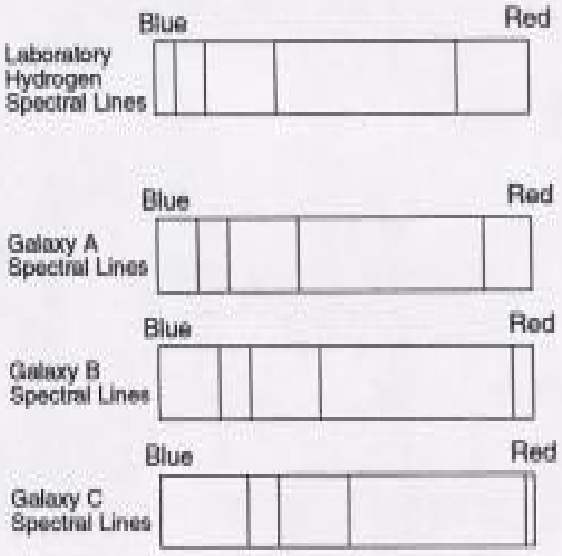
1. The redshift of light from distant galaxies provides evidence that the universe is
   (1) shrinking, only
   (2) expanding, only
   (3) shrinking and expanding in a cyclic pattern
   (4) remaining the same size

2. In the diagram below, the spectral lines of hydrogen gas from three galaxies, *A*, *B*, and *C*, are compared to the spectral lines of hydrogen gas observed in a laboratory.

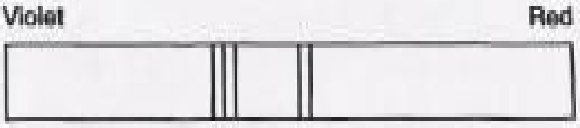


   What is the best inference that can be made concerning the movement of galaxies *A*, *B*, and *C*?
   (1) Galaxy *A* is moving away from Earth, but galaxies *B* and *C* are moving toward Earth.
   (2) Galaxy *B* is moving away from Earth, but galaxies *A* and *C* are moving toward Earth.
   (3) Galaxies *A*, *B*, and *C* are all moving toward Earth.
   (4) Galaxies *A*, *B*, and *C* are all moving away from Earth.

3. The more that the spectral lines of a star are shifted to the red end of the spectrum
   (1) the larger it is.
   (2) the faster it is rotating
   (3) the hotter it is
   (4) the faster it is moving away from us

4. The velocity of a star toward or away from the Earth can be determined by measuring the
   (1) color of the star
   (2) shift of its spectral lines
   (3) brightness of the star
   (4) its change in apparent size

5. The diagram below represents a standard dark-line spectrum for an element.



   The spectral lines of this element are observed in light from a distant galaxy. Which diagram represents these spectral lines?
   (1) Violet Red

   (2) Violet Red

   (3) Violet Red

   (4) Violet Red

6. The velocity of a galaxy can be measured by measuring
   (1) how fast its apparent size decreases
   (2) how many lines occur in its spectrum
   (3) the shift in the pattern of lines in its spectrum
   (4) how fast it changes position in the sky