AL ALIA INTERNATIONAL INDIAN SCHOOL, RIYADH
Pre Board Examination 2 - February 2024

CLASS: XII **DURATION:03 HOURS**
SUBJECT: COMPUTER SCIENCE **Max mark: 70**
Date: 15/02/24

General Instructions:

1. Please check this question paper contains 35 questions.
2. The paper is divided into 5 sections- A,B,C,D and E.
3. Section A consists of 18 questions (1 to 18). Each Questions carries 1 mark.
4. Section B consists of 7 questions (19 to 25). Each Questions carries 2 marks.
5. Section C consists of 5 questions (26 to 30). Each Questions carries 3 marks.
6. Section D consists of 2 questions (31 to 33). Each Questions carries 5 marks.
7. Section E consists of 3 questions (34 to 35). Each Questions carries 4 marks.
8. All programming questions are to be answered using Python Language only.

	SECTION A	
1.	Which of the following is an invalid identifier to be used in Python? a. per%marks b. _for c. While d. true	1
2.	What is the correct way to add an element to the end of a list in Python? a. list.add(element) b. list.append(element) c. list.insert(element) d. list.extend(element)	1
3.	What will be the output of	1

	print("Welcome To My Blog"[2:6] + "Welcome To My Blog"[5:9]) a. Lcomme b. lcomme T c. lcomme To d. lcomme	
4.	Correct syntax of file.writelines() is? a) file.writelines(sequence) b) fileObject.writelines() c) fileObject.writelines(sequence) d) none of the mentioned	1
5.	Which of the following statement(s) would give an error during the execution of the following code? R = {'pno':52,'pname':'Virat','expert':['Badminton','Tennis'],'score':(77,44)} print(R) #Statement 1 R['expert'][0]='Cricket' #Statement 2 R['score'][0]=50 #Statement 3 R['pno']=50 #Statement 4 a. Statement 1 b. Statement 2 c. Statement 3 d. Statement 4	1

6.	Which pickle module method is used to write a Python object to a binary file? a. save() b. serialize() c. store() d. dump()	1

7.	Given the following dictionaries dict_student = {"rno" : "53", "name" : 'Rajveer Singh'} dict_marks = {"Accts" : 87, "English" : 65} Which statement will append the contents of dict_marks in dict_student? a. dict_student + dict_marks b. dict_student.add(dict_marks) c. dict_student.merge(dict_marks) d. dict_student.update(dict_marks)	1
8.	Which of the following is not a component of the math module in Python? a. ceil() b. mean() c. fabs() d. pi	1
9.	What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code? Select correct options (can also choose more than one option) from below. import random arr=['10','30','40','50','70','90','100'] L=random.randrange(1,3)	1

	U=random.randrange(3,6) for i in range(L,U+1): print(arr[i],"$",end="@") a)30$@40$@50$@70$@90 b)30$@40$@50$@70$@90$@ c)30$@40$@70$@90$@ d)40$@50$@	
10.	Expand the following terms: (i) PPP (ii) VoIP	1
11.	Which SQL operator performs pattern matching? a. BETWEEN operator b. LIKE operator c. EXISTS operator d. =	1
12.	Which Python function is used for displaying only one result set from SQL table in a database? a. fetch1() b. fetchno() c. fetchall() d. fetchone()	1
13.	Which of the following file opening mode in Python, generates an error if the file does not exist? a. a b. r c. w d. w+	1

14.	The correct syntax of seek() is: a. file_object.seek(offset [, reference_point]) b. seek(offset [, reference_point]) c. seek(offset, file_object) d. seek.file_object(offset)	1
15.	Which of the following statements is false? a. SMTP and POP protocols are used in email communication. b. URL of a page is not always the same as its domain name. c. HTTPS is safer than HTTP. d. Interlinking of collection of webpages is called Internet.	1
16.	Fill in the blank: _____ protocol provides access to services hosted on a remote computer. a. FTP b. PPP c. Telnet d. SMTP	1

Q17 and 18 are ASSERTION (A) AND REASONING (R) 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): For changes made to a variable defined within a function to be visible outside the function, it should be declared as global. Reasoning (R): Variables defined within a function are	1

	local to that function by default, unless explicitly specified with the global keyword.	
18.	Assertion (A): A binary file in python is used to store collection objects like lists and dictionaries that can be later retrieved in their original form using pickle module. Reasoning (A): Binary files are just like normal text files and can be read using a text editor like Notepad.	1

	SECTION B	
19.	Write two advantages and two disadvantages of circuit switching.	2
20.	Rewrite the following code in Python after removing all the syntax errors. Underline each correction done in the code. num1, num2 = 10, 45 While num1 % num2 == 0 num1+= 20 num2+= 30 Else: print('hello')	2
21.	Write a function EOReplace() in python, which accepts a list L of numbers. Thereafter, it increments all even numbers by 1 and decrements all odd numbers by 1. Example: If Sample input data of the list is: L=[10,20,30,40,35,55] Output will be : L=[11,21,31,41,34,54] OR	2

	Write a Python Program containing a function FindWord(STRING,SEARCH),that accepts two arguments : STRING and SEARCH, and prints the count of occurrence of SEARCH in STRING. Write appropriate statements to call the function. For example, if STRING = "Learning history helps to know about history with interest in history" and SEARCH = 'history', the function should display The word history occurs 3 times.	

22.	What will be the output of the following code?
	
	L = [5,10,15,1]
	G = 4
	def Change(X):
	  global G
	  N=len(X)
	  for i in range(N):
	  X[i] += G
	
	Change(L)
	for i in L:
	  print(i, end='$')
		2

23.	Write a suitable Python statement for each of the following tasks using built-in functions/methods only: i To delete an element Mumbai:50 from Dictionary D. ii To display words in a string S in the form of a list.	2
24.	i) While creating the table student last week, Ms. Sharma forgot to include the column Game_played. Now write a command to insert the Game_played column with VARCHAR data type and 30 size into the student table? ii) Kunal created the following table with the name ‘Friends’ containing the attributes- Friendcode, Name &	2

	Hobbies. Now, Kunal wants to delete the 'Hobbies' column. Write the MYSQL statement for the same.	
25.	Find the output of the following: def anher(x,y=10): x=x/y y=x%y returnx m=200 n=20 m=anher(m,n) print(m,n,sep="#") n=anher(n) print(m,n,sep="#",end="$$$")	2

SECTION C

26. (a) Consider the table, BOOK and MEMBER given below: 3

TABLE : BOOK

CODE	BNAME	TYPE
F101	The priest	Fiction
L102	Easy Python	Programming
C101	Juman Ji	Thriller
F102	Untold Story	Fiction
C102	War Stories	Comic

Table: MEMBER

MNO	MNAME	CODE	ISSUEDATE
M101	SNEH SINHA	L102	2022-10-13
M103	SARTHAK	F102	2021-02-23
M102	SARA KHAN	C101	2022-06-12

What will be the output of the following statement?

```
SELECT * FROM BOOK NATURAL JOIN MEMBER;
```

(b) Write the output of the queries (i) to (iv) based on the table

Table: Employee

EID	Name	DOB	DOJ	Salary	Project
E01	Ranjan	1990-07-12	2015-01-21	150000	P01
E02	Akhtar	1992-06-21	2015-02-01	125000	P04
E03	Muneera	1996-11-15	2018-08-19	135000	P01
E04	Alex	1991-10-25	2018-10-19	75000	P02
E05	Satyansh	1993-12-16	2018-10-19	85000	P04

i SELECT NAME, PROJECT FROM EMPLOYEE ORDER BY NAME DESC;

ii SELECT NAME, SALARY FROM EMPLOYEE WHERE NAME LIKE 'A%';

iii SELECT NAME, DOJ FROM EMPLOYEE WHERE SALARY BETWEEN
100000 AND 200000;

iv SELECT * FROM EMPLOYEE WHERE PROJECT = 'P01';

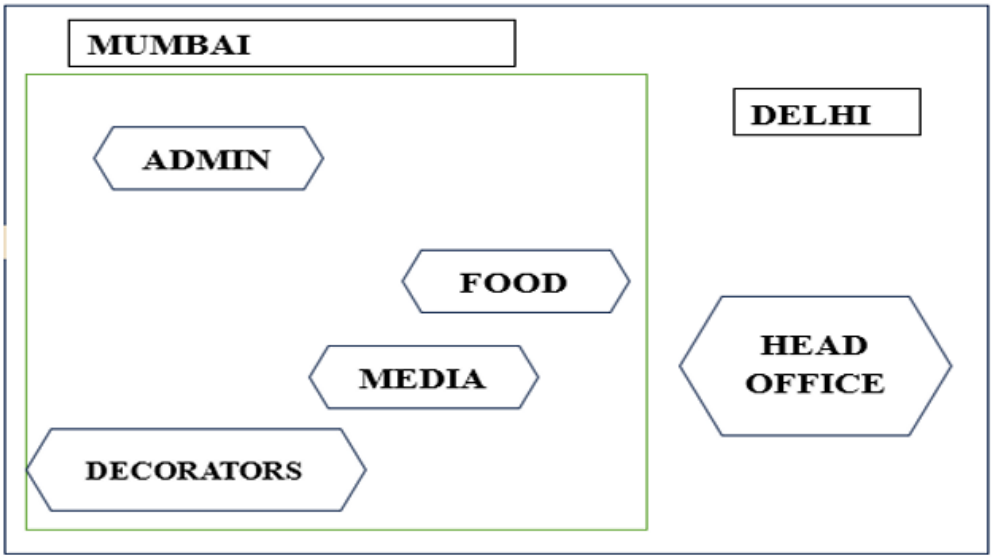
27. Predict the output of the Python code given below: 3

```
Textl="IND-23"
Text2=" "
I=0
while I<len (Text1) :
    if Text1 [I]>="0" and Text1[I]<="9":
        Val = int (Text1(I])
        Val = Val + 1
        Text2=Text2 + str(Val)
    elif  Text1 [I] >="A" and Text1 [I] <="Z" :
        Text2=Text2 + (Text1[I+1])
    else:
        Text2=Text2 + "*"
    I+=1
print (Text2)
```

28.	Write a function COUNT() in Python to read from a text file 'Gratitude.txt' and display the count of the letter 'e' in each line Example: If the file content is as follows: Gratitude is a humble heart's radiant glow, A timeless gift that nurtures and bestows. It's the appreciation for the love we're shown, In moments big and small, it's truly known. The COUNT() function should display the output as: Line 1 : 3 Line 2 : 4 Line 3 : 6 Line 4 : 1 OR Write a function Start_with_I() in Python, which should read a text file 'Gratitude.txt' and then display lines starting with 'I'. Example: If the file content is as follows: Gratitude is a humble heart's radiant glow, A timeless gift that nurtures and bestows. It's the appreciation for the love we're shown, In moments big and small, it's truly known. Then the output should be It's the appreciation for the love we're shown, In moments big and small, it's truly known.	3

29.	Navdeep creates a table RESULT with a set of records to maintain the marks secured by students in Sem1, Sem2, Sem3, and their divisions. After the creation of the table, he entered data of 7 students in the table. **ADNO | ROLLNO | SNAME | SEM1 | SEM2 | DIVISION** 123 | 101 | KARAN | 366 | 410 | I 245 | 102 | NAMAN | 300 | 350 | I 128 | 103 | ISHA | 400 | 410 | I 129 | 104 | RENU | 350 | 357 | I 234 | 105 | ARPIT | 100 | 75 | IV 187 | 106 | SABINA | 100 | 205 | II 181 | 107 | NEELAM | 470 | 450 | I Based on the data given above answer the following questions: i Identify the columns which can be considered as candidate keys? ii If 2 more columns are added and 3 rows are deleted from the table result, what will be the new degree and cardinality of the above table? iii Write a statement to increase the SEM2 marks by 3% for the students securing marks between 70 to 100.	3
30	Write a function in Python, Push (Vehicle) where, Vehicle is a dictionary containing details of vehicles – (Car _Name: Maker). The function should push the name of car manufactured by 'TATA' (including all the possible cases like Tata, TaTa, etc.) to the stack. For example: If the dictionary contains the following data: Vehicle= ("Santro": "Hyundai", "Nexon": "TATA", "Safari": "Tata") The stack should contain Safari Nexon	3

	SECTION D	
31.	Fun Media Services Ltd is an event planning organization. It is planning to set up its India campus in Mumbai with its head office in Delhi. The Mumbai campus will have four blocks/buildings - ADMIN, DECORATORS, FOOD, and MEDIA. You as a network expert need to suggest the best network-related solutions for them to resolve the issues/problems mentioned in points (i) to (v), keeping in mind the distances between various blocks/buildings and other given parameters.	5



Shortest distance between various buildings:

FROM – TO	DISTANCE
ADMIN TO DECORATORS	90 meters
ADMIN TO MEDIA	75 meters
ADMIN TO FOOD	50 meters
DECORATORS TO FOOD	65 meters
DECORATORS TO MEDIA	50 meters
FOOD TO MEDIA	45 meters
DELHI Head Office to MUMBAI Campus	1475 KM

The number of computers at various buildings is as follows:

	<table><tr><th>BUILDING</th><th>NUMBER OF COMPUTERS</th></tr><tr><td>ADMIN</td><td>110</td></tr><tr><td>DECORATORS</td><td>75</td></tr><tr><td>MEDIA</td><td>12</td></tr><tr><td>FOOD</td><td>20</td></tr></table> Suggest the most appropriate location of the server inside the MUMBAI campus (out of the 4 buildings). Justify your answer. ii. Draw the cable layout to efficiently connect various buildings within the MUMBAI campus. iii. Which hardware device will you suggest to connect all the computers within each building? iv. Which of the following will you suggest to establish online face-to-face communication between the people in the Admin Office of the MUMBAI campus and the DELHI Head Office? a. Cable TV b. Email c. Video Conferencing d. Text Chat v. What type of network (out of PAN, LAN, MAN, WAN) will be set up in each of the following cases? a. The Mumbai campus gets connected with the Head Quarter in Delhi. b. The computers connected in the MUMBAI campus.	
32.	i. Mention any two differences between seek() and tell(). ii. Consider a file FLIGHT.DAT containing multiple records. The structure of each record is as shown below: [Fno, FName, Fare, Source, Destination] Write a function COPY_REC() in Python that copies all those records from FLIGHT.DAT where the source is DELHI and the destination is MUMBAI, into a new file RECORD.DAT.	5

	OR (option for part (ii) only) Consider a Binary file BOOK.DAT containing a dictionary having multiple elements. Each element is in the form BNO:[BNAME,BTYPE,PRICE] as key:value pair where BNO – Book Number BNAME – Book Name BTYPE - Book Type PRICE – Book price Write a user-defined function, findBook(price), that accepts price as parameter and displays all those records from the binary file BOOK.DAT which has a book price more than or equal to the price value passed as a parameter.	
33.	i. Define the term constraint with respect to RDBMS. Give a suitable example. ii. Sameera maintains a database named STORE which contains a table named ITEM with the structure given below: • Ino(Item number)- integer • Iname(Item Name) – string • Price (Item Price) – float • Discount (Discount) – float Note the following to establish connectivity between Python and MySQL: • Username - root • Password - tiger • Host - localhost The value of Ino,Iname,Price and discount has to be accepted from the user. Help Sameera to write the program in python to remove the record from the table	5

	ITEM based on the item name entered by the user.	
	SECTION E	
34.	A department is considering to maintain their worker data using SQL to store the data. As a Database Administrator, Karan has decided that: Name of the database –Department Name of the table –Worker The attributes of Worker are as follows: WORKER_ID – CHARACTER OF SIZE 3 FIRST_NAME – CHARACTER OF SIZE 10 LAST_NAME – CHARACTER OF SIZE 10 SALARY – NUMERIC JOINING_DATE – DATE	4

WORKER_ID	FIRST_NAME	LAST_NAME	SALARY	JOINING_DATE	DEPARTMENT
001	MONIKA	ARORA	100000	2014-02-20	HR
002	NIHARIKA	DIWAN	80000	2014-06-11	Admin
003	VISHAL	SINGHAL	300000	2014-02-20	HR
004	AMITABH	SINGH	500000	2014-02-20	Admin
005	VIVEK	BHATI	500000	2014-06-11	Admin
006	VIPUL	DIWAN	200000	2014-06-11	Account
007	SATISH	KUMAR	75000	2014-02-20	Account
008	MONIKA	CHAUHAN	80000	2014-04-11	Admin

a) Karan wants to remove all the data from table WORKER from the database department. Write the command to delete above said information.

b) Identify the attribute best suitable to be declared as a primary key.

c) (i) Karan wants to increase the size of the FIRST_NAME column from 10 to 20 characters. Write an appropriate query to change the size.

(ii) Write a query to display the structure of the table Worker, i.e. name of the attribute and their respective data types.

35	Radha Shah is a programmer, who has recently been given a task to write a python code to perform the following CSV file operations with the help of two user defined functions/modules: a)CSVOpen():to create a CSV file called “books.csv” containing information about books of 5 records–[Title, Author and Price] with the headings. b)CSVRead():to display the records from the CSV file called “books.csv”. where the field title starts with 'R'.	4