**ANALYSIS**

***Answer the following questions in complete sentences by using the attached H-R diagram.***

1. Using the terms “bright” or “dim”, and “hot” or “cool”, how would you describe these stars:

1a. Stars found in the upper left part of the main sequence?

1b. Stars found in the lower right part of the main sequence?

1c. Stars found in the Red Giant region?

1d. Stars found in the White Dwarf region?

2. Why do red giants have a higher luminosity than most main sequence stars even though the main sequence stars have higher temperatures?

3. What is the relationship between temperature and magnitude for stars on the main sequence?

4. What would be the magnitude of a star with a temperature of 25,000 K located on the main sequence?

5. What causes stars to display different colors?

6. What event would prompt a star to leave the main sequence and become a red giant?

7. Compare the stars located on your H-R diagram to our sun, basing your comparison on temperature, color, and luminosity.

8. Where on this graph do you think you would find the stars that are called blue super giants? Explain.

9. When our sun is 15-20 billion years old, it will evolve into an object with a luminosity of 0.01 times its present luminosity, and it will have a surface temperature of 11,000-12,000 K. Use your H-R diagram to predict what type of object our sun is destined to become.

10. Betelgeuse is 150 parsecs away and has a surface temperature of only 3200 K. Yet Betelgeuse is one of the brightest stars as seen from Earth. What does this indicate above the size of Betelgeuse? Is your answer supported by the location of Betelgeuse on the diagram?

11. Compare our sun with the Antares. Where is each star along its life cycle, and which is further along in its life cycle? How do you know?