set -2

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FIRST PRE-BOARD EXAMINATION (2024 - 25)

Class: XII
Subject: COMPUTER SCIENCE (083) set 2

Time: 3hrs
Max Marks: 70

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 21 questions carrying 01 mark each.
4. Section B has 07 Very Short Answer type questions carrying 02 marks each.
5. Section C has 04 Short Answer type questions carrying 03 marks each.
6. Section D has 02 Long Answer type questions carrying 04 marks each.
7. Section E has 03 questions carrying 05 marks each.
8. All programming questions are to be answered using Python Language only.

SECTION-A

S. No	Question	Marks
1	What is the return type of function id? a) int b) float c) bool d) dict	1
2	What error occurs when you execute the following statement? apple = mango a) SyntaxError b) NameError c) ValueError d) TypeError	1
3	Carefully observe the code and give the answer. def example(a): a = a + '2' a = a*2 return a >>>example("hello") a) indentation Error b) cannot perform mathematical operation on strings c) hello2 d) hello2hello2	1
4	Aryan created a table(Students) with 5 rows and 6 columns. After few days based on the requirement he added 3 more rows to the table. What is the cardinality and degree of the table? a) cardinality=6,degree=8 b) cardinality=8,degree=6 c) cardinality=5 degree=8 d) None of the above	1
5	What is the output of the following? print("xyyzxyzxzxyy".count('xyy', 0, 100)) a) 2 b) 0 c) 1 d) error	1
6	What is the output of the below program? def func(a, b=5, c=10): print('a is', a, 'and b is', b, 'and c is', c) func(3, 7) func(25, c = 24) func(c = 50, a = 100)	1

a) a is 7 and b is 3 and c is 10

    a is 25 and b is 5 and c is 24

    a is 5 and b is 100 and c is 50

b) a is 3 and b is 7 and c is 10

    a is 5 and b is 25 and c is 24

    a is 50 and b is 100 and c is 5

c) a is 3 and b is 7 and c is 10

    a is 25 and b is 5 and c is 24

    a is 100 and b is 5 and c is 50

d) None of the mentioned

7	Which of the following statements are true?	1
	a) When you open a file for reading, if the file does not exist, an error occurs	
	b) When you open a file for writing, if the file does not exist, a new file is created	
	c) When you open a file for writing, if the file exists, the existing file is overwritten with the new file	
	d) All of the mentioned	
8	Which of the following is equivalent to random.randint(3, 6)?	1
	a) random.choice([3, 6]) b) random.randrange(3, 6)	
	c) 3 + random.randrange(3) d) 3 + random.randrange(4)	
9	Entries in a stack are "ordered". What is the meaning of this statement?	1
	a) A collection of stacks is sortable	
	b) Stack entries may be compared with the '<' operation	
	c) The entries are stored in a linked list	
	d) There is a Sequential entry that is one by one	
10	Bridge works in which layer of the OSI model?	1
	a) Application layer b) Transport layer	
	c) Network layer d) Data link layer	
11	SMTP stands for	1
	a) sample mail transfer protocol b) simple message transportation protocol	
	c) simple mail transfer protocol d) synchronous message transmit protocol	
12	Which of the following statement will reverse the list L1?	1
	a)L1[::1] b)L1[-1::-1] c)L1[::-1] d)None of the above	
13	Out of one or more candidate keys, the attribute chosen by the database designer to uniquely identify the tuples in a relation called_____ of that relation.	1
	a)primary key b)foreign key c)composite primary key d)alternate key	
14	The loop else statement is executed when	1
	a)the for loop is executed for the last value in the sequence	
	b)the while loop test condition evaluates to false	
	c)both a and b	
	d)none of the above	

15	Hub decreases the traffic in the network whereas switch increases the traffic in the network. (Ture/False) *false*	1
16	Which of the following expressions evaluates to False? a) not(True) and False b) True or False c) not(False and True) d) True and not(False)	1
17	Which of the following is an invalid identifier? (a)_123 (b) E_e12 (c) None (d) true	1
18	Which of the following is a DML command? (a) DROP (b) INSERT (c) ALTER (d) CREATE	1
19	Which aggregate function can be used to find the cardinality of a table? a) sum() b) count() c) avg() d) max()	1
20	Assertion(A):Python uses immutable types for call by value mechanism Reason (R):in the call by value mechanism, the called function makes a separate copy of passed values and then works with them. a) Both A and R are wrong b)A is wrong, but R is right c)A is right, but R is wrong d)Both A and B are Right	1
21	Assertion (A): Python automatically flushes the file buffers before closing a file with close () function. Reason (R): when you open an existing file for writing, it adds the content at the end of the file. a) Both A and R are wrong b)A is wrong, but R is right c)A is right, but R is wrong d)Both A and B are Right	1

SECTION-B

22	Write the output given by following Python code.	2

```
x=1
def fun1():
    x=3
    x=x+1
    print(x)

def fun2():
    global x
    x=x+2
    print(x)
fun1()
fun2()
```

4
3

ans

Definition -1
Suitable example -1

	OR	
	What do you mean by default parameters? Explain with the help of suitable example.	
23	(i) Write the SQL statement to add a field Country_Code(of type Integer) to the table Countries with the following fields. ~~Alter table~~ Country_id, Country_name, Continent, Region_id (ii) Which of the following is not a DML command? ~~Drop Table~~ DELETE FROM, DROP TABLE, CREATE TABLE, INSERT INTO	1+1

24	What are the possible outcome(s) executed from the following code? Also specify the maximum and minimum values that can be assigned to variable N.
	 import random
	 SIDES=["EAST","WEST","NORTH","SOUTH"]
	 N=random.randint(1,3)
	 OUT=""
	 for I in range (N,1,−1):
	    OUT=OUT+SIDES[I]
	 print (OUT)
	                     ~~Max 3~~
	                     ~~Min 1~~
	 (i) SOUTHNORTH
	 (ii) SOUTHNORTHWEST
	 (iii) SOUTH
	 (iv) EASTWESTNORTH
		2

25	Write two points of difference between Bus Topology and Tree Topology. **OR** Write two points of difference between Packet Switching and Circuit Switching techniques?	2
26		2

ADMNO	NAME	STREAM	DOB	PHONE	SECTION
101	Srishti B	Business Admin	2005-05-22	1234322934	Null
102	Aman Pratap	Sciences	2005-11-02	671343224	S
103	Shivam	Sciences	2006-01-23	512343224	A
104	Banita	Business Admin	2005-10-22	132412934	Null
105	Myra	Fine Arts	2005-07-01	134455931	C
106	Raghav	Humanities	2005-06-05	42155931	D
107	Medini	Fine Arts	2005-09-05	512155931	C

Write the output of the queries (a) to (d) based on the table SCHOOLADMIN given above:

a) SELECT max (DOB) FROM SCHOOLADMIN;   ~~2005-11-12~~

b) SELECT Name FROM SCHOOLADMIN WHERE STREAM<>"Business Admin" AND SECTION IS NULL;   ~~empty set~~

c) SELECT count (NAME) FROM SCHOOLADMIN WHERE SECTION IS NOT NULL;   ~~5~~

d) SELECT count (NAME) FROM SCHOOLADMIN WHERE SECTION IS NOT NULL AND STREAM="FINE ARTS";   ~~2~~

27	Rewrite the following Python program after removing all the syntactical errors (if any), underlining each correction:	2
| | ```
def checkval:
    x = input("Enter a number")
    if x % 2 = 0:
        print(x,"is even")
    else if x<0:
        print(x,"should be positive")
    else:
        print x,"is odd"
``` | |

28	(a) What is the output produced by the following code –	2
	``
d1={"b":[6,7,8],"a":(1,2,3)}
print(d1.values())
```
a) { (1,2,3) , [6,7,8] }
b) [[6,7,8],(1,2,3)]
c) [6,7,8,1,2,3]
d) ("b", "a") | |

| | (b) What is the output of given program code: | |
| | ```
list1 = range(100,110)
print( list1.index(105))
```
(a) 4   (b) 5   (c) 6   (d) Error | |

SECTION-C		
29	(a)Write a function in python to count the number of lines in "POEM.txt" that begins with Upper case character.	3
	OR	
	Write a function in python to read lines from file "POEM.txt" and count how many times the word "INDIA" exists in file.	
30	Write a function in Python PUSH(Num), where Num is a list of integer numbers. From this list push all positive even numbers into a stack implemented by using a list. Display the stack if it has at least one element, otherwise display appropriate error message.	3
	OR	
	Write a function in Python POP(cities), where cities is a stack implemented by a list of city names for eg. cities=['Delhi', 'Jaipur', 'Mumbai', 'Nagpur']. The function returns the value deleted from the stack.	
31	(a)Sonal needs to display name of teachers, who have "0" as the third character in their name. She wrote the following query. SELECT NAME FROM TEACHER WHERE NAME = "$$0?"; But the query is'nt producing the result. Identify the problem.	1+2
	(b)Write output for (i) & (iv) based on table COMPANY and CUSTOMER.	

COMPANY

CID	NAME	CITY	PRODUCTNAME
111	SONY	DELHI	TV
222	NOKIA	MUMBAI	MOBILE
333	ONIDA	DELHI	TV
444	SONY	MUMBAI	MOBILE
555	BLACKBERRY	MADRAS	MOBILE
666	DELL	DELHI	LAPTOP

CUSTOMER

CUSTID	NAME	PRICE	QTY	CID
101	ROHAN SHARMA	70,000	20	222
102	DEEPAK KUMAR	50,000	10	666
103	MOHAN KUMAR	30,000	5	111
104	SAHIL BANSAL	35,000	3	333
105	NEHA SONI	25,000	7	444
106	SONAL AGGARWAL	20,000	5	333
107	ARUN SINGH	50,000	15	666

i. SELECT COUNT(*), CITY FROM COMPANY GROUP BY CITY;
ii. SELECT MIN(PRICE), MAX(PRICE) FROM CUSTOMER WHERE QTY>10;
iii. SELECT AVG(QTY) FROM CUSTOMER WHERE NAME LIKE "%r%;
iv. SELECT PRODUCTNAME, CITY, PRICE FROM COMPANY, CUSTOMER
v. WHERE COMPANY.CID=CUSTOMER.CID AND PRODUCTNAME="MOBILE";

32	Write a function EVEN_LIST(L), where L is the list of elements passed as argument to the function. The function returns another list named 'evenList', that stores the indices of all even numbers of L. For example: If L contains [12,4,3,11,13,56] The evenList will have - [0,1,5]	3

SECTION-D

33	Write a python program to create a csv file dvd.csv and write 10 records in it with the following details: Dvdid, dvd name, qty, price. Display those dvd details whose dvd price is more than 25.	4
34	Consider the tables below to write SQL Queries for the following:	4

TABLE: SCHOOL

CODE	TEACHER	SUBJECT	DOJ	PERIODS	EXPERIENCE
1001	RAVI SHANKAR	ENGLISH	12/3/2000	24	10
1009	PRIYA RAI	PHYSICS	03/09/1998	26	12
1203	LIS ANAND	ENGLISH	09/04/2000	27	5
1045	YASHRAJ	MATHS	24/8/2000	24	15
1123	GANAN	PHYSICS	16/7/1999	28	3
1167	HARISH B	CHEMISTRY	19/10/1999	27	5
1215	UMESH	PHYSICS	11/05/1998	22	16

TABLE: ADMIN

CODE	GENDER	DESIGNATION
1001	MALE	VICE PRINCIPAL
1009	FEMALE	COORDINATOR
1203	FEMALE	COORDINATOR
1045	MALE	HOD
1123	MALE	SENIOR TEACHER
1167	MALE	SENIOR TEACHER
1215	MALE	HOD

i. To display TEACHERNAME, PERIODS of all teachers whose periods are more than 25.

ii. To display all the information from the table SCHOOL in descending order of experience.

iii. To display DESIGNATION without duplicate entries from the table ADMIN.

iv. To display TEACHERNAME, CODE and corresponding DESIGNATION from tables SCHOOL and ADMIN of Male teachers.

SECTION-E

35 Perfect Edu Services Ltd. is an educational organization. It is planning to setup its India campus at Chennai with its head office at Delhi. The Chennai campus has 4 main buildings – ADMIN, ENGINEERING, BUSINESS and MEDIA.

You as a network expert have to suggest the best network related solutions for their problems raised in (i) to (v), keeping in mind the distances between the buildings and other given parameters.

Shortest distances between various buildings:

ADMIN to ENGINEERING	55 m
ADMIN to BUSINESS	90 m
ADMIN to MEDIA	50 m
ENGINEERING to BUSINESS	55 m
ENGINEERING to MEDIA	50 m
BUSINESS to MEDIA	45 m
DELHI Head Office to CHENNAI Campus	2175 km

Number of Computers installed at various buildings are as follows:

ADMIN	110
ENGINEERING	75
BUSINESS	40
MEDIA	12
DELHI Head Office	20

DELHI
Head Office

CHENNAI
Campus

ENGINEERING

ADMIN

BUSINESS

MEDIA

(i) Suggest the most appropriate location of the server inside the CHENNAI campus (out of the 4 buildings), to get the best connectivity for maximum no. of computers. Justify your answer.

(ii) Suggest and draw the cable layout to efficiently connect various buildings within the CHENNAI campus for connecting the computers.

(iii) Which hardware device will you suggest to be procured by the company to be installed to protect and control the internet uses within the campus?

(iv) Which of the following will you suggest to establish the online face-to-face communication between the people in the Admin Office of CHENNAI campus and DELHI Head Office?

(a) Cable TV
(b) Email
(c) Video Conferencing
(d) Text Chat

(v)Name protocols used to send and receive emails between CHENNAI and DELHI office?

36 A binary file "STOCK.DAT" has structure [ITEMID, ITEMNAME, QUANTITY, PRICE].

(i) Write a user defined function MakeFile() to input data for a record and add to Book.dat.

(ii) Write a function GetPrice(ITEMID) in Python which accepts the ITEMID as parameter and return PRICE of the Item stored in Binary file STOCK.DAT.

OR

A binary file "EMPLOYEE.DAT" has structure (EMPID, EMPNAME, SALARY).

Write a function CountRec( )in Python that would read contents of the file "EMPLOYEE.DAT" and display the details of those Employees whose Salary is above 20000. Also display number of employees having Salary more than 20000.

37 (a)Write the outputs of the SQL queries (i) to (iii) based on relations EMP and DESIG given below:

Table: EMP

E_ID	Name	Gender	Age	DOJ	Designation
1	Om Prakash	M	35	10 11 2009	Manager
2	Jai Kishan	M	32	12 05 2013	Accountant
3	Shreya Sharma	F	30	05 02 2015	Clerk
4	Rakesh Minhas	M	49	15 05 2007	Manager
5	Himani Singh	F	33	19 09 2010	Clerk

Table: DESIG

Salary	E_ID	DEPT_ID
45000	1	D101
35000	2	D102
45000	4	D101

(i) SELECT Designation, count(*) FROM EMP GROUP BY Designation;

(ii) SELECT AVG(Age) FROM EMP;

(iii) SELECT EMP.Name,EMP.Designation,DESIG.Salary FROM EMP,DESIG WHERE EMP.E_ID = DESIG.E_ID AND EMP.Age>35;

(b)Preety has written the code given below to read the following record from the table named employee and displays only those records who have salary greater than 53500:

Empcode – integer
EmpName – string
EmpSalary – integer

Note the following to establish connectivity between Python and MYSQL:
  • Username is root
  • Password is root@123
  • The table exists in a MYSQL database named management.
Write the following missing statements to complete the code:
Statement 1 – to form the cursor object

Statement 2 – to execute the query that extracts records of those employees whose salary are greater than 53500.

Statement 3- to read the complete result of the query (records whose salary are greater than 53500) into the object named data, from the table employee in the database.

```
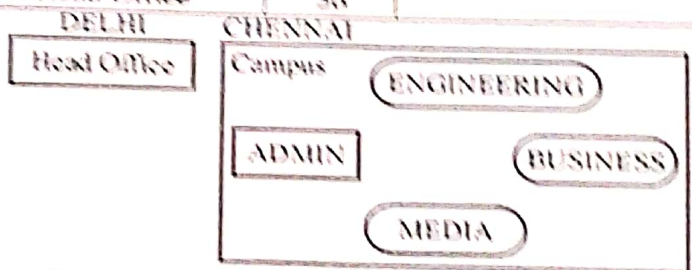import mysql.connector as mysql
def sql_data():
    con1=mysql.connect(host="localhost",user="root",password="root@123",
database="management")
    mycursor=_____        #Statement 1
    print("Employees with salary greater than 53500 are : ")
    con1. cursor()                            #Statement 2
    data=my cursor execute( select #Statement 3    for all who works 3>7 ")
    for i in data:
        print(i)
    print()
```

*****END*****