1. The Internet is organized as a **packet-switched** network. Give two advantages realized from this organization.

   Dependability, scalability and potential speed of transmission.

   (I know, I gave three.)

2. Explain the differences between **time-sharing** and **client-server** computing approaches.

   Time-sharing splits the monolithic processor among many dumb-terminals used only for interface (i.e., all computation occurs on the server), whereas in client-server computing, the computation is partitioned between the server and a set of clients, and each client can also run local programs (one such program is the application to access the server).

3. Briefly define the term **embedded computer**, and provide an example where this technology can be used.

   An embedded computer is a small, special purpose device to run applications such as traffic lights, elevators, microwaves, and pocket calculators [AE p. 17].

4. What is the difference between a **property** and a **method**? Identify each for a spreadsheet application or for a web browser application.

   A property is where data values needed for an object are stored, and a method is a set of instructions to manipulate the properties of an object. For example, in a spreadsheet, a property would be the set of values in a column, and a method might be a cell containing a formula to compute the average of the previously identified property. Another example would be in a browser, where a property might be the text contained in a file, and a method might be the set of HTML tags used to depict this text as a list.

5. How many bits in memory are needed to ensure 640 x 480 screen resolution (i.e., pixel count) using an 8-bits per pixel scheme?

   \[
   \begin{align*}
   \text{TotalBits} &= 640 \text{ pixels/row} \times 480 \text{ rows/screen} \times 8 \text{ bits/pixel} \\
   &= 2,457,600 \text{ bits/screen} \\
   &= 307,200 \text{ bytes} \\
   &= 0.3072 \text{ megabytes}
   \end{align*}
   \]

6. You need a specialized word processor as part of your studies in Japanese. You need to choose between a freely-available application provided by the College, or the option to purchase an extension to your current word processor for some amount of money (dollars or yen). As an IT fluent citizen, list three issues to consider in your decision.

   Some issues might include …

   - Cost of extension vs. extra time/effort to learn new SW
   - Which solution saves me the most time in the long run?
   - How many times will I need this extension/new SW?
   - Can I use my current set of SW in a different way for my Japanese course?
   - Which solution is more dependable?
7. When is a GUI advantageous? When it is not advantageous?

A GUI is advantageous primarily when it abstracts, or hides, the details so that the user can accomplish more work with less effort. A GUI can be a disadvantage when it is limited, and does not provide a needed function.

8. Provide the HTML code for the <BODY> section to depict the information in the box below:

```
<!-- this is one way in HTML to display the above text -->

<BODY>

<P ALIGN=CENTER>
<H1>
22 Fords Named to <A HREF="http://www.centennial.org">Centennial Conference Winter Academic Honor Roll</A>
</H1>

Haverfordians were well-represented on the <I><A HREF="http://www.centennial.org">Centennial Conference Winter Academic Honor Roll</A> as 22 Fords were recognized among the conference's top scholar-athletes of the winter season.

</P>

</BODY>
```

9. Discuss the difference between server-side (i.e., physical) styles (e.g., bold, italic) and client-side (i.e., logical) styles (e.g., strong, emphasis) in HTML.

Pages are displayed by the client. Physical styles are set by the server, and the client is bound to display them as specified. On the other hand, logical styles are not bound by the server, but can be redefined by the client.

10. In hexadecimal, what is the next number after each of the following:

   a. 5
   b. 9
   c. F7
   d. A9
   e. 9F

   a. 6   b. A   c. F8   d. AA   e. A0
11. Future computers will have to be based physical particles that are lighter and faster than the ones used in our current computers. Name this technology or particle (one word answer)

   Answer: photons (or optical technology)

12. Explain one major milestone in the evolution of the human computer interface, focusing on the physical method of interaction (excluding the mouse and keyboard). What does the future hold?

   Answer: punched cards; speech recognition; direct thought control

13. True or false: A computer is currently the world chess champion.

   Answer: true