1. A blogging Website allows users to post messages and to comment on other messages that have been posted. When a user posts a message, the message itself is considered data. In addition to the data, the site stores the following metadata.

- The time the message was posted
- The name of the user who posted the message
- The names of any users who comment on the message and the times the comments were made

For which of the following goals would it be more useful to analyze the **metadata** instead of the data?

Determine the time of day that the site is most active
Determine the topics that many users are posting about
Determine what words are most commonly capitalized in comments
Determine the least common punctuation used in comments

2. Consider the code segment below

```
Line 1: IF (x = 0)
Line 2: {
Line 3:     x ← -1 * x + y
Line 4: }
Line 5: ELSE
Line 6: {
Line 7:     x ← x + y
Line 8: }
```

Which of the following will NOT affect the results when the code segment is executed?

Switching line 3 and line 7
Change line 3 to x ← y
Remove the else statement and run line 7 no matter what
Change line 3 to x ← -1 * y + x

3. Which of the following statements describes an advantage of using a computer simulation to model a real-world object or system?

Computer simulations model real-world objects and systems perfectly, without making any simplifying assumptions.
Simulations allow us to test real-world events without the cost or danger of building and testing the phenomena in the real world.
Computer simulations run very quickly, regardless of the level of detail of the model.
Computer simulations are easy to debug.

4. Which of the following best describes the purpose of the domain name system (DNS)?

Translating domain names to IP addresses
Assigning a unique IP address to each new device connecting to the Internet
Sending packets of data between devices on the Internet
Encrypting information sent over the Internet

5. A researcher is emailing images of soil samples back to her lab so her team can analyze them. She notices that the images sent in her email are of lower quality than the images on her camera. Which of the following could be a possible explanation for the difference in image quality?

Before being sent, the image was compressed using a lossless compression technique
Before being sent, the image was compressed using a lossy compression technique
Some information was lost due to network packets not reaching their final destination
Before being sent, the image was encrypted using asymmetric encryption