HPS Cosmology Assignment 2019 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Objective 8: Explain the Big Bang Theory and summarize supporting evidence.  
KEY TERMS: Steady State Theory, Hubble’s Constant, Redshift, Cosmic Microwave Background, Critical density, Open/Closed/Flat Universe

1. Describe the Big Bang Theory. (pg 847)

1. One observation that led to the BBT is the red-shift of galaxies. What does this mean? (pg 843-3)
2. Sketch a spectral fingerprint of a motionless object. Then sketch a spectral fingerprint showing red-shift and one showing blue-shift.  
     
     
     
     
     
    Motionless Red shift Blue shift
3. What is Hubble’s Law? Include a graph, an equation, and an explanation of Hubble’s constant. (pg 842-3)

1. Penzias and Wilson stumbled upon the discovery of Cosmic Microwave Background radiation. Explain what it is and why it is significant. (pg 848)

<http://astronomy.swin.edu.au/cosmos/C/Critical+Density>

1. What is critical density? How does it relate to the Open/Closed/Flat Universe concepts? (pg 849)
2. Not all astronomers agree that the universe had a beginning, which led to an alternative theory. Explain.