYA | HUMANITIES |
| M003 | HANSRAJ | SCIENCE |
| M004 | SHIVAK | COMMERCE |
- Based on the data given above answer the following questions:
- (i) Identify the candidate key(s) of the table
 - (ii) what is the degree and cardinality of the table
 - (iii) Write SQL statements to:
 - a. Count and display the no: of students in each stream.
 - b. change the stream of student with NO : M001 to COMMERCE
- OR (Option for part iii only)
- (iii) Write the statements to:

	<p>a. change the data type of MNAME to varchar(25).</p> <p>b. display the details of students in descending order of their names.</p>	
35	<p>Syam is a python programmer. He has a binary file STUDENT.DAT, containing records of the following structure[Admno ,Name, Stream]. Now he wants to copy all those records having stream as 'science' (do not consider case) from STUDENT.DAT to SCIENCE.DAT. As a python expert help him to complete the following code.</p> <pre> import pickle def COPYSTREAM(): f1=open(' STUDENT.DAT', '_____') #statement 1 f2=open(' SCIENCE.DAT', '_____') #statement 2 try: while True: rec=pickle._____#statement 3 if rec[1].upper()=='SCIENCE': _____ #statement 4 except: f1.close() f2.close() COPYSTREAM() </pre> <p>(i) Write appropriate file mode in statement 1 and Statement 2 (ii) Which statement should Syam fill in Statement 3 to read the data from the binary file, STUDENT.DAT? (iii) fill in Statement 4 to write the data in the file, SCIENCE.DAT</p>	4