

Series ISWK P1

Code No. 083/1/1

SET-1

Roll No.

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Candidates must write the Code on the title page of the answer-book.

General Instructions:

1. This question paper contains two parts A and B. Each part is compulsory.
2. Both Part A and Part B have choices.
3. Part-A has 2 sections:
 - a. Section – I is short answer questions, to be answered in one word or one line.
 - b. 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.
4. Part - B is Descriptive Paper.
5. Part- B has three sections
 - a. Section-I is short answer questions of 2 marks each in which two question have internal options.
 - b. Section-II is long answer questions of 3 marks each in which two questions have internal options.
 - c. Section-III is very long answer questions of 5 marks each in which one question has internal option.
6. All programming questions are to be answered using Python Language only.

COMPUTER SCIENCE

Time allowed: 3 hours

Maximum Marks: 70

Qn No.	Part A	Marks Allocated
	Section-I Select the most appropriate option out of the options given for each question. Attempt any 15 questions from question no 1 to 21.	
1	Write a command to import csv module in your code and open a file "Customer.csv" in read mode.	1
2	Suppose a dictionary D1 is declared as D1 = {"LG":145, "Sony":185, "Ikon":115} which of the following are correct? a) print(D1.values()) b) D1.update("Sony":175) c) print (D1.key ()) d) D1.update({"Sony":175})	1
3	Sonu Enterprises in Pune wants to establish a high speed wired connection to connect all the computers in its IT department. The company is ready to compromise the cost for this setup. Identify the suitable transmission medium for this setup.	1
4	Mr. Manzoor wants to see the list of tables available under a database TravelsDB. Help him to write the MySQL command(s) for this task.	1
5	If the following code is executed, what will be the output of the following code?	1

	<pre>Topic="SolarMarketingMedia" print(Topic[5:10]) print(Topic[-5:])</pre>	
6	Write the Full Form of IDLE.	1
7	Identify the valid relational operator in Python from the following. a) : b) %= c) >= d) =<	1
8	Write the expanded form of IRC and WLL.	1
9	Which of the following types of table constraints will not allow a null value (values can be duplicate) to be entered under a data column in a table? a) UNIQUE b) NOT NULL c) DEFAULT d) CHECK	1
10	Write a statement in Python to declare a dictionary COURSEDICT whose keys are "ORACLE", "JAVA", "PYTHON", "JSERVER" and values are 350, 230, 275 and 550 respectively.	1
11	Define Bandwidth and Channel	1
12	Given the tuple MarkList = (82, 56, 75, 98, 45, 90, 85, 25, 70, 56) write the output of the following code: print(MarkList[5:]) print(MarkList[-2:-5:-1])	1
13	In SQL, name the clause that is used to display the values under a data column without duplicate values.	1
14	Find the valid identifier(s) from the following a) Rate\$ b) IF c) Price1 d) Level#	1
15	What will be the output of the following code? Amount = (32, 30, 18, 45, 25, 12, 30, 25, 25, 18) print (max (Amount) - min (Amount)) print (Amount.count(25) + Amount.index (18))	1
16	Write any four single row functions used in SQL.	1
17	Which of the following is a DML command? a) CREATE b) DESC c) UPDATE d) ALTER	1
18	Identify the Network threats for the following situation: a) Your uncle received a fraudulent message which tells him that there's an issue with their bank account or credit card account. b) It is designed to delete critical files which are the part of Operating System or data files.	1
19	In SQL, what is the use of LIKE clause? Also Give a note on Wild card characters used with LIKE clause.	1
20	What will be the output of the following code? >>>math.floor(75.85) >>>math.ceil(47.25)	1
21	Name the protocol for the following: a) To extract mail from mail server. b) For communication between two computers using a serial interface, mostly a personal computer connected by phone line to a server.	1

Section-II

Both the Case study based questions are compulsory.

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Attempt any 8 sub parts. Each question carries 1/2 mark

Satyam College of Engineering, a leading educational institution maintain the details of workshops which they organized using SQL to store the data. As a database programmer, Mr. Navin has decided that :

- Name of the database - COLLEGEDB
- Name of the table - CONFERENCE
- The attributes of CONFERENCE are as follows:

ConID – character of size 8

Title – character of size 30

EventDate - Date

Participants - numeric

Table

CONID	TITLE	EVENTDATE	PARTICIPANTS
SAT251	ARTIFICIAL INTEGLLGENCE	16/03/2020	155
SAT252	NEURAL NETWORKS	17/03/2020	125
SAT253	GRAPHICS AND ANIMATION	24/03/2020	75
SAT254	VISUAL MEDIA	28/03/2020	282
SAT255	SOFTWARE ENGINEERING	02/04/2020	90
SAT256	DATA ANALYTICS	04/04/2020	240
SAT257	COMPILER DESIGN	05/04/2020	160

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

(b) Mr. NAVIN want to remove the table CONFERENCE from the database COLLEGEDB permanently. Write the query to do the same.

(c) When Mr. NAVIN try to enter a value more than 300 under PARTICIPANTS column for a new record, he could not do it. What is the reason for this? State the constraint used for that column.

(d) Which of the following command is used to change the Conference Title as “NETWORK SECURITY” for the ConferenceID “SAT255”.

a) ALTER TABLE CONFERENCE ADD TITLE= “NETWORK SECURITY” WHERE CONID = “SAT255”;

b) UPDATE TABLE CONFERENCE SET TITLE= “NETWORK SECURITY” WHERE CONID = “SAT255”;

c) ALTER CONFERENCE SET TITLE= “NETWORK SECURITY” WHERE CONID = “SAT255”;

d) UPDATE CONFERENCE SET TITLE= “NETWORK SECURITY” WHERE CONID = “SAT255”;

(e) Now Mr. NAVIN wants to display the structure of the table CONFERENCE, i.e, name of the attributes and their respective data types that he has used in the table.

Which command will he use from the following:

a) SHOW TABLE CONFERENCE;

b) DESC CONFERENCE;

c) SELECT * FROM CONFERENCE;

d) DISPLAY FROM CONFERENCE;

(f) When Mr. NAVIN try to leave the TITLE data column as blank, a value “NOT KNOWN” will insert automatically. Which constraint used for this column?

	(g) Is it possible to have multiple primary keys or multiple unique key constraint in a table? Justify your answer.	
	(h) What will be the degree and cardinality of the table CONFERENCE if we remove two rows and add 2 columns?	
	(i) Write a command to add a new column GUEST with Character data type of size 20.	
	(j) Insert the following data into the attributes CONID, TITLE and PARTICIPANTS respectively in the given table CONFERENCE. CONID = "SAT258", TITLE = "ADVANCED JAVA" and PARTICIPANTS = 215	
23	<p>Attempt any 4 sub parts. Each question carries 1 mark</p> <p>Ms. Sumitra of class 12 is writing a program to create a CSV file "Items.csv" which will contain Item Code, Item Name and Item Price for some items in a store. She has written the following code. As a programmer, help her to successfully execute the given task.</p> <pre>import _____ # Line 1 def AddItems(ItemCode, ItemName, ItemPrice): # to write / add data into the CSV file F1=open('Items.csv', 'a') FileWriter = csv.writer(F1) FileWriter._____([ItemCode, ItemName, ItemPrice]) #Line 2 F1._____ #Line 3 #csv file reading code def DisplayItems(): # to read data from CSV file F2 = open("Items.csv", _____) # Line 4 FileReader = csv.reader(F2) for row in FileReader: print (row[0], row[1], row[2]) F2.close() AddItems(1405, "Kellogg Frosted Mini Wheats",350) AddItems(1827, "Barilla Pasta", 425) AddItems(2309, "Olive Oil",210) DisplayItems() #Line 5</pre>	4
	(a) Name the module she should import in Line 1.	
	(b) Fill in the blank in Line 2 to write a row into csv file.	
	(c) Fill in the blank in Line 3 to close the file.	
	(d) Fill in the blank in Line 4 to open the file in read mode.	
	(e) Write the output she 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 specify the minimum values that can be assigned to each of the variables BEGIN and LAST.</p> <pre>import random VALUES = [100,200,300,400,500,600,700,800] BEGIN=random.randint(2,4) LAST=random.randint(BEGIN,5)</pre>	2

	<p>for I in range (BEGIN, LAST+1): print(VALUES[I],"@") (i) 400@500@600@700@ (ii) 300@400@500@600@700@ (iii) 300@400@500@600@ (iv) 200@300@400@500@</p>	
25	Write the difference between DDL and DML. Also, Write any two commands of DDL and DML of SQL.	2
26	Expand the following terms: a. TCP b. SMTP c. GSM d. PAN	2
27	<p>Rewrite the following code in python after removing all syntax error(s). Underline each correction done in the code.</p> <pre>175 = Number WHILE Number<=500: if Number=>300: print Number Number=Number+50 else print Number*2 Number=Number+25</pre>	2
28	<p>Differentiate between Trojan Horse and Spam in context of networking and data communication threats.</p> <p style="text-align: center;">OR</p> <p>What do you mean by Firewall? Explain the functionality of Firewall.</p>	2
29	<p>What is the use of following methods:</p> <p>i) connection.cursor() ii) cursor.execute()</p>	2
30	<p>Find and write the output of the following Python code:</p> <pre>Msg1="WeLcOME" Msg2="GUeSTs" Msg3="" for I in range(0, len(Msg2)+1): if Msg1[I]>="A" and Msg1[I]<="M": Msg3=Msg3+Msg1[I] elif Msg1[I]>="N" and Msg1[I]<="Z": Msg3=Msg3+Msg2[I] else: Msg3=Msg3+"*" print(Msg3)</pre>	2
31	<p>Explain about the Function with Keyword or Named Arguments with the help of a suitable code with function definition.</p> <p style="text-align: center;">OR</p> <p>Explain about the Function with Variable Length Arguments with the help of a suitable code with function definition.</p>	2
32	<p>Evaluate the following expressions:</p> <p>a) $15 ** (10 - 8) + 25 * (15 + 5) / 4$ b) $40 < 30$ or $32 > 20$ and not $5 < 15$</p>	2
33	Explain the concept of Foreign Key constraint with example.	2
Section – II		

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Write the outputs of the SQL queries (i) to (vi) based on the relations STOCK and DEALERS given below:

Table : STOCK

ItemCode	ItemName	DCode	Qty	UnitPrice	StockDate
444	Drawing Copy	101	10	21	30-June-2009
445	Sharpener Camlin	102	25	13	21-Apr-2010
450	Eraser Natraj	101	40	6	11-Dec-2010
452	Gel Pen Montex	103	80	10	03-Jan-2010
457	Geometry Box	101	65	65	15-Nov-2009
467	Parker Premium	102	40	109	27-Oct-2009
469	Office File	103	27	34	13-Sep-2010

Table : DEALERS

DCode	DName	Location
101	Vikash Stationers	Lanka, Varanasi
102	Bharat Drawing Emporium	Luxa, Varanasi
103	Banaras Books Corporation	Bansphatak, Varanasi

- i. SELECT DCode, Sum(UnitPrice) FROM Stock GROUP BY DCode;
- ii. SELECT ItemName, StockDate from Stock
where UnitPrice < 50 Order By ItemName DESC;
- iii. SELECT Max(Length(ItemName)), Length(Min(ItemName)) from Stock;
- iv. SELECT Max(StockDate), Min(StockDate) FROM Stock;
- v. SELECT Stock.ItemName, Stock.Qty, Dealers.DName
FROM Stock, Dealers
WHERE Stock.DCode=Dealers.Dcode AND
Dealers.Location LIKE "L%";
- vi. SELECT Stock.ItemName, Dealers.Location
FROM Stock, Dealers
WHERE Stock.DCode=Dealers.Dcode AND
Stock.Qty < 50;

3

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Write a function in Python PUSH(MyArray), where MyArray is a list of numbers. From this list push all the multiples of 4 into a stack implemented by using a list. Display the stack if it has at least one element, otherwise display appropriate error message.

OR

Write a function in Python DELETEQ(MyArr), where MyArr is a Queue implemented by a list of numbers. The function returns the value deleted from the Queue.

3

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Write a python method/function Count3and7(N) to find and display the count of all those numbers which are between 1 and N, which are either divisible by 3 or by 7. For example : If the value of N is 15
The sum should be displayed as
7
(as 3,6,7,9,12,14,15 in between 1 to 15 are either divisible by 3 or 7)

3

37

Write a method/function ISTOUPCOUNT () in python to read contents from a text file WRITER.TXT, to count and display the occurrence of the word "IS" or "TO" or "UP".
For example :

3

If the content of the file is
IT IS UP TO US TO TAKE CARE OF OUR SURROUNDING. IT IS NOT POSSIBLE ONLY FOR THE GOVERNMENT TO TAKE RESPONSIBILITY
 The method/function should display **Count of IS, TO and UP is 6**
OR
 Write a function CountVowels() in Python, which should read each character of a text file STORY.TXT, should count and display the occurrence of vowels (A or E or I or O or U - including small cases too).
 Example:
 Education is not the learning of facts, but the training of the mind to think
 The CountVowels() function should display the output as: **Total Count = 23**

Section – III

38 Write SQL commands for the following queries (i) to (x) based on the relations Patient and Doctor given below: (10 x ½ = 5 Marks)

Table: Patient

Name	Patient_No	Gender	Date_Adm	Doctor_No	Fees
Kishore	P104	M	2009-05-15	502	750
Ragini	P202	F	2010-01-11	165	1200
Reshma	P754	F	2007-12-31	325	8000
Kanti	P612	M	2010-04-22	165	1400

Table: Doctor

Doctor_No	Doctor_Name	Department
122	M. K Singh	Dentist
165	R. K. Tiwari	Neurology
325	V. K. Chauhan	Surgery
502	N. Singh	Nephrology
530	K. P. Sinha	Urology

- i. To show all information about the doctors working in “Neurology” department.
- ii. To list the names of male patients who are consulting the doctor of “Nephrology” department.
- iii. To list the details of all the patients with their date of admission in ascending order.
- iv. To display Patient Name, Date of Admission and Name of the consulting doctor from the corresponding matched rows in both the tables.
- v. To display Patient name and Fees of the patients whose name start with the letter R.
- vi. To display Patient name, Gender, Doctor Name and department from the corresponding matched rows in both the tables.
- vii. To display the Patient Name and department of the doctor to whom they consulted with the fees less than Rs. 1,500.
- viii. To display the details of all the patients who paid the fees in the range Rs. 1,000 to Rs. 1, 500 (Both values are inclusive).
- ix. To display the name and fees of all the patients who are consulting the doctors from “Urology” and “Dentist” department.
- x. To display the maximum fees and average fees paid by the patients.

39 A binary file “Travels.dat” has structure [BookingNo, CustomerName, Source, Destination, Amount].
 i. Write a user defined function Create() to input data for a record and add to Travels.dat .

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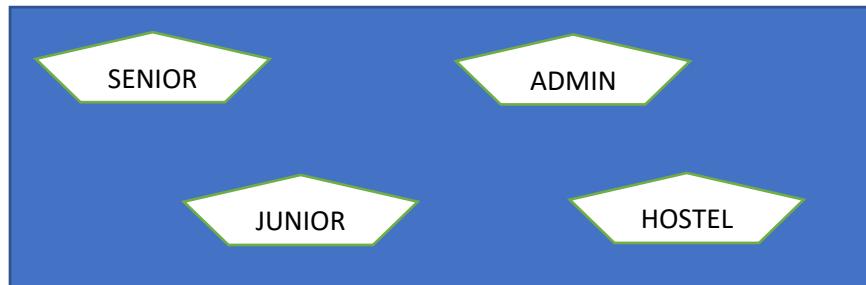
ii. Write a function CountCity(DestCity) in Python which accepts the destination city as parameter, count and return number of travelers who are travelling to the given City which are stored in the binary file “Travels.dat”.

OR

A binary file “EMPLOYEE.DAT” has structure (empcode, empname, salary). Write a function CountEmp() in Python that would read contents of the file “EMPLOYEE.DAT” and display the details of those employees whose salary is below Rs. 15,000. Also display number of employees whose salary is below Rs. 15,000.

40

Indian School, in Ranchi is starting up the network between its different wings. There are four Buildings named as SENIOR, JUNIOR, ADMIN and HOSTEL as shown below:



Distance between various buildings is as follows:

ADMIN TO SENIOR	200 m
ADMIN TO JUNIOR	75 m
ADMIN TO HOSTEL	50 m
SENIOR TO JUNIOR	250 m
SENIOR TO HOSTEL	350 m
JUNIOR TO HOSTEL	110 m

Number of Computers in each building

SENIOR	130
JUNIOR	80
ADMIN	160
HOSTEL	50

- Suggest the cable layout of connections between the buildings.
- Suggest the most suitable place (i.e., building) to house the server of this school, provide a suitable reason.
- Suggest the placement of the following devices with justification.
 - o Repeater
 - o Hub/Switch
- The organisation also has inquiry office in another city about 50-60 km away in hilly region. Suggest the suitable transmission media to interconnect to school and inquiry office out of the following: Fiber optic cable, Microwave, Radiowave
- Suggest the type of network formed within school campus.

All the Best

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