

ISWK Series P-III

Roll No:

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Candidates must write the code on the title page of the answer book

General Instructions:

- This question paper contains two parts A and B. Each part is compulsory.
- Both Part A and Part B have choices.
- Part-A has 2 sections:
 - Section – I is short answer questions, to be answered in one word or one line.
 - Section – II has two case studies questions. Each case study has 4 case-based sub-parts. An examinee is to attempt any 4 out of the 5 subparts.
- Part - B is Descriptive Paper.
- Part- B has three sections
 - Section-I is short answer questions of 2 marks each in which two questions have internal options.
 - Section-II is long answer questions of 3 marks each in which two questions have internal options.
 - Section-III is very long answer questions of 5 marks each in which one question has question has internal option.

COMPUTER SCIENCE

Date: 10/04/2021

Class: XII

Time: 3 hours

Max. Marks: 70

Qn No.	Part A	Marks Allocated
	Section-I Select the most appropriate option out of the options given for each question or write the correct answer as required. Attempt any 15 questions from question no 1 to 21.	
1	Can list be used as keys of a dictionary? Justify.	1
2	Which one is valid relational operator in python? i) / ii) = iii) _ == iv) and	1
3	Which of the following can be used as valid variable identifiers in python? i) 4thSum ii) Total iii) Number# iv) _Data	1
4	Identify the mutable and immutable data types? i) List ii) Tuple iii) _Dictionary iv) String	1
5	What is the length of the tuple shown below? t=(((('a',1), 'b', 'c'), 'd',2), 'e',3)	1
6	A non-key attribute, whose values are derived from primary key of some other table. i) Alternate key ii) Foreign key iii) _Primary key iv) Candidate key	1

7	What is Telnet?	1
8	What do you mean by IRC?	1
9	Expand the term: i) XML ii) WiMAX	1
10	Name any two server-side scripting languages.	1
11	What is the output of the below program? <pre>def say(message, times=1): print(message * times) say("Hello") say('World',5)</pre>	1
12	Name the python library need to be imported to invoke following function. i) sqrt() ii) randint()	1
13	Write a python dictionary named classstudent with keys 12101, 12102, 12103 and corresponding values as 'Rahul', 'Ravi', 'Mahesh' respectively.	1
14	Identify the DDL command(s). (i) Insert into command (ii) Create table command (iii) Drop table command (iv) Delete command	1
15	Find the output: T1=(2,3,4,5,6,4,6,3,5) print(T1.index(4)) i) 4 ii) 5 iii) 6 ii) 2	1
16	Which clause is used with a SELECT command in SQL to display the column values by eliminating duplicate values under an attribute?	1
17	Which of these is not an example of unguided media? (i) Optical Fibre cable (ii) Radio wave (iii) Blue tooth (iv) Satellite	1
18	A relation has 45 tuples & 5 attributes, what will be the Degree & Cardinality of that relation after removing 10 rows and adding 2 columns? (i) Degree 35, Cardinality 7 (ii) Degree 15, Cardinality 47 (iii) Degree 7, Cardinality 35 (iv) Degree 47, Cardinality 15	1
19	In SQL, which aggregate function is used to count all records of a table including null values?	1
20	Given Employee = {'salary':10000, 'age': 22, 'name': 'Veena'} Employee.pop('age') What is the output? print(Employee)	1
21	What is web 2.0?	1
Section-II		
Both the Case study based questions are compulsory.		
22	Attempt any 4 sub parts. Each question carries 1 mark	4

Bharath Matriculation school is considering to maintain their student's information using SQL to store the data. As a database administrator Harendra has decided that:

Name of database : SCHOOLDB

Name of table : STUDPERSONAL

Attributes of the table are as follows:

AdmissionNo - numeric 4

FirstName – character of size 30

LastName - character of size 20

DOB – date

AdmissionNo	FirstName	LastName	DOB
12355	Rahul	Singh	2005-05-16
12358	Mukesh	Kumar	2004-09-15
12360	Pawan	Verma	2004-03-03
12366	Mahesh	Kumar	2003-06-08
12367	Raman	Patel	2007-03-19
12375	Sneha	Manoj	2006-08-24

(a) What is the degree and cardinality of the table STUDPERSONAL.

(b) Write MySQL command to remove the records of students whose first name start with the letter R.

(c) Insert the following record in the above relation:

AdmissionNo=12384 Firstname = Kamlesh LastName= Sharma

DOB = 01 Jan 2004

(d) Harendra wants to change the last name of Verma to Varma. Suggest him suitable MySQL command to perform the above said modification.

(e) To remove the table STUDPERSONAL along with its physical structure, which command is used?

i) DELETE FROM STUDPERSONAL;

ii) DROP TABLE STUDPERSONAL;

iii) DROP DATABASE SCHOOLDB;

iv) DELETE STUDPERSONAL FROM SCHOOLDB;

23 **Attempt any 4 sub parts. Each question carries 1 mark**

Parth Patel of class 12 is writing a program to create a CSV file “emp.csv” which will contain employee code and name of some employees. He has written the following code. As a programmer, help him to successfully execute the given task.

```
import _____ #Line 1
```

```
def addemp (empcode, name): #to write/add data into the CSV file
```

```
    fo=open ('emp.csv', 'a')
```

```
    writer=csv._____ (fo) #Line 2
```

```
    writer.writerow([empcode, name])
```

```
    fo.close()
```

```
#csv file reading code
```

```
def reademp():
```

```
    with open ('emp.csv','_____ ') as fin: #Line 3
```

```
    filereader = csv.reader(fin)
```

```
    for row in filereader:
```

```
        for data in row:
```

4

	<pre> print(data, end='t') print(end='n') fin._____ #Line 4 addemp('E105','Parth') addemp("E101",'Sonia') addemp("E102",'Prahalad') reademp() #Line 5 </pre>	
	(a) Name the module he should import in Line 1.	
	(b) Fill in the blank in Line 2 to write the data in the CSV file.	
	(c) In which mode, Parth should open the file to read the data from the file? (Line 3).	
	(d) Fill in the blank in Line 4 to close the file.	
	(e) Write the output he will obtain while executing Line 5.	
	Part – B	
	Section – I	
24	<p>What possible output(s) are expected to be displayed on screen at the time of execution of the program from the following code? Also give the maximum and minimum values that can be assigned to the variables From and To.</p> <pre> import random Arr = [20,30,40,50,60,70] From = random.randint(1,3) To = random.randint(2,4) for k in range(From, To+1): print(Arr[k], end = "#") </pre> <p>(i) 10#40#70# (ii) 50#60#70# (ii) 30#40#50# (iv) 40#50#70#</p>	2
25	What is significance of Primary Key? Give a suitable example of Primary key from a table containing some meaningful data.	2
26	<p>a. Write a note on Transmission medium and Bandwidth.</p> <p>b. Write expansion of the following: i) GPS ii) IMAP</p>	2
27	<p>Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.</p> <pre> x = int("Enter value for x:") for y in range[0,11]: if x=y print(x+y) else: print x-y </pre>	2
28	<p>What is a protocol? Name any four commonly used protocols with a short note.</p> <p style="text-align: center;">OR</p> <p>Differentiate between virus and worms in context of networking and data communication threats.</p>	2
29	Explain about connector.connect() method and cursor.execute() method in Python-MySQL connectivity library with examples.	2

30	<p>Find and write the output of the following Python code:</p> <pre>def Replace(st): newstr = '' for character in st: if character in 'aeiou': newstr += '*' else: newstr += character return newstr st = "Hello HOW Are You" st1 = Replace(st) print("The original String is:", st) print("The modified String is:", st1)</pre>	2																																													
31	<p>What is difference between actual parameter and formal parameter? Explain with suitable example.</p> <p style="text-align: center;">OR</p> <p>Explain about function with variable length arguments used in python with examples.</p>	2																																													
32	<p>Write the output of the following python statements:</p> <p>a) print(35 - 4 ** 3 / 2 + 20)</p> <p>b) print(25>15 and 15<5 or not (50 > 25))</p>	2																																													
33	<p>Differentiate between CHAR & VARCHAR data types in MySQL with suitable examples.</p>	2																																													
Section – II																																															
34	<p>Write the outputs of the SQL queries (i) to (iii) based on the tables given below: EMPLOYEE and JOB</p> <p>Table : EMPLOYEE</p> <table border="1" data-bbox="326 1140 1317 1367"> <thead> <tr> <th>EMPID</th> <th>NAME</th> <th>SALES</th> <th>JOBID</th> </tr> </thead> <tbody> <tr> <td>E1</td> <td>SUMIT SINHA</td> <td>110000</td> <td>102</td> </tr> <tr> <td>E2</td> <td>VIJAY SINGH TOMAR</td> <td>130000</td> <td>101</td> </tr> <tr> <td>E3</td> <td>AJAY RAJPAL</td> <td>140000</td> <td>103</td> </tr> <tr> <td>E4</td> <td>MOHIT KUMAR</td> <td>125000</td> <td>102</td> </tr> <tr> <td>E5</td> <td>SAILJA SINGH</td> <td>145000</td> <td>103</td> </tr> </tbody> </table> <p>Table : JOB</p> <table border="1" data-bbox="423 1440 1219 1740"> <thead> <tr> <th>JOBID</th> <th>JOBTITLE</th> <th>SALARY</th> </tr> </thead> <tbody> <tr> <td>101</td> <td>PRESIDENT</td> <td>200000</td> </tr> <tr> <td>102</td> <td>VICE PRESIDENT</td> <td>125000</td> </tr> <tr> <td>103</td> <td>ADMINISTRATOR ASSISTANT</td> <td>80000</td> </tr> <tr> <td>104</td> <td>ACCOUNTING MANAGER</td> <td>70000</td> </tr> <tr> <td>105</td> <td>ACCOUNTANT</td> <td>65000</td> </tr> <tr> <td>106</td> <td>SALES MANAGER</td> <td>85000</td> </tr> </tbody> </table> <p>(i) SELECT MAX(SALARY), MIN(SALARY) FROM JOB WHERE JOBID > 102;</p>	EMPID	NAME	SALES	JOBID	E1	SUMIT SINHA	110000	102	E2	VIJAY SINGH TOMAR	130000	101	E3	AJAY RAJPAL	140000	103	E4	MOHIT KUMAR	125000	102	E5	SAILJA SINGH	145000	103	JOBID	JOBTITLE	SALARY	101	PRESIDENT	200000	102	VICE PRESIDENT	125000	103	ADMINISTRATOR ASSISTANT	80000	104	ACCOUNTING MANAGER	70000	105	ACCOUNTANT	65000	106	SALES MANAGER	85000	3
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	(ii) SELECT NAME, JOBTITLE, SALES FROM EMPLOYEE, JOB WHERE EMPLOYEE.JOBID=JOB.JOBID AND JOBID IN (101,102); (iii) SELECT JOBID, COUNT(*) FROM EMPLOYEE GROUP BY JOBID;																															
35	Write a user define function Push () in Python for performing push operation with a stack of list containing float values. Write a statement to invoke the function Push () OR Write a function in Python named DELETEQ(QUEUE) where QUEUE is implemented by a list of numbers. The function will display the removed element. Write a statement to invoke the function DELETEQ()	3																														
36	Write a function LShift(Array, n) in python, which accepts a list of numbers and n as numeric value by which all elements of the list are shifted to left. Sample Input data of the list Array = [10,20,30,40,12,11], n=2 Output Array = [30,40,12,11,10,20]	3																														
37	Write a function in python that displays the number of lines starting with ‘H’ in the file “Para.txt”. Example, if file contains: Whose woods these are I think I know. His house is in the village though; He will not see me stopping here To watch his woods fill up with snow Output: Line Count = 2 OR Write a function Countmy() in Python to read file Data.txt and count the number of times “my” occur in file. For example, if the file contains This is my website. I have displayed my preferences in the choice section The Countmy() function should display the Output as : “my occurs 2 times”	3																														
Section – III																																
38	Write My SQL queries for (i) to (v) based on the given below tables: PRODUCT and CLIENT Table : PRODUCT <table border="1"> <thead> <tr> <th>PID</th> <th>PRODUCTNAME</th> <th>MANUFACTURER</th> <th>PRICE</th> <th>EXPDATE</th> </tr> </thead> <tbody> <tr> <td>TP01</td> <td>TALCUM POWDER</td> <td>LAK</td> <td>40</td> <td>2015-06-26</td> </tr> <tr> <td>FW05</td> <td>FACE WASH</td> <td>ABC</td> <td>45</td> <td>2014-12-01</td> </tr> <tr> <td>BS01</td> <td>BATH SOAP</td> <td>ABC</td> <td>55</td> <td>2014-09-10</td> </tr> <tr> <td>SH06</td> <td>SHAMPOO</td> <td>XYZ</td> <td>120</td> <td>2016-04-09</td> </tr> <tr> <td>F212</td> <td>FACE WASH</td> <td>XYZ</td> <td>95</td> <td>2014-08-15</td> </tr> </tbody> </table>	PID	PRODUCTNAME	MANUFACTURER	PRICE	EXPDATE	TP01	TALCUM POWDER	LAK	40	2015-06-26	FW05	FACE WASH	ABC	45	2014-12-01	BS01	BATH SOAP	ABC	55	2014-09-10	SH06	SHAMPOO	XYZ	120	2016-04-09	F212	FACE WASH	XYZ	95	2014-08-15	5
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Table : CLIENT

CID	CLIENTNAME	CITY	PRODID
1	COSMETIC SHOP	DELHI	F205
6	TOTAL HEALTH	MUMBAI	BS01
12	LIVE LIFE	DELHI	SH06
15	PRETTY ONE	DELHI	F205
16	DREAMS	BENGALURU	TP01
14	EXPRESSIONS	DELHI	NULL

(i) To display the ClientName and City of all Mumbai and Delhi based clients in Client table.

(ii) Increase the price of all the products in Product table by 10%.

(iii) To display the ProductName, Manufacturer, Expiry Date of all the products that expired on or before '2015-12-31'.

(iv) To display Client ID, Client Name, City of all the clients and their corresponding Product Name sold.

(v) To display Product Name, Manufacturer and ClientName of Mumbai City.

- 39 (a) Create a binary file "employee.dat" that stores the records of employees and display them one by one.
(b) Display the records of all those employees who are getting salaries more than Rs. 50,000

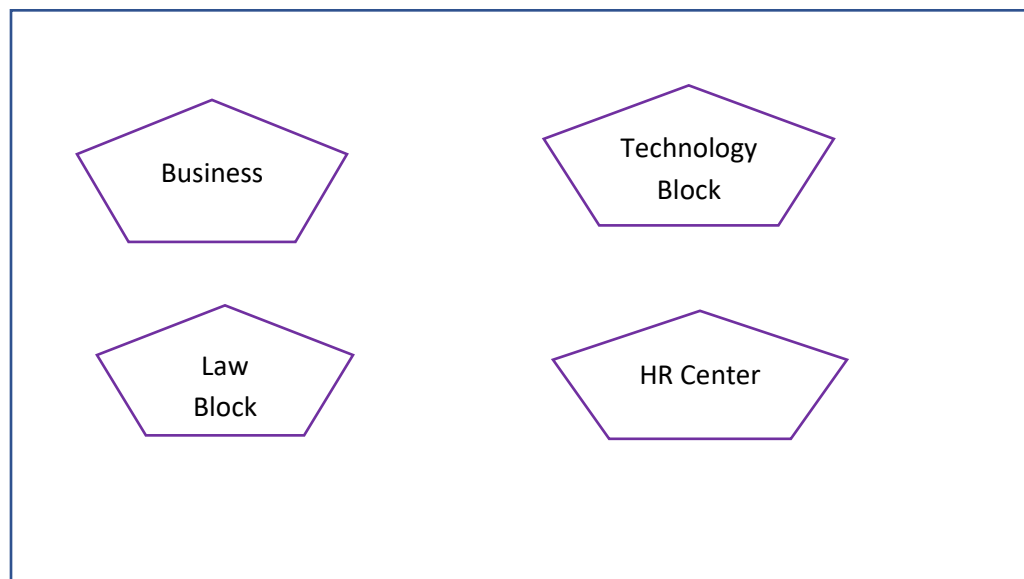
5

OR

A binary file student.dat has structure (rollno, name, class, percentage). Write a program for updating a record in the file requires roll number to be fetched from the user whose name is to be updated.

- 40 Quick Learn University is setting up its academic blocks at Prayag Nagar and planning to set up a network. The university has 3 academic blocks and one human resource Centre as shown in the diagram given below:

5



Distance between above Blocks are given here as under:

Block - 1	Block – 2	DISTANCE (In meters)
Law	Business	40
Law	Technology	80
Law	HR	105
Business	Technology	30
Business	HR	35
Technology	HR	15

Number of Computers in various units are:

Block	NO. OF COMPUTERS
Law	15
Technology	40
HR	115
Business	25

- Suggest an ideal cable layout for connecting the above blocks. Draw layouts
- Suggest the most suitable place (i.e., Block) to install the server for the organization. Also, provide a suitable reason.
- Suggest the placement of the Repeater in the Blocks of above network. Justify.
- The university is planning to link its sales counters situated in various parts of the other cities. Which type of network out of LAN, MAN or WAN will be formed?
- Which network topology may be preferred between these blocks? why?

All the Best