

Unit 1 – ICD20 – Hardware & Network Intro

Sample Test: September 19, 2024

Name: Gorski

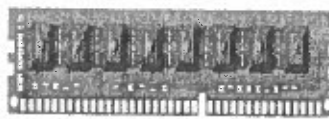
Total	%	Knowledge	Communication	Application	Thinking
(82)	(100)	(24)	(23)	(20)	(15)

Knowledge

1. What does IPOMS stand for? /1

Input	Processing	Output	Memory	Storage
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2. Identify each of the following: /5

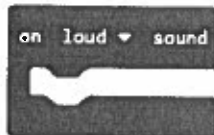


Fan	Screen monitor	RAM	CPU processor	HD Hard Drive SSD
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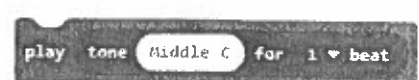
3. Classify each piece of hardware as input, output or storage. /6

(a) Hard Drive	input	output	storage	(d) Camera	input	output	storage
(b) DVD	input	output	storage	(e) Speakers	input	output	storage
(c) Microphone	input	output	storage	(f) SD Card	input	output	storage

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

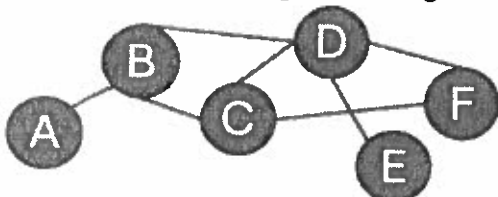


Accelerometer	Microphone	Button A	Radio
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LEDs lights	RAM	Pins Edge Connector	Speaker
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5. Identify the following in this diagram. /4



# Nodes	# Edges	Degree of Node B	Degree of Node D
6	7	3	4

Communication

6. Identify the term from the description.

/10

Printer	(a)	An output device that produces a paper copy.
Keyboard	(b)	An input device for letters and words.
Touchscreen	(c)	A device that is both input AND output.
Motherboard	(d)	The board that holds the CPU, RAM and ROM.
Euler	(e)	On a graph, a path travelling over all edges once, never repeating.
E-Waste	(f)	When you throw computers away, they become this.
18 months	(g)	According to Moore, the time for computing power to double.
Snap Circuits	(h)	Used in class, a set of circuits that can easily be connected.
- Many Possible -	(i)	A company with a large data centre. Google, Apple, Twitter, Instagram
- Many Possible -	(j)	A metal used to build a computer. Gold, Silver, Tin, ... basically, if you can name a metal it's in a computer

7. Identify the ergonomic issue caused by each clue

/5

(a) Using your headset at max volume.	(b) Typing on a keyboard at a strange angle.	(c) Using a Nintendo console without a break.	(d) Texting for hours and hours each day.	(e) Using your phone right before you go to bed.
Ringling Ears	Carpal Tunnel	Nintendo Thumb	Texter's Finger	Trouble Sleeping

8. A student has written a response to "Why should you recycle your computer?" Mark their response.

/2

<p>You should recycle your computer because it is toxic. If you throw your computer away, toxins in the hardware pollute rainwater. This harmful water will become drinking water for nearby animals. However, this pollution can be prevented by recycling your computer properly. Therefore, you should recycle your computer to reduce pollution, thus helping to preserve the biodiversity in nature.</p> <p>What mark did they get? <u>4</u> / 6</p>	<p>Check off the points that apply to the paragraph.</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> The POINT is first. It uses the word because. <input checked="" type="checkbox"/> The reason in the POINT is concise and clear. It relates to the detail that follows it. <input checked="" type="checkbox"/> The DETAIL has some examples or details. Some attempt is made to support an idea. <input type="checkbox"/> The DETAIL is very specific. It has a specific name, number, or detailed example. No off-topic material. <input checked="" type="checkbox"/> The ANALYSIS relates the point to the detail. It is not jumbled up with the detail: it is at the end. <input type="checkbox"/> The ANALYSIS is excellent. It adds to the paragraph content.
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9. Which of the opening applications (Cochlear Implants, Alexa, DaVinci, ESports) was the most interesting? Use specific details to support your answer.

/6

Point: Alexa was the most interesting because of it helps connect a home to the IOT (Internet of Things)

Detail: Alexa is Amazon's personal assistant; it retails for about \$200. It allows the user to give verbal instructions to control connected devices in their home like therostats, house locks, lights and sprinklers.

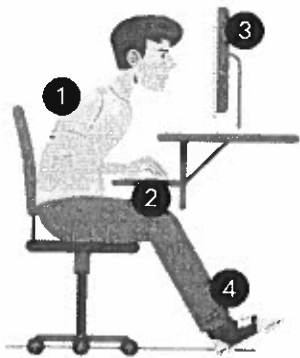
Analysis: The user friendly nature of the voice commands allows increased connectivity of all internet home devices.

Application

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

- | | | |
|--|------------------------------|------------|
| (a) On the motherboard. | Both <u>RAM</u> — <u>ROM</u> | HD |
| (b) Where you save your work. | RAM | <u>HD</u> |
| (c) Boots the computer. | RAM | <u>ROM</u> |
| (d) Where open pictures are held. | <u>RAM</u> | ROM |
| (e) The smallest storage capacity. | RAM | <u>ROM</u> |
| (f) Works with the CPU to do calculations. | <u>RAM</u> | ROM |

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

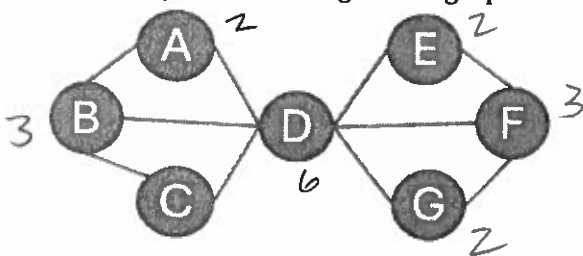


#	Fix
1	Back is not straight Sit up at a 90° with legs to prevent back strain
2	Hands in a claw position Flatten hands to prevent carpal tunnel
3	Eyes are too close to monitor. Move monitor back to prevent eye strain
4	Feet are not flat on ground. Use foot rest to prevent numb legs

12. Match the users with the type of the computer. /3

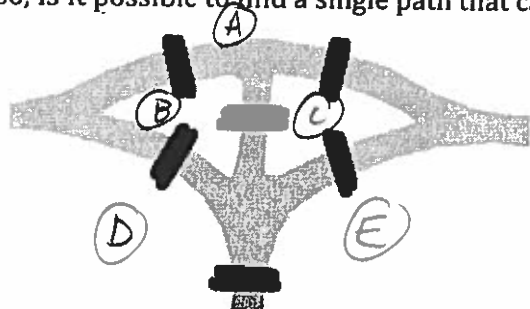
User Categories:	Computer A	Computer B	Computer C
Film Editor	RAM: 4 GB	RAM: 1 GB	RAM: 8 GB
Regular Home User	CPU: 2 GHz	CPU: 1.6 GHz	CPU: 3.4 GHz
Students at School	HD: 1 TB	HD: 256 GB	HD: 2 TB
Match:	Regular Home User	Students at School	Film Editor

13. Identify the following in this graph. /3



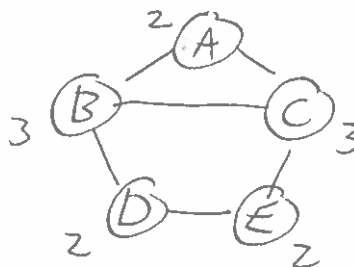
a) # Nodes with Odd Degree	2
b) # Nodes with Even Degree	5
c) Has an Euler Path? (y/n)	y

14. 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



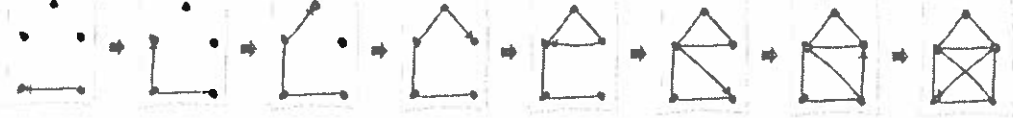
Does it have a path of all bridges? (y/n) ... y ...

Below, draw a graph to represent the city.

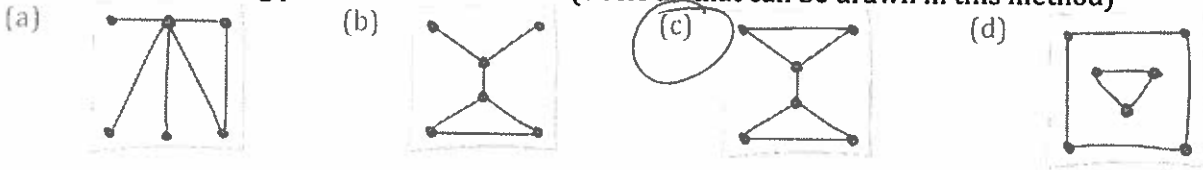


Thinking

15. Zhi creates pictures by drawing dots and then connecting them with line segments in one motion, never picking up his pencil and never drawing the same line segment twice. This is how Zhi draws a house:

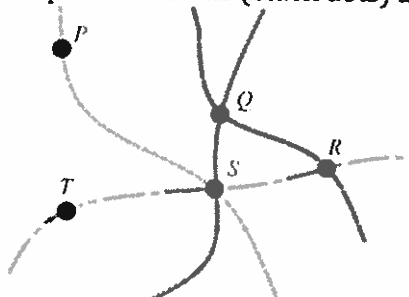


Which of the following pictures can Zhi draw? (circle all that can be drawn in this method)



/2

16. A map of five towns (black dots) and four highways (lines) is shown.

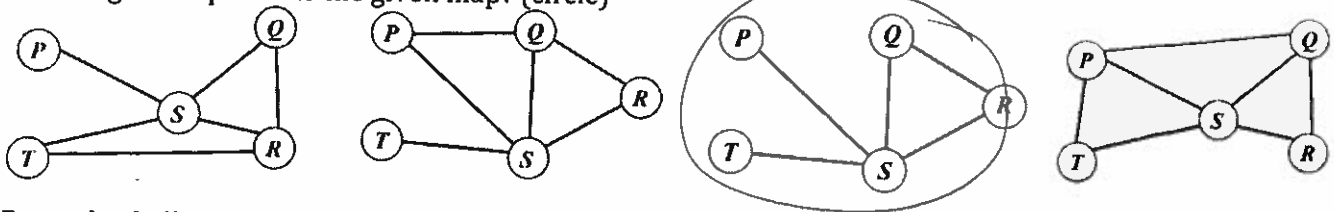


To represent this map using a diagram, there is one labelled circle per town and the following is true for every two towns:

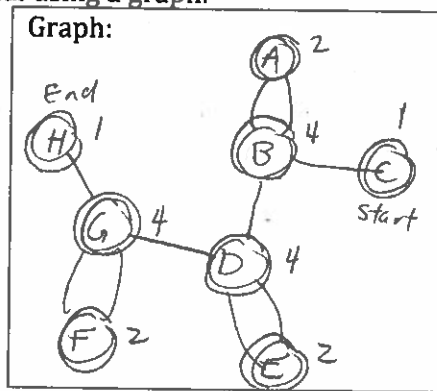
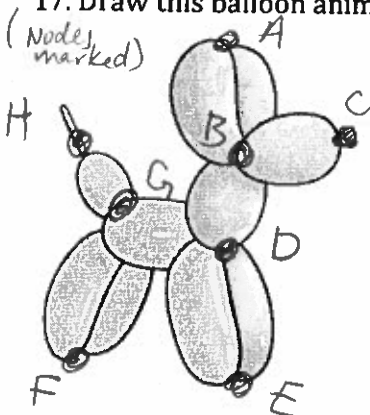
- If you can drive from one town to the other using one of the four highways, then a straight line joins their circles.
- If you cannot drive from one town to the other using one of the four highways, then no straight line joins their circles.

/2

Which diagram represents the given map? (circle)



17. Draw this balloon animal using a graph.



Why must it have an Euler path?

Think of the one balloon as being... the single path over all bridges. The balloon twists are similar to the... roundabout nature of the path. The 2 odd nodes are the start and end of the balloon...

/5

18. Draw a graph using the following clues. Edges should be straight and they should not cross. Use the room names inside the nodes.

/6

Clues:

- The Hall has 4 doorways.
- The Basement has a door to every room except the Hall and the Closet.
- The Closet can be reached by 3 doors, including one in the Foyer and another in the Library.
- There are 2 rooms with an even degree and all of the others have an odd number of connections.
- You can't get to the Closet from the Kitchen.

