**SET-3**

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**II - PRE-BOARD EXAMINATION 2023-24**

Class: XII Session: 2023-24

Computer Science (083)
Question Paper (Theory)

Time allowed: 3 Hours | Maximum Marks: 70

General Instructions:

· Please check this question paper contains 35 questions.
· The paper is divided into 4 Sections- A, B, C, D and E.
· Section A, consists of 18 questions (1 to 18). Each question carries 1 Mark.
· Section B, consists of 7 questions (19 to 25). Each question carries 2 Marks.
· Section C, consists of 5 questions (26 to 30). Each question carries 3 Marks.
· Section D, consists of 2 questions (31 to 32). Each question carries 4 Marks.
· Section E, consists of 3 questions (33 to 35). Each question carries 5 Marks.
· All programming questions are to be answered using Python Language only.

| Q. No. | Question | Marks |
|---|---|---|
| | SECTION A | |
| 1 | State True or False:<br><br>"Identifiers are pre-defined or reserved words that convey a special meaning in programming language." | 1 |
| 2 | In a table in MYSQL database, an attribute A of datatype varchar (20) has the value "Harish". The attribute B of datatype char (20) has value "Siddhartha ". How many characters are occupied by attribute A and attribute B?<br><br>a. 20,6 b. 6,20 c. 9,6 d. 6,9 | 1 |
| 3 | What will be the output of the following code:<br>t=(4,5,6)<br>t1=t*2<br>print(t1)<br>a) (4,5,6,4,5,6)<br>b) (4,4,5,5,6,6)<br>c) (8,10,12)<br>d) None of the above | 1 |
| 4 | Select the correct output of the code :<br>S= "Amrit Mahotsav @ 75"<br>a=S.partition (" ")<br>print (a) | 1 |

| | | |
|---|---|---|
| | (a) ( 'Amrit Mahotsav', '@', '75') (b) ['Amrit', 'Mahotsav', '@', '75']<br>(c) ('Amrit', 'Mahotsav @ 75') (d) ('Amrit', ' ', 'Mahotsav @ 75') | |
| 5 | In a relational model, _____ is the number of columns.<br>(a) Attribute<br>(b) Degree<br>(c) Relation<br>(d) Tuple | 1 |
| 6 | Two doctors seating in a room and sharing some data between their mobile phone. Identify the type of network formed by their devices.<br>a) LAN b) MAN c) PAN d) WAN | 1 |
| 7 | Given the following dictionary<br>Day={1:"Monday", 2: "Tuesday", 3: "Wednesday"}<br>Which statement will return "Tuesday".<br>(a) Day.pop()<br>(b) Day.pop(2)<br>(c) Day.pop(1)<br>(d) Day.pop("Tuesday") | 1 |
| 8 | What will the following expression be evaluated to in Python ?<br>**2+3/3**1**2*5+10**<br>(a) 6.5<br>(b) 17.0<br>(c) 16.0<br>(d) 17 | 1 |
| 9 | Which of the following statement(s) would give an error after executing the following code?<br><br>Stud = {"Murugan":100,"Mithu":95 } # Statement 1<br>print (Stud[95]) # Statement 2<br>Stud ["Murugan"]=99 # Statement 3<br>print (Stud.pop()) # Statement 4<br>print (Stud) # Statement 5<br>a) Statement 2<br>(b) Statement 3<br>c) Statement 4<br>(d) Statements 2 and 4 | 1 |
| 10 | What possible output(s) are expected to be displayed on screen at the time of execution of the following code ?<br>import random<br>`import random`<br>`S=["Pen","Pencil","Eraser","Bag","Book"]`<br>`for i in range (1,2):`<br>`  f=random.randint(i,3)`<br>`  s=random.randint(i+1,4)`<br>`  print(S[f],S[s],sep=":")`<br>Options :<br>a) Pencil:Book | 1 |

| | | |
|---|---|---|
| | b) Pencil:Book<br>Eraser:Bag<br>c) Pen:Book<br>Bag:Book<br>d) Bag:Eraser | |
| 11 | Fill in the blank:<br>_____is a communication methodology designed to deliver both voice and multimedia communications over Internet protocol.<br>(a) VoIP (b) SMTP (c) PPP (d)HTTP | 1 |
| 12 | Consider the code given below:<br>c = 1<br>def add():<br>_____ # missing statement<br>c = c + 4<br>print(c)<br>add()<br><br>Which of the following statements should be given in the blank for #Missing Statement, if the output produced is 5 ?<br>Options:<br>a. global c<br>b. global c= 5<br>c. global 5<br>d. c= 5 | 1 |
| 13 | _____ function returns a list containing each line in the file as a list item.<br>a. tell()<br>b. read()<br>c. readline()<br>d. readlines() | 1 |
| 14 | Which of the following statements is FALSE about keys in a relational database?<br>a. Any candidate key is eligible to become a primary key.<br>b. A primary key uniquely identifies the tuples in a relation.<br>c. A candidate key that is not a primary key is a foreign key.<br>d. A foreign key is an attribute whose value is derived from the primary key of another relation. | 1 |
| 15 | Fill in the blank :<br>_____ is used for point-to-point communication or unicast communication such as radar and satellite.<br>a. Micro waves<br>b. Infrared waves<br>c. Radio waves<br>d. Bluetooth | 1 |
| 16 | State whether the following statement is True or False:<br>An exception may be raised even if the program is syntactically correct. | 1 |

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| | Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as<br><br>(a) Both A and R are true and R is the correct explanation for A<br>(b) Both A and R are true and R is not the correct explanation for A<br>(c) A is True but R is False<br>(d) A is false but R is True | |
| 17 | Assertion (A): CSV (Comma Separated Values) is a file format for data storage which looks like a text file.<br>Reason (R): The information is organized with one record on each line and each field is separated by comma. | 1 |
| 18 | Assertion (A) : readlines() reads all the lines from a text file and returns the lines along with newline as a list of strings.<br>Reason (R) : readline() can read the entire text file line by line without using any looping statements. | 1 |
| | SECTION B | |
| 19 | Differentiate between Bus Topology and Star Topology. Also, write one advantage of each of them.<br>OR<br><br>(i) Expand the following terms:<br>POP3 , URL<br>(ii) Give one difference between XML and HTML. | 2 |
| 20 | Hari has written a code to input a number and check whether it is prime or not. His code is having errors. Rewrite the correct code and underline the corrections made.<br>`def prime():`<br>`  n=int(input("Enter number to check :: ")`<br>`  for i in range (2, n//2):`<br>`  if n%i=0:`<br>`  print("Number is not prime \n")`<br>`  break`<br>`  else:`<br>`  print("Number is prime \n')` | 2 |
| 21 | Write a function countNow(PLACES) which takes a list of names and displays the names (in uppercase) of the places whose names are longer than 5 characters.<br><br>For example, Consider the following List<br>PLACES= ["Delhi","London","Paris","New York","Doha"]<br>The output should be:<br>LONDON<br>NEW YORK<br><br>OR | 2 |

| | | |
|---|---|---|
| | Write a function, lenWords(STRING), that takes a string as an argument and returns a tuple containing length of each word of a string.<br>For example, if the string is "Come let us have some fun", the tuple will have (4, 3, 2, 4, 4, 3) | |
| 22 | Predict the output of the Python code given below:<br>`tuple1 = (11, 22, 33, 44, 55 ,66)`<br>`list1 =list(tuple1)`<br>`new_list = []`<br>`for i in list1:`<br>`  if i%2==0:`<br>`  new_list.append(i)`<br>`new_tuple = tuple(new_list)`<br>`print(new_tuple)` | 2 |
| 23 | Write the Python statement for each of the following tasks using BUILT-IN functions/methods only:<br><br>(i) To delete second element of the list L1.<br>(ii) Insert the value "orange" as the second element of the list L1.<br>OR<br>A list named studentAge stores age of students of a class. Write the Python command to import the required module and (using built-in function) to display the most common age value from the given list. | 2 |
| 24 | Name any two DDL and any two DML commands.<br>OR<br>Differentiate between count(attribute) and count(*) functions in SQL. | 2 |
| 25 | Write the output of the Python code given below :<br>`a=15`<br>`def update(x):`<br>`  global a`<br>`  a+=2`<br>`  if x%2==0:`<br>`  a*=x`<br>`  else:`<br>`  a//=x`<br>`a=a+5`<br>`print(a,end="$")`<br>`update(5)`<br>`print(a)` | 2 |
| | SECTION C | |
| 26 | Write the output of the code given below: | 3 |

```
a=30
def call(x):
        global a
        if a%2==0:
                x+=a
        else:
                x - =a
        return x
x=20
print(call(35),end="#")
print(call(40),end="@")
```

27 Write the output of the SQL queries (a) to (d) based on the table TRAVEL given below : 3

**Table : TRAVEL**

| T_ID | START | END | T_DATE | FARE |
|---|---|---|---|---|
| 101 | DELHI | CHENNAI | 2021-12-25 | 4500 |
| 102 | DELHI | BENGALURU | 2021-11-20 | 4000 |
| 103 | MUMBAI | CHENNAI | 2020-12-10 | 5500 |
| 104 | DELHI | MUMBAI | 2019-12-20 | 4500 |
| 105 | MUMBAI | BENGALURU | 2022-01-15 | 5000 |

(i) SELECT COUNT(DISTINCT START) FROM TRAVEL;
(ii) SELECT T_ID, FARE FROM TRAVEL
WHERE T_DATE LIKE '2021%' ;
(iii) SELECT T_ID, T_DATE FROM TRAVEL WHERE END = 'CHENNAI'
ORDER BY FARE ;

28 Write a function count_Dwords () in Python to count the words ending with a digit in a text file "details.txt". 3

Example:
If the file content is as follows:
On seat2 VIP1 will sit and
On seat1 VVIP2 will be sitting
Output will be:
Number of words ending with a digit are 4

OR

Write the definition of a Python function named LongLines ( ) which reads the contents of a text file named 'lines.txt' and displays those lines from the file which have at least 10 words in it. For example, if the content of 'lines.txt' is as follows:
Once upon a time, there was a woodcutter
He lived in a little house in a beautiful, green wood.
One day, he was merrily chopping some wood.
He saw a little girl skipping through the woods, whistling happily.

| | | |
|---|---|---|
| | The girl was followed by a big gray wolf.<br><br>Then the function should display output as:<br>He lived in a little house in a beautiful, green wood.<br>He saw a little girl skipping through the woods, whistling happily. | |
| 29 | Consider the following table :<br>Table : LOAN<br>LOAN_NO \| B_NAME \| AMOUNT<br>L-170 \| DELHI \| 3000<br>L-230 \| KANPUR \| 4000<br>Based on the given table, write SQL queries for the following:<br>(i) Increase the amount by 10% of all loan_no.<br>(ii) Display loan_no and interest (12 % of amount) of all records. The column heading 'Monthly interest' should also be displayed.<br>(iii) Delete the records of loan_no who have amount less than 4000. | 3 |
| 30 | A list contains following record of course details for a University:<br>[Course_name, Fees, Duration]<br>Write the following user defined functions to perform given operations on the stack named 'Univ' :<br>(i) Push_element() - To push an object containing the Course_name, Fees and Duration of a course, which has fees greater than 100000 to the stack.<br>(ii) Pop_element() - To pop the object from the stack and display it.<br>Also, display "Underflow" when there is no element in the stack.<br>For example :<br>If the lists of courses details are :<br>['MCA', 200000,3]<br>['MBA', 500000,2]<br>['BA', 100000, 3]<br>The stack should contain :<br>['MBA', 500000,2]<br>['MCA', 200000,3] | 3 |
| | **SECTION D** | |
| 31 | Consider the tables COMPUTER and SALES given below: | 1X4=4 |

Table : COMPUTER

| PROD_ID | PROD_NAME | PRICE | COMPANY | TYPE |
|---|---|---|---|---|
| P001 | MOUSE | 200 | LOGITECH | INPUT |
| P002 | LASER PRINTER | 4000 | CANON | OUTPUT |
| P003 | KEYBOARD | 500 | LOGITECH | INPUT |
| P004 | JOYSTICK | 1000 | IBALL | INPUT |
| P005 | SPEAKER | 1200 | CREATIVE | OUTPUT |
| P006 | DESKJET PRINTER | 4300 | CANON | OUTPUT |

Table : SALES

| PROD_ID | QTY_SOLD | QUARTER |
|---|---|---|
| P002 | 4 | 1 |
| P003 | 2 | 2 |
| P001 | 3 | 2 |
| P004 | 2 | 1 |

Write SQL queries for the following:
(i) Display PROD_NAME and QTY_SOLD from the tables COMPUTER and SALES.
(ii) Display the structure of the table COMPUTER .
(iii) Delete table SALES.
(iv) Display the total QTY_SOLD in each QUARTER.

32 — 4

i. What is the advantage of using a csv file for permanent storage?
ii. Write a Program in Python that defines and calls the following user defined functions:
(i) ADD() – To accept and add data of an employee to a CSV file 'record.csv'. Each record consists of a list with field elements as empid, name and mobile to store employee id, employee name and employee salary respectively.
(ii) COUNTR() – To count the number of records present in the CSV file named 'record.csv'.

OR

i. Give any one point of difference between a binary file and a csv file.
ii. Write a Program in Python that defines and calls the following user defined functions:
(i) add() – To accept and add data of an employee to a CSV file 'furdata.csv'. Each record consists of a list with field elements as fid, fname and fprice to store furniture id, furniture name and furniture price respectively.

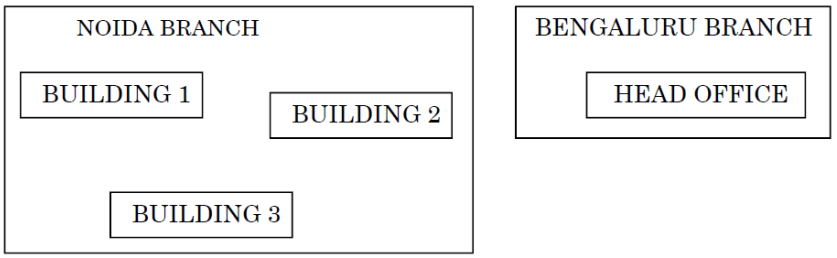
(ii) search()- To display the records of the furniture whose price is more than 10000.

## SECTION E

33 — 1x5=5

ABC Consultants are setting up a secure network for their office campus at Noida for their day-to-day office and web-based activities. They are planning to have connectivity between three buildings and the head office situated in Bengaluru. As a

network consultant, give solutions to the questions (i) to (v), after going through the building locations and other details which are given below :




Distance between various blocks/locations :

| Building | Distance |
|---|---|
| Building 1 to Building 3 | 120 m |
| Building 1 to Building 2 | 50 m |
| Building 2 to Building 3 | 65 m |
| Noida Branch to Head Office | 1500 km |

Number of computers

| Building | Number of Computers |
|---|---|
| Building 1 | 25 |
| Building 2 | 51 |
| Building 3 | 150 |
| Head Office | 10 |

(i) Suggest the most suitable place to install the server for this organization. Also, give reason to justify your suggested location.
(ii) Suggest the cable layout of connections between the buildings inside the campus.
(iii) Suggest the placement of the following devices with justification :
i. Switch
ii. Repeater
(iv) The organization is planning to provide a high-speed link with the head office situated in Bengaluru, using a wired connection. Suggest a suitable wired medium for the same.
(v) The System Administrator does remote login to any PC, if any requirement arises. Name the protocol, which is used for the same.

34 1+4=5

(i) Differentiate between r+ and w+ file modes in Python.
(ii) Consider a file, SPORT.DAT, containing records of the following structure:

[SportName, TeamName, No_Players]
Write a function, copyData(), that reads contents from the file SPORT.DAT and copies the records with Sport name as "**Basket Ball**" to the file named BASKET.DAT. The function should return the total number of records copied to the file BASKET.DAT.

**OR**

(i) How are text files different from binary files?
(ii) A Binary file, CINEMA.DAT has the following structure:

[MNO,MNAME, MTYPE]
Where
MNO – Movie Number
MNAME – Movie Name

| | | |
|---|---|---|
| | MTYPE is Movie Type<br>Write a user defined function, findType(mtype), that accepts mtype as parameter and displays all the records from the binary file CINEMA.DAT, that have the value of Movie Type as mtype. | |
| 35 | (i) Give one difference between alternate key and candidate key.<br>(ii) Kabir wants to write a program in Python to insert the following record in the table named Student in MYSQL database, SAMPLE2023:<br>● rno(Roll number )- integer<br>● name(Name) - string<br>● DOB (Date of birth) – Date<br>● Fee – float<br>Note the following to establish connectivity between Python and MySQL:<br>● Username - root<br>● Password - tiger<br>● Host - localhost<br>The values of fields rno, name, DOB and fee has to be accepted from the user. Help Kabir to write the program in Python.<br>**OR**<br>i. Give one difference between primary key and foreign key.<br>ii. The code given below inserts the following record in the table Student:<br>RollNo – integer<br>Name – string<br>Clas – integer<br>Marks – integer<br>Note the following to establish connectivity between Python and MYSQL:<br>● Username is root<br>● Password is tiger<br>● The table exists in a MYSQL database named school.<br>● The details (RollNo, Name, Clas and Marks) are to be accepted from the user.<br>Write the following missing statements to complete the code:<br>Statement 1 – to access MySQL database<br>Statement 2 – to form the cursor object<br>Statement 3 – to execute the command that inserts the record in the table Student.<br>Statement 4- to add the record permanently in the database<br><br>import _____ as mysql #statement 1<br>import mysql.connector as mysql<br>def sql_data():<br>con1=mysql.connect(host="localhost", user="root", password="tiger", database="school")<br>mycursor=_____ #Statement 2<br>rno=int(input("Enter Roll Number :: "))<br>name=input("Enter name :: ")<br>clas=int(input("Enter class :: "))<br>marks=int(input("Enter Marks :: "))<br>querry="insert into student values ({}, '{}',{},{} )" .format (rno,name,clas,marks)<br>_____ #Statement 3<br>_____ #Statement 4<br>print("Data Added successfully") | 1+4=5 |

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