B

COIMBATORE SAHODAYA SCHOOLS COMPLEX

PRE – BOARD EXAMINATION (DEC–2022)

GRADE: 12 **MARKS: 70**

DATE : COMPUTER SCIENCE **TIME : 3 HRS**

General Instructions:

1. This question paper contains five sections, Section A to E.
2. All questions are compulsory.
3. Section A has 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. One internal choice is given in Q35 against Part-C only
8. All programming questions are to be answered using Python Language only.

S.NO	SECTION-A	MARKS
1	The continue statement is used: (a) to pass the control to the next iterative statement (b) to come out from the iteration (c) to break the execution and passes the control to else statement (d) to terminate the loop	1
2	Common types of exception in python are: (a) Syntax Error (b) Zero division error (c) (a) and (b) (d) None of these	1
3	Which of the following is an incorrect logical operator in python? (a)not (b) in (c) or (d) and	1
4	Which of the following is not a function/method of the random module in python? (a) randfloat( ) (b) randint( ) (c) random( ) (d) randrange( )	1
5	Which of the following is not a tuple in Python? (a) (1,2,3) (b) (“One”,”Two”,”Three”) (c) (10,) (d) (“One”)	1
6	Built-in functions are also known as _____	1
7	For a function header as follows: def calc(x,y=20): Which of the following function calls will give an error? (a) calc(15,25) (b) calc(x=15,y=25) (c) calc(y=25) (d) calc(x=25)	1

8	If the following statement is used to read the contents of a text file object F: x=F.readlines( ) Which of the following is the correct data type of x? (a) string (b) list (c) tuple (d) dictionary	1
9	Which of the following command is used to open a file "c:\pat.dat" for writing as well as reading in binary format only? (a) fout=open("c:\pat.dat","w") (b) fout=open("c:\\pat.dat","wb") (c) fout=open("c:\pat.dat","w+") (d) fout=open("c:\pat.dat","wb+")	1
10	Which one is the correct output for the following code? a=[1,2,3,4] b=[sum(a[0:x+1]) for x in range(0,len(a))] print (b) (a) 10 (b) [1,3,5,7] (c) 4 (d) [1,3,6,10]	1
11	Which SQL function is used to count all records of a table?	1
12	_____ key is used to uniquely identify row in a table and also does not accept NULL values.	1
13	State True or False: Delete command is used to remove table.	1
14	What does the following query do? UPDATE employee SET salary=salary * 1.10; (a) It increases the salary of all the employees by 10% (b) It decreases the salary of all the employees by 10% (c) It increases the salary of all the employees by 110% (d) It is syntactically correct	1
15	The SQL _____ clause contains the condition that specifies which rows are to be selected.	1
16	Which of the following is /are email protocols? (a) TCP (b) IP (c) SMTP (d) POP	1
	Q17 and 18 are ASSERTION AND REASONING based questions. Mark the correct choice as (a) Both A and R are true and R is the correct explanation for A (b) Both A and R are true and R is not the correct explanation for A (c) A is true but R is false (d) A is false but R is true	
17	Assertion(A): Stack is a linear data structure that works on the principle of FIFO(First In First OUT) Reason(R): The stack is created with the help of a list with some restrictions. It manages a pointer called stack pointer(SP) that will increase or decrease by 1, if an element is entered or removed from the stack respectively.	1
18	Assertion(A): The file access mode 'a' is used to append the data in the file. Reason(R): In the access mode 'a' the text will be appended at the end of the existing file. If the file does not exist, Python will create a new file and write data into it.	1

<table>
<tr><th>S.NO</th><th>SECTION-B</th><th>MARKS</th></tr>
<tr><td>19</td><td>Find the output for the following code:
(a) def display (num) :
num.append ([27])
return (num[1], num[2], num[3])
list1= [6, 12, 27]
n1, n2, n3 = display (list1)
print (list1)
(b) x = ['ab', 'cd']
for i in x:
i.upper()
print(x)</td><td>1

1</td></tr>
<tr><td>20</td><td>Write two advantages of using an optical fibre cable over an Ethernet cable to connect two service stations, which are 190m away from each other.
(OR)
What is the purpose of using router?</td><td>2</td></tr>
<tr><td>21</td><td>Reena has written a code to check the maximum of given numbers. Her code is having errors. Rewrite the correct code with output and underline the correction made.
def printMax(a, b)
if a> b:
print(a, 'is maximum')
elif a = b:
print(a, 'is equal to', b)
else;
print(b, 'is maximum')
printMax(33,94):</td><td>

2</td></tr>
<tr><td>22</td><td>What will be the output of the following queries on the basis of EMPLOYEE table?
Table: Employee
<table><tr><th>Emp_Id</th><th>Name</th><th>Salary</th></tr><tr><td>E01</td><td>Siya</td><td>54000</td></tr><tr><td>E02</td><td>Joy</td><td>NULL</td></tr><tr><td>E03</td><td>Allen</td><td>32000</td></tr><tr><td>E04</td><td>Neev</td><td>42000</td></tr></table>(i) SELECT Salary + 100 FROM Employee WHERE Emp_Id= ‘E02’;
(ii) SELECT Name FROM Employee WHERE Emp_Id= ‘E04’;</td><td>2</td></tr>
<tr><td>23</td><td>(a) What is VoIP?
(b) Briefly explain the following terms: (i) HTML (ii) XML</td><td>2</td></tr>
<tr><td>24</td><td>Predict the output of the Python code given below:
z= 100
def f( ):
global z</td><td></td></tr>
</table>

```
    print('z is:', z)
    z=50
    print('New value of global z is:', z)
f( )
print('Value of z is:', z)
```

(OR)

Predict the output of the Python code given below:

```
def COUNT ( ):
    s=open ("Quotes.txt", "r")
    f=s.read( )
    z=f.split( )
    count=0
    for i in z:
        count=count+1
    print (count)
COUNT( )
```

25 Differentiate between ALTER and UPDATE commands in SQL. 2

(OR)

In the following query how many rows will be deleted?

DELETE Student

WHERE StudentID=105;

(Assuming a Student table with primary key StudentID)

S.NO **SECTION-C** **MARKS**

26 Give output for following SQL queries as per given tables: 3

TABLE: CLUB

COACH_ID	COACHNAME	AGE	SPORTS	DOJ	PAY	SEX
1	ARUN	35	KARATE	27/03/1996	1000	M
2	RAVINA	34	KARATE	20/01/1998	1200	F
3	KARAN	34	SQUASH	19/02/1998	2000	M
4	TARUN	33	BASKETBALL	01/01/1998	1500	M
5	ANKITA	36	SWIMMING	12/01/1998	750	F

TABLE: COACHES

SPORTSPERSON	SEX	COACH_NO
AJAY	M	1
SHAILYA	F	2
VINOD	M	1
TANEJA	F	3

(i) SELECT AVG(PAY) FROM CLUB WHERE SPORTS=”KARATE”;

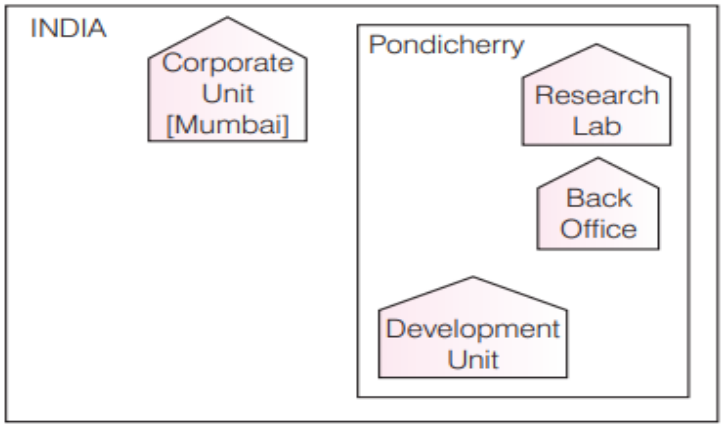
(ii) (a) SELECT MIN(AGE) FROM CLUB WHERE SEX=”F”;

(b) SELECT COUNT(DISTINCT SPORTS) FROM CLUB;

(iii) SELECT SPORTSPERSON, COACHNAME

FROM CLUB, COACHES

	WHERE CLUB. COACH_ID=COACHES.COACH_NO;	
27	Write a function/method DISPLAYWORDS( ) in python to read lines from a text file STORY.TXT and display those words, which are less than 4 characters. (OR) Write a function to count the words He/She in a file.	3
28	(a) Consider the following tables DOCTOR and SALARY. Write SQL commands for the following statements. **Table: DOCTOR** **ID** | **NAME** | **DEPT** | **SEX** | **EXPERIENCE** 101 | John | ENT | M | 12 104 | Smith | ORTHOPEDIC | M | 5 107 | George | CARDIOLOGY | M | 10 114 | Lara | SKIN | F | 3 109 | K George | MEDICINE | F | 9 105 | Johnson | ORTHOPEDIC | M | 10 117 | Lucy | ENT | F | 3 111 | Bill | MEDICINE | F | 12 130 | Morphy | ORTHOPEDIC | M | 15 **Table: SALARY** **ID** | **BASIC** | **ALLOWANCE** | **CONSULTATION** 101 | 12000 | 1000 | 300 104 | 23000 | 2300 | 500 107 | 32000 | 4000 | 500 114 | 12000 | 5200 | 100 109 | 42000 | 1700 | 200 105 | 18900 | 1690 | 300 117 | 11000 | 1000 | 300 111 | 41000 | 1600 | 200 130 | 21700 | 2600 | 300 (i) Display NAME of all doctors who are in "ORTHOPEDIC" having more than 10 years experience from the table DOCTOR. (ii) Display the average salary of all doctors working in "ENT" department using the DOCTOR and SALARY. (Salary= Basic + Allowance) (iii) Display the minimum ALLOWANCE of female doctors. (iv) Display the highest consultation fee amount for all male doctors. (b) Write the command to view all tables in a database.	2+1
29	Write a function in python POP(Arr), where Arr is a stack implemented by a list of numbers. The function returns the value deleted from the stack.	3
30	Write a function called rem_keys(D,keylist) that accepts two parameters: a dictionary called D and a list called keylist. Function rem_keys(D,keylist) should remove all the keys contained in the passed keylist from the dictionary D and return the dictionary. (OR)	3

	Write a function addrecord( ) to add new record to the binary file "student" using list. The list should consist of student number, student name and marks of the student.	
S.NO	**SECTION-D**	**MARKS**
31	Bias Methodologies is planning to expand their network in India, starting with three cities in India to build infrastructure for research and development of their chemical products. The company has planned to set up their main office in Pondicherry at three different locations and have named their offices as Back Office, Research Lab and Development Unit. The company has one more research office namely Corporate Unit in Mumbai. A rough layout of the same is as follows:  Approximate distance between these offices are as follows:	5

FROM	TO	DISTANCE
Research Lab	Back Office	110 m
Research Lab	Development Unit	16 km
Research Lab	Corporate Unit	1800 km
Back Office	Development Unit	13 km

In continuation of the above, the company experts have planned to install the following number of computers in each of their offices.

Research Lab	158
Back office	79
Development Unit	90
Corporate Unit	51

(i) Suggest the type of network required (out of LAN, MAN, WAN) for connecting each of the following office units.

- Research Lab and Back Office
- Research Lab and Development Unit.

(ii) Which one of the following device, will you suggest for connecting all the computers with in each of their office units?

- Switch/Hub
- Modem
- Telephone

	(iii) (a) Which of the following communication medium will you suggest to be procured by the company for connecting their local office units in Pondicherry for very effective (high speed) communication? ➢ Telephone cable ➢ Ethernet cable ➢ Optical fibre (iv) Which building is suitable to install the server with suitable reason? (v) Suggest a cable/wiring layout for connecting the company's local office units located in Pondicherry. Also, suggest an effective method/technology for connecting the company's office unit located in Mumbai.	

32	(a) Predict the output for the following code:
	num=123
	f=0
	s=0
	while(num > 3):
	  rem = num % 100
	  if(rem % 2 != 0):
	  f += rem
	  else:
	  s+=rem
	  num /=100
	print(f-s)
	(b) A library uses a database management system (DBMS) to store the details of the books that it stocks, its registered members and the book-loans that the library has made. These details are stored in a database using the following three relations. Name of the Database: KVS Library. **(NOTE: The library does not stock more than one copy of the same book)**
	➢ **Book**(BookID: Char(5), Title: Varchar(25), Author: Varchar(25), Publisher: Varchar(100))
	➢ **Member**(MemberID: Char(5), FirstName: Varchar(25), LastName: Varchar(25), Correspondance-Address: Varchar(100), Pincode: Char(6), DateofBirth: Date, EmailID:Varchar(50))
	➢ **Loan**(MemberId: Char(5), BookID: Char(5), LoanDate: Date, DueBackDate: Date, Returned: Boolean)
	(i) Identify following types of keys from all the relations of the given database: Foreign keys along with parent relations
	(ii) Can a relation have multiple foreign keys? Give example.
	(iii) Write a SQL query to retrieve the names and email addresses of the members belonging to KVS (they have email ids as _____@kvs.in) and who have not returned their books.
	(OR)
	(a) Predict the output for the following code:
	def test(i, a =[]):
		2+3

	a.append(i)
	return a
	test(25)
	test(32)
	s = test(17)
	print(s)
	(b) The given program is used to connect with MYSQL and show the name of all tables available in MySQL server "TEST" database. You are required to complete the statements so that the code can be executed properly.
	import _____ (i)
	# complete the statement with appropriate library name
	db=mysql.connector. _____(ii)
	(host="localhost", user="root", password="smsmb")
	# fill the statement with appropriate method
	cur=db._____( ) (iii)
	# method to open the cursor object
	data= "_____" (iv)
	#complete the statement with the appropriate database name
	cur.execute("_____"+data) (v)
	# command to open the database
	cur.execute("_____") (vi)
	#command to display name of all the tables	

33	What is stack type of data structure? List out its applications. Write a function called authenticate(users,loginid,password) which takes following three parameters: users: a dictionary storing login ids and corresponding password values loginid: a string for a login name password: a string for a password The function should do the following: (i) if the user exists and the password is correct for the given loginid, it should print "Access granted" (ii) if the user exists and the password is incorrect for the given loginid, it should print "Incorrect password" (iii) if the user does not exist for the given loginid, it should print "Wrong credentials" (OR) What is a file? How a text file is different from binary file? A binary file "BOOK.dat" has structure [BookNo, Book_Name, Author, Price] (i) Write a user defined function Createfile( ) to input data for a record and add to Book.dat	5

(ii) Write a function Countrec(Author) in python which accepts the Author name as parameter and count and return number of books by the given Author are stored in the binary file "Book.dat"

S.NO | **SECTION-E** | **MARKS**

34 | 1+1+2

Database name: Shop
Table name: Infant

Itemcode	Item	Datepurchase	Unitprice	Discount
101	Frock	2016-01-23	700	10
102	Cot	2015-09-23	5000	25
103	Soft Toy	2016-06-17	800	10
104	Baby Socks	2014-10-16	100	7
105	Baby Suit	2015-09-20	500	5

(i) Write a query to make Item code as primary key in the above existing table.
(ii) Write the command to remove the column Discount.
(iii) (a) Write the command to display the structure of the table infants which is Shop database.
(b) Write the degree and cardinality of the table.

(OR) (Option given for part (iii) only)

(iii) (a) Add a new row with the following values in respective attributes.
Itemcode=106, Item=Bath Tub, Datepurchase=2015-10-22, Unitprice=1500
(b) Write the command to display Item, Unitprice in descending order.

35 | 4

Ariba Malik has been following incomplete code, which takes a student's details (rollnumber, name and marks) and writes into a binary file stu.dat using pickling.

```
import pickle
sturno=int(input("Enter roll number:"))
stuname=input("Enter name:")
stumarks=float(input("Enter marks:"))
stu1={"RollNo.":sturno,"Name":stuname,"Marks":stumarks}
with _____ as fh:      # Fill_Line1
    _____              # Fill_Line2
_____ as fin:          # Fill_Line3
    _____              # Fill_Line4
    print(Rstu)
    if Rstu["Marks"]>=85:
       print("Eligible for merit certificate")
    else:
       print("Not eligible for merit certificate")
```

(a) Complete Fill_Line1 so that the mentioned binary file is opened for writing in fh object using a with statement.
(b) Complete Fill_Line2 so that the dictionary stu1's contents are written on the file opened in step(a)

	(c) Complete Fill_line3 so that the earlier created binary file is opened for reading in a file object namely fin, using a with statement. (d) Complete Fill_line4 so that the contents of open file in fin are read into a dictionary namely Rstu.	