

Unit 4 Sample Test– ICS200 – Loops, Databases & SQL

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Total	%	Knowledge 🌱	Communication 🗨️	Thinking 🧠	Application 📁
(83)	(100)	(15)	(28)	(16)	(24)

Knowledge 🌱

1. Consider these repeat loops from code.org. Fill in the boxes to match the picture. /5

Code block 1: when run, repeat 5 times, do: move forward, turn right, move forward, get nectar, turn left.

Code block 2: when run, repeat 3 times, do: repeat 2 times, do: move forward, get nectar, turn right.

Code block 3: when run, repeat 3 times, do: turn left, repeat 3 times, do: move forward, get nectar, move forward, repeat 3 times, do: make honey.

2. (a) What are the parts of a loop? /6

A	Initialize Loop stopping variable
B	Test Loop stopping condition
C	steps To Repeat
D	Progress To The Loop stopping condition

(b) On the following loop, use the letters from part a to label each circled part.

```

for (var i = 5; i < 60; i += 10) {
  setText("output", (getText("output") + " " + i));
}
    
```

Labels: A (var i = 5), B (i < 60), D (i += 10), C (setText...)

Prints: 5 15 25 35 45 55

Note: Notice order

(c) Answer true or false about the for loop above (in part b). /4

- T F a. The loop stopping variable is initialized to 5.
- T F b. The first number the loop prints is 10.
- T F c. The Boolean expression is $i < 60$.
- T F d. The loop stopping condition is $i < 60$.

Communication *are: sum, count, avg, min, max*

3. Write the name of the SQL aggregate in the front column. /4

sum
min

- (a) Totals up the values in the field.
 (c) Finds the lowest number in the field.

count
avg

- (b) Figures out "how many".
 (d) Finds the average of the field.

4. What symbol is used in SQL for: /6

&& and != <> >= >= <=, > are the same too.
 || or == = < <

5. Identify the term described. /10

field	1. A category of information in a table.
table	2. A group of records.
database	3. A group of tables.
record	4. One row in a table.
query	5. A question that you ask of the database. Can be written in SQL.
Blue Kai	6. The name of a dataminer.
Order By	7. The SQL clause that allows you to sort.
aggregate	8. An SQL function like sum() or avg()
key field	9. It uniquely identifies a record.
device ID	10. The keyfield used by dataminers.

6. Many stores use facial recognition to track what their customers look at, for how long, and what they buy. They can then adjust the position of items to be more attractive to their customers. /2

focus on customers. not store



(a) Identify one positive feature of facial recognition databases for customers.

easy to find common items...

(b) Identify one negative feature of facial recognition databases for customers.

...privacy invasion.....

7. This is a record resulting from a Google search for "You Tube". /6

Site: youtube.com

Founded: February 14, 2005, San Mateo, California United States
 CEO: Susan Wojcicki (Feb 5, 2014-)
 Acquisition date: November 13, 2006
 Motto: Broadcast Yourself (2005-2012)
 Ad Cost Per View: \$0.30
 Parent organization: Google

Types are:
 1. Text
 2. Number
 3. Date
 4. Currency
 5. Link
 6. Image

Look at the fields and identify these types:

- (a) Site
 (b) Acquisition Date
 (c) CEO
 (d) Motto
 (e) Ad Cost Per View
 (f) Parent Organization

Link
Date
Text
Text
Currency
Text

Thinking

8. Look at the following tables and use them to correct one error in each SQL. /4

Driver			
LNo	First	Last	Points
120	Alan	Turing	4
123	Mr	Young	0
121	Douglas	Englebart	2
124	Ivan	Sutherland	0
122	George	Boole	15

Car		
LicensePlate	Model	Miles
AERT 345	Corvette	2300
456 A4GH	Hummer	4500
T455 YUIP	Jeep	300
RETW 3G6	Camry	95000
TYI 56NM	Corvette	6789

DriverCar	
Person	Plate
120	AERT 345
123	AERT 345
120	T455 YUIP
123	T455 YUIP
124	TYI 56NM

```
select count(Driver)
from Driver
```

```
select avg(Points)
from Car
Driver
```

```
select Last, Plate
from Driver, DriverCar
where LNo = Plate
Person
```

```
select min(Driver)
from Driver
where Points > 3
and Points < 18
```

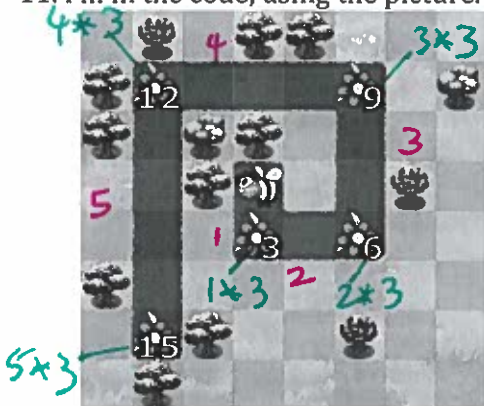
9. What is the output of each loop? /4

<pre>onEvent("button1", "click", function(event) { setText("out", ""); for (var i = 100; i <= 500; i+=100) { setText("out", (getText("out")+" ") + i); } });</pre> <p>100 200 300 400 500</p>	<pre>onEvent("button2", "click", function(event) { setText("out", ""); for (var i = 1; i < 4; i++) { setText("out", (getText("out")+"*")); } });</pre> <p>* * *</p>
<pre>onEvent("button3", "click", function(event) { setText("out", ""); for (var i = 2; i <= 10; i+=2) { setText("out", (getText("out")+" ") + i); } });</pre> <p>2 4 6 8 10</p>	<pre>onEvent("button4", "click", function(event) { setText("out", ""); for (var i = 550; i < 0; i-=3) { setText("out", (getText("out")+" ") + i*i*i); } });</pre> <p>550 is not < 0. Nothing is printed. It doesn't loop.</p>

10. Fill in the loops to print these 2 patterns. /4

<pre>3 6 9 12 15 18 21 24 27 30</pre> <pre>onEvent("button1", "click", function(event) { setText("output", ""); for (var i = <u>3</u>; i <=<u>30</u>; i+=<u>3</u>) { setText("output", (getText("output")+" ") + i); } });</pre>	<pre>50 49 48 47 46 45 44 43 42 41</pre> <pre>onEvent("button2", "click", function(event) { setText("output", ""); for (var i = <u>50</u>; i >=<u>41</u>; i--) { setText("output", (getText("output")+" ") + i); } });</pre>
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11. Fill in the code, using the picture. /4



```
when run
  count with counter from 1 to 5 by 1
  do turn left 90
  repeat counter times
    do move forward
  repeat counter x 3 times
    do get nectar
```

Application

12. Look at following database:

Customer

ID	First	Last
1	Eve	Ning
2	Hayden	Seek
3	Cy	Lance

Account

Acct	Type	Balance	CID
234	Check	\$299.56	1
245	Saving	\$39.67	1
233	Saving	\$5695.00	2
256	Business	\$103.45	1
274	Check	\$456.34	3

Transaction

Tno	AccNo	Amt	Date	Time
101	234	-34.45	Jun10	6:23
102	234	+67.20	Jun11	8:23
103	233	-98.45	Jun11	14:23
104	256	+456.22	Jun12	22:23
105	274	+45.45	Jun13	6:23

Write the SQL statements required to do the following using the above database:

/24

(a) Print the entire Transaction table. (2)

Select *
From Transaction

(b) Print the account balance and number. (2)

Select Balance, Acct
From Account

(c) Find how many customers the bank has. (2)

Select count (*)
From Customer

(d) Print the full customer names, sorted by last name. (3)

Select First, last
From Customer
Order By last

(e) Print out all of the account numbers with a balance between \$100 and \$300 (4)

Select Acct
From Account
Where Balance > 100
And Balance < 300

(f) Total the transactions that occurred to accounts other than #234? (3)

Select sum (amt)
From transaction
Where AccNo <> 234

(g) Find out the customer's first name and account type. (3)

Select First, Type
From customer, Account
Where ID = CID

(h) Find out the customer last name and the time of all of the transactions. Sort by the time. (5)

Select Last, Time
From customer, Account, Transaction
Where ID = CID
And Acct = AccNo
Order By Time