Unit 1 – ICD2O – Hardware & Network Intro

Sample Test: Tuesday February 17, 2026

Name: _____

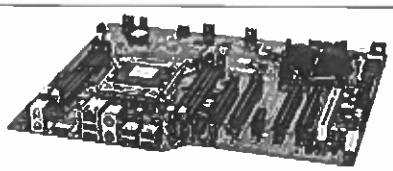
Total	%	Knowledge	Communication	Application	Thinking
(86)	(100)	(24)	(24)	(23)	(15)

Knowledge

1. What does IPOMS stand for? /1

Input	Processing	Output	Memory	Storage

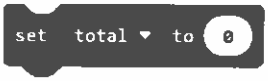
2. Identify each of the following: /5

				
RAM	HD	CPU	Motherboard	Fan

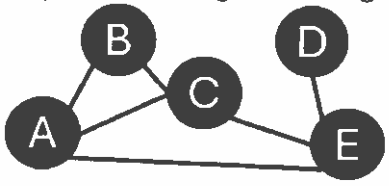
3. Classify each piece of hardware as input, output or storage. /6

(a) Speakers	input	**output**	storage	(d) Microphone	**input**	output	storage
(b) LED Lights	input	**output**	storage	(e) Hard Drive	input	output	**storage**
(c) Accelerometer	**input**	output	storage	(f) Camera	**input**	output	storage

4. Identify the part of the Microbit's hardware that is changed by each piece of code. /8

			
Radio Antenna	Accelerometer	Button A	Microphone
			
Edge Connector	LED	RAM	Speaker

5. Identify the following in this diagram. /4



Number of Nodes	Number of Edges	Degree of Node D	Degree of Node E
5	6	1	3

Communication

6. Identify the term from the description. /10

Cochlear Implant	(a)	Hardware that connects directly to the human auditory nerve.
E Sports	(b)	A new media that is a cross between sports and entertainment.
Alexa	(c)	An AI personal assistant sold on Amazon.
Touch Screen	(d)	A piece of hardware that is both input AND output.
Euler path	(e)	On a graph, a path travelling over all edges once, never repeating.
Node	(f)	On a graph, it is used to model the end of a balloon animal.
18 months	(g)	According to Moore, the time for a computer price to be cut in half.
CPU	(h)	A piece of hardware that is the brain of the computer.
[many possible] Apple	(i)	A company that provides cloud computing.
[many possible] Gold	(j)	A metal used to build a computer.

7. Identify the ergonomic issue caused by each clue. /5

(a) Using your phone right before you go to bed.	(b) Using your headset at max volume.	(c) Using a Nintendo console without a break.	(d) Holding your mouse in a claw hand position.	(e) There is a glare off your computer screen.
Trouble Sleeping	Ringing Ears	Nintendo Thumb	Carpal Tunnel	Eyestrain

8. Match the users with the computer. /3

User Categories: Regular Home User Elite Gamer Students at School	**Computer A** RAM: 1 GB CPU: 1.4 GHz HD: 0.2 TB	**Computer B** RAM: 8 GB CPU: 2.8 GHz HD: 1 TB	**Computer C** RAM: 16 GB CPU: 4.2 GHz HD: 2 TB
Match:	Students at School	Regular Home User	Elite Gamer

9. Referring to the computers in question 8 above, Otto Graff is a film editor creating complex animations. They often render scenes that need a lot of computer resources. Which computer should they buy? Why? /4

Choice?	C	Reason?	Most powerful option

Specific Evidence: C's CPU has a speed of 4.2 GHz, which is better than A's 1.4 GHz or B's 2.8 GHz. This will allow C to animate more quickly than the others.

10. Provide specific details to support this point: "AI uses a lot of energy so it should be used sparingly." /2

Chat GPT uses about the same energy as 7.2 million homes.

Application

11. Circle all pieces of hardware that apply to the description. /6

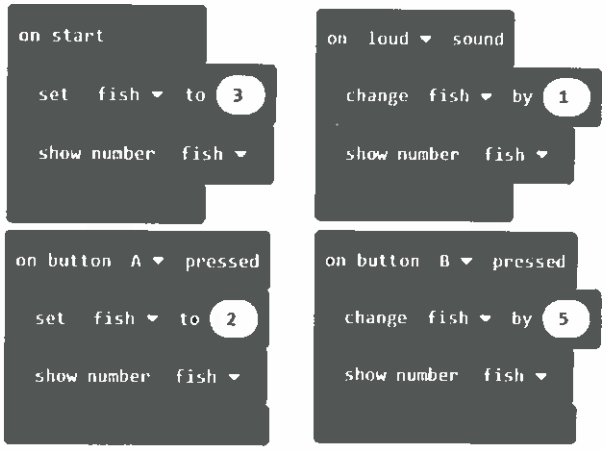
(a)	Where open files are held.	RAM	ROM	HD
(b)	Holds variables for the CPU.	RAM	ROM	HD
(c)	Farthest from the CPU.	RAM	ROM	HD
(d)	Turns on (boots) the computer.	RAM	ROM	HD
(e)	Where things are saved.	RAM	ROM	HD
(f)	Not on the motherboard.	RAM	ROM	HD

12. For each number on the diagram, how would you fix the ergonomic problem? /4

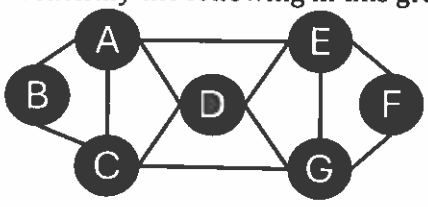
#	Fix
1	[Head Strain] Position head up & screen in front of eyes
2	[Back Strain] sit with a straight back
3	[Smartphone Pinky] Stretch hands. Take breaks
4	[Numb Legs] Put feet flat on ground

13. Consider the following microbit program. What is the variable's value in RAM after each action? /6

Action	Value of **fish** after?
a) At the beginning.	3
b) Button A is pressed.	2
c) A fire alarm goes off.	3
d) Button A is pressed.	2
e) Button B is pressed.	7
f) Button B is pressed.	12

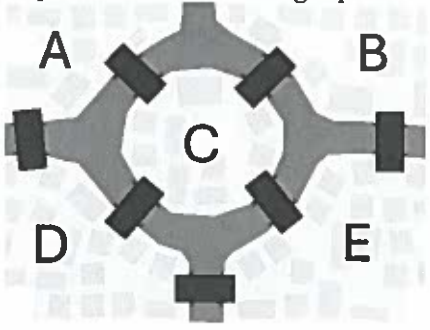


14. Identify the following in this graph. /3

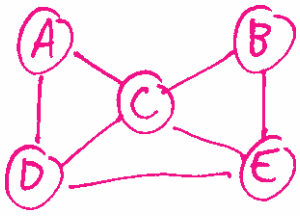


a) Number of Nodes with Odd Degree	0
b) Number of Nodes with Even Degree	7
c) Has an Euler Path? (y/n)	yes

15. This is a map of a city with some bridges crossing a river. Draw a graph to represent this situation. Also, is it possible to find a single path that can cross all bridges once without repeating? /4

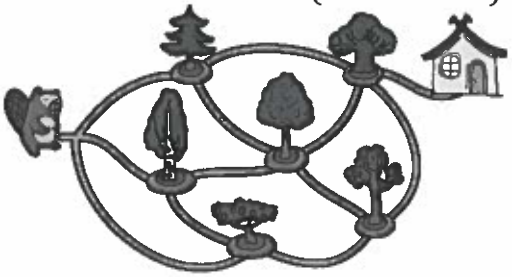


Does it have a path of all bridges? (y/n) ...Y....
☐ Below, draw a graph to represent the city.

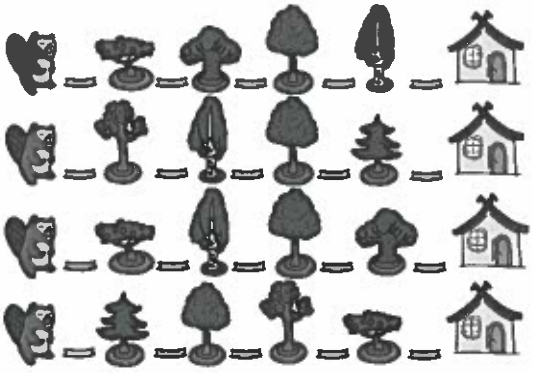


Thinking

16. The beaver walks home using these trails passing exactly four intersections on the way. What order did the beaver walk home? (circle answer) /2



(a)
(b)
(c)
(d)



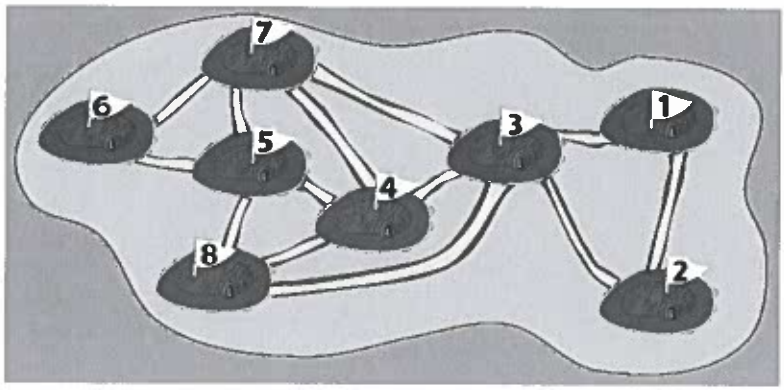
17. A beaver wants to visit his friend Jaspreet. He doesn't know which home is hers, but he has the following neighbourhood map, showing homes numbered from 1 to 8, and paths between the homes. /2

Two beavers are neighbours if a path directly connects their homes.

Also, Jaspreet, Zac, and Pan each have exactly four neighbours.

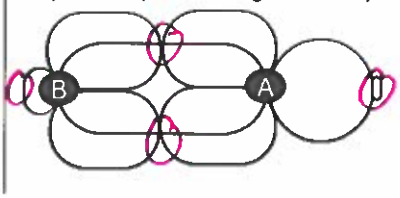
Niki has exactly two neighbours: Zac and Pan.

What is Jaspreet's house number? 4

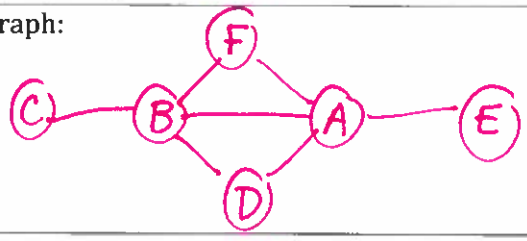


18. Draw this balloon turtle using a graph. I added 2 nodes, you must add 4 more. /5

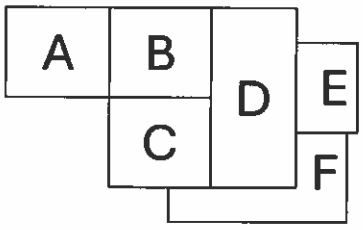
Top View (see-through balloon)



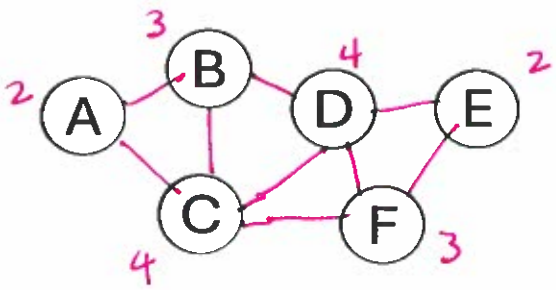
Graph:



19. You are planning a road-trip to the 6 countries shown below, with the following odd rule: you must cross all borders between all neighboring countries exactly once. For example, you must cross the Country A- Country B border exactly once.



Draw Graph Here: (add edges)



(a) **Draw the graph** for this situation below ☐ /6

(b) Can you plan the road trip? ....Y.....

(c) If so, where do you need to:

- start your road trip? ...B..... (can reverse)
- end your road trip? ....F.....

(d) What term from graph theory helps solves this problem?

Euler Path (or Degree of Vertex)