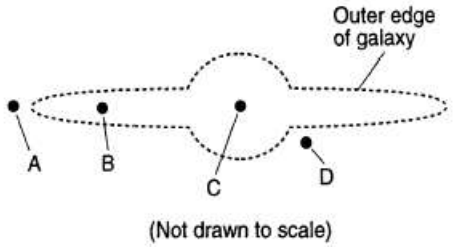
The Universe, Galaxies, and Solar System Review

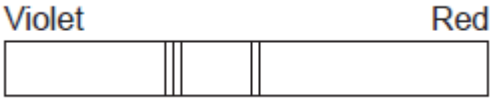
1. In which list are the celestial features correctly shown in order of increasing size?
   (1) galaxy → solar system → universe → planet
   (2) solar system → galaxy → planet → universe
   (3) planet → solar system → galaxy → universe
   (4) universe → galaxy → solar system → planet

The diagram represents a side view of the Milky Way Galaxy.



2. At approximately which position is Earth's Solar System located?
   (1) *A* (3) *C*
   (2) *B* (4) *D*

3. The diagram below represents the bright-line spectrum for an element.



The spectrum of the same element observed in the light from a distant star is shown below.

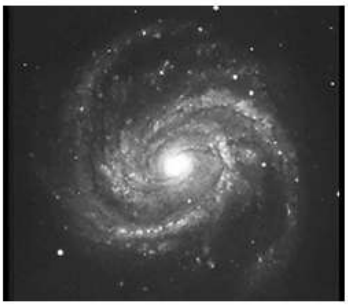
The shift in the spectral lines indicates that the star is moving
(1) toward Earth (3) in an elliptical orbit around the Sun
(2) away from Earth (4) in a circular orbit around the Sun

4. In the geocentric model, which motion would occur?
   (1) The Earth would revolve around the Sun.
   (2) The Earth would rotate on its axis.
   (3) The Moon would revolve around the Sun.
   (4) The Sun would revolve around the Earth.

5. Which statement best describes the age of our solar system and the universe?
   (1) The universe is at least twice as old as our solar system.
   (2) Our solar system is at least twice as old as the universe.
   (3) Our solar system and the universe are estimated to be 5 billion years old.
   (4) Our solar system and the universe are estimated to be 10 billion years old.

6. Most scientists believe the Milky Way Galaxy is
   (1) spherical in shape (3) composed of stars revolving around Earth
   (2) 4.6 billion years old (4) one of billions of galaxies in the universe

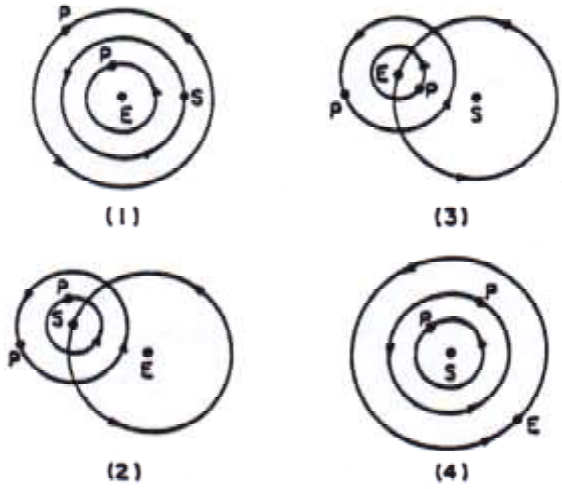
7. The picture represents the shape of the Milky Way Galaxy.
The Milky Way Galaxy is best described as
(1) elliptical
(2) irregular
(3) circular
(4) spiral



8. Which planetary model is used today by scientists to predict the exact positions of the planets in the night sky over many years?
(1) The planets orbit the Sun in a geocentric model.
(2) The planets orbit the Earth in a geocentric model.
(3) The planets orbit the Sun in a heliocentric model.
(4) The planets orbit the Earth in a heliocentric model.

9. Which diagram best represents a heliocentric model of a portion of the solar system?

Key:
E = Earth
P = planet
S = Sun



10. Which statement best describes galaxies?
(1) They are similar in size to the solar system.
(2) They contain only one star but hundreds of planets.
(3) They may contain a few hundred stars in a space slightly larger than the solar system.
(4) They may contain billions of stars in a space much larger than our solar system.

11. The theory that the universe is expanding is supported by the
(1) blue shift of light from distant galaxies
(2) red shift of light from distant galaxies
(3) nuclear fusion occurring in the Sun
(4) radioactive decay occurring in the Sun

12. Cosmic background radiation provides direct evidence for the origin of
(1) the universe
(2) our solar system
(3) Earth's ozone layer
(4) Earth's earliest atmosphere