

# Unit 3 – ICD20 – Ifs, Boolean Expressions, Text & Functions

Sample Test – October 29, 2024

Name: Gorski

Total	%	Knowledge	Communication	Thinking	Application
(108)	(100)	(28)	(27)	(22)	(31)

## Knowledge

1. Evaluate the following.

a) What is the symbol for or? <u>  </u>	AND	OR
b) What is the symbol for and? <u>&amp;&amp;</u>	f) Evaluate F && F <u>F</u>	j) Evaluate F    F <u>F</u>
c) What is the symbol for not? <u>!</u>	g) Evaluate T && F <u>F</u>	k) Evaluate T    F <u>T</u>
d) Evaluate !F <u>T</u>	h) Evaluate F && T <u>F</u>	l) Evaluate F    T <u>T</u>
e) Evaluate !T <u>F</u>	i) Evaluate T && T <u>T</u>	m) Evaluate T    T <u>T</u>

/6

2. If x is 5, evaluate.

- F a)  $x > 3$   
 F b)  $x == 5$   
 F c)  $x != 6$   
 F d)  $x != 5$   
 F e)  $x >= 5$   
 F f)  $x < 5$

3. If x = 5, evaluate the following. Show all the steps.

(a)  $x >= 2 || x == 8$   
 $= 5 >= 2 || 5 == 8$   
 $= T || F$   
 $= T$

(b)  $!(x <= 9 \&\& x != 6)$   
 $= !(5 <= 9 \&\& 5 != 6)$   
 $= !(T \&\& T)$   
 $= !(T)$   
 $= F$

/10

4. What is printed on the screen for each of the following values of n?

```

onClick("enter", "click", function(event){
  var n = promptNum ("Value? ");
  if (n == 9)
    setText("result", "Leaf");
  else if (n >= 8)
    setText("result", "Cold");
  else if (n < 7)
    setText("result", "Fall");
  else
    setText("result", "Maple");
});
    
```

Value of n?	Output
5	Fall
6	Fall
7	Maple
8	Cold
9	Leaf
10	Cold

/6

5. Identify the name of the first AI to master each of the following.

Chess	Driving	Jeopardy	Go	Writing	Drawing
Deep Blue	Stanley (Google Car)	Watson	Alpha Go	ChatGPT	Dall-e

/6

# Communication

6. What title comments should appear at the top of your Rock-Paper-Scissors program? /2

```
//Name: .. Amanda Gorski .....
//Date: .. October 29, 2024 .....
//Title: .. Rock, Paper, Scissors Game ..
```

7. Answer true or false about the function shown. /5

```
function Name pH () {
  if (reading < 7) Boolean
    setText("output", "acid");
  else if (reading == 7) Boolean
    setText("output", "neutral");
  else
    setText("output", "base");
}
```

- T  F a) The function name is reading. *It is PH*
- T F b) The widget name is output. *no calls*
- T  F c) The function calls two other functions.
- T  F d) Three Boolean expressions appear inside the function. *only 2: reading < 7, reading == 7*
- T F e) To call this function, you would write: pH ();

8. Fill in the term that matches the descriptions given. /10

Comments	a) Code that doesn't run.
18	b) Moore states that hardware doubles in power every ___ months.
Node	c) Edge or Node: Represented by a function in a program.
Edge	d) Edge or Node: Represented by a function call in a program.
Brute Force	e) To decrypt a message, the hacker tries all possibilities.
Element	f) The name for a space holding a char at a specific index.
2045	g) The year of the singularity, according to Kurzweil and Vinge.
Function	h) A subprogram.
Cree Code Talkers	i) The Indigenous people who did top-secret work speaking encoded messages for the allies in WWII.
Quipu (Inca)	j) One of the unbroken ancient languages discussed in class.

9. Name four of Sherry Turkle's problems with cell phone use. /4

① Alone Together	③ Illusion of Companionship	⑤ Lack of Empathy
② Multitasking Myth	④ Marked Absent	⑥ Lack of Social Skills

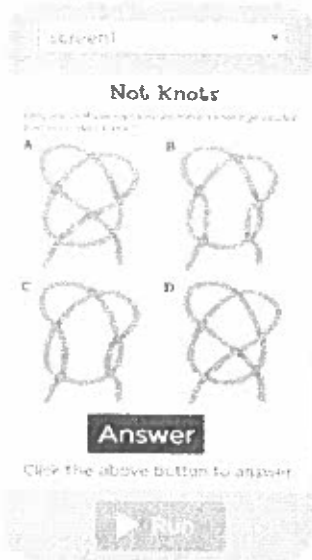
10. Explain why you shouldn't use ChatGPT to do your homework. Use specific evidence in your answer. /6

You shouldn't use ChatGPT to do your homework because it does nothing to grow your brain. In Math, for example, homework strengthens that day's lesson in your brain. By practicing facts like  $2^0 = 1$ , you are more likely to cement it into your brain. Using ChatGPT merely gets an answer to the question, it does nothing to make you smarter and more able to do more.

# Application

11. This is the code for the "Not Knots" game shown. Fill in the blanks.

/4

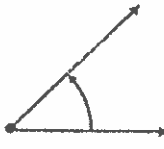
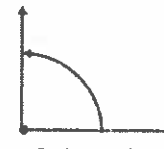

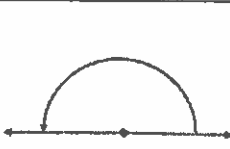
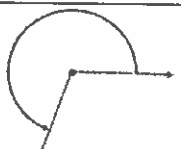


```

onEvent("answer", "click", function(event) {
    var ans = prompt("Which one is a knot?");
    if (ans == "A")
        setText("result", "Your final answer?");
    else if (ans == "B")
        setText("result", "Try again.");
    else if (ans == "C")
        setText("result", "YES!!! That's it.");
    else
        setText("result", "Hmmm.... no.");
});
    
```

12. Write the onEvent to classify the angle in label named "result".  
Use a **promptNum** to ask for the angle size.

/8

Classification Rule	Angle less than 90°	Angle is 90°	Angle between 90° and 180°	Angle is 180°	Angle is over 180°
Classification	Acute	Right	Obtuse	Straight	Reflex
Picture					
	Acute Angle	Right Angle	Obtuse Angle	Straight Angle	Reflex Angle

```

onEvent ("classify", "click", function(event) {
    var a = promptNum ("Enter the degrees in angle: ");
    if (a < 90)
        setText("result", "Acute");
    else if (a == 90)
        setText("result", "Right");
    else if (a < 180)
        setText("result", "Obtuse");
    else if (a == 180)
        setText("result", "Straight");
    else
        setText("result", "Reflex");
});
    
```

13. Fill in the text variable in the memory diagram.

/6

```
var n = "4 Privet Drive";
```

[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
4		P	r	i	v	e	t		D	r	i	v	e

Based on the above variable, match the code to its output. Write the letter in the FIRST column.

b	2	a) setText("output", n.length);
d	4	b) setText("output", n.indexOf("P"));
c	5	c) setText("output", n.indexOf("v"));
a	14	d) setText("output", n.charAt(0));
i	e	e) setText("output", n.toUpperCase());
k	Privet	f) setText("output", n.toLowerCase());
j	Drive	g) setText("output", n=="4 privet drive");
f	4 privet drive	h) setText("output", n<"zebra");
e	4 PRIVET DRIVE	i) setText("output", n.charAt(n.length-1));
h	true	j) setText("output", n.substring(9, 14));
g	false	k) setText("output", n.substring(2, 8));

14. Fill in the memory diagram. Then, write the code to get each piece of output shown.

/8

```
var h = "The Sorting Hat";
```

[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
T	h	e		S	o	r	t	i	n	g		H	a	t

(a)	The	setText("output", h.substring(0,3))
(b)	Sorting	setText("output", h.substring(4,11))
(c)	Hat	setText("output", h.substring(12,15))
(d)	15 //the length	setText("output", h.length)
(e)	4 //where S appears	setText("output", h.indexOf("S"))
(f)	a	setText("output", h.charAt(13))
(g)	THE SORTING HAT	setText("output", h.toUpperCase())
(h)	the sorting hat	setText("output", h.toLowerCase())

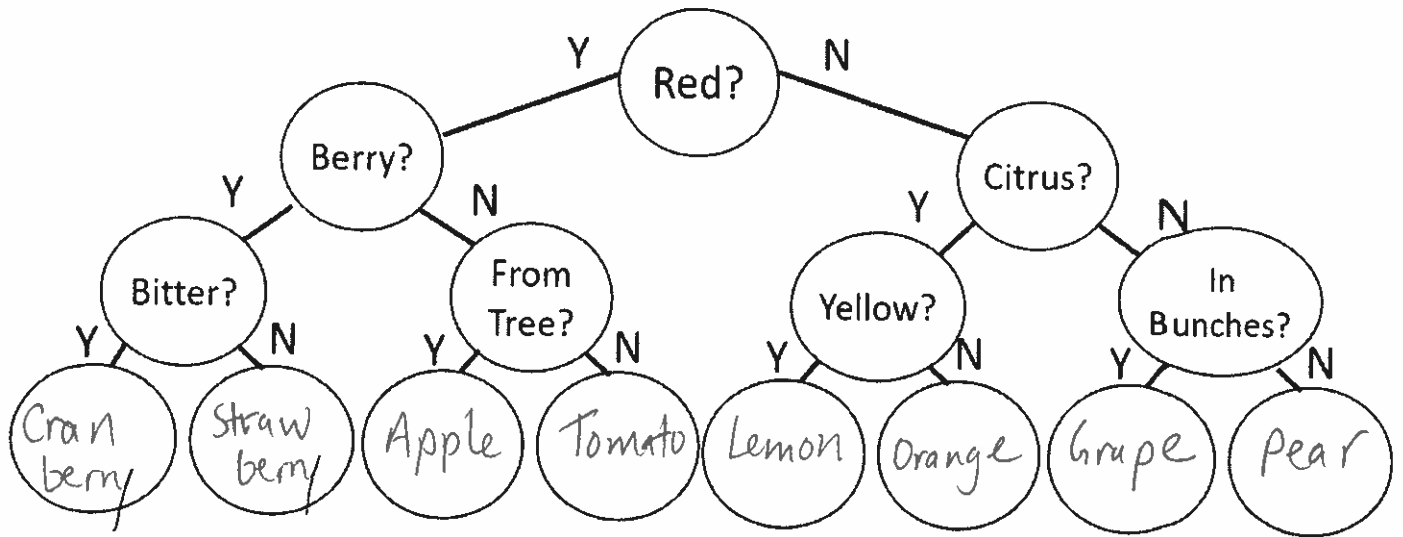
15. Fill in the blanks to write the code to translate any word that is entered into Pig Latin.

/5

```
onEvent("pigLatin", "click", function(event) {
  var w = prompt("Enter a word: ");
  var pL = w.substring(1, w.length) + w.charAt(0) + "ay";
  setText("result", pL);
});
```

# Thinking

16. Fill in the decision tree using this list: Tomato, Lemon, Pear, Cranberry, Orange, Strawberry, Apple, Grape. /6



17. Decrypt the following. /2

(a) rvjeejudi qjudi  
quidditch pitch

(b) latformpay inenay ndaay hreetay uartersqay  
platform nine and three quarters

18. Solve these Ken-Ken puzzles. /6

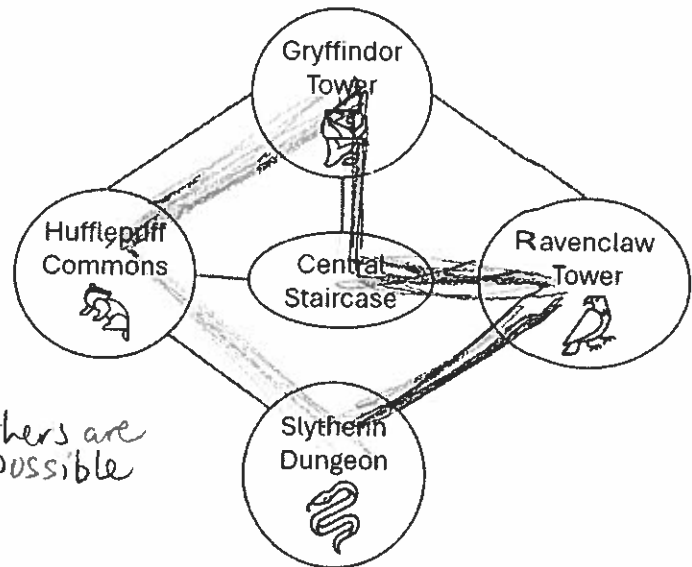
<b>5+</b> 3	<b>2÷</b> 2	1
2	<b>3÷</b> 1	3
<b>2-</b> 1	3	<b>2</b> 2

<b>2÷</b> 4	2	<b>4+</b> 3	<b>3+</b> 1
<b>3</b> 3	<b>3-</b> 4	1	2
<b>2÷</b> 2	1	<b>4</b> 4	<b>12×</b> 3
1	<b>6×</b> 3	2	4

19. A Hamiltonian path starts at one node, travels around to all of the other nodes exactly once, and returns to the starting one.

Basically, you travel to all places, but you start and end at the same point.

You do not need to travel on all of the edges.



- a)  Highlight a Hamiltonian path on the graph to the right.
- b) Then, below, code the functions so that you can travel between all of the rooms on the graph.

others are possible

```
onEvent("start", "click", function( ) {
  Gryffindor();
});
```

```
function Gryffindor() {
  var ans = prompt("C, H, R?");
  if (ans == "C") {
    CentralStairs ();
  } else if (ans == "H") {
    Hufflepuff ();
  } else {
    Ravenclaw ();
  }
}
```

```
function Ravenclaw() {
  var ans = prompt("C, S, G?");
  if (ans == "C") {
    CentralStairs ();
  } else if (ans == "S") {
    Slytherin ();
  } else {
    Gryffindor ();
  }
}
```

```
function Hufflepuff() {
  var ans = prompt("C, S, G?");
  if (ans == "C") {
    CentralStairs ();
  } else if (ans == "S") {
    Slytherin ();
  } else {
    Gryffindor ();
  }
}
```

```
function CentralStairs() {
  var ans = prompt("R, H, G?");
  if (ans == "R") {
    Ravenclaw ();
  } else if (ans == "H") {
    Hufflepuff ();
  } else {
    Gryffindor ();
  }
}
```

```
function Slytherin() {
  var ans = prompt("R or H?");
  if (ans == "R") {
    Ravenclaw ();
  } else {
    Hufflepuff ();
  }
}
```