

NAME _____

PERIOD _____

1. The explosion associated with the Big Bang theory and the formation of the universe is inferred to have occurred how many billion years ago?

- 1) less than 1 2) 2.5 3) 4.6 4) over 10

2. The Big Bang Theory, describing the creation of the universe, is most directly supported by the

- 1) presence of craters on Earth's Moon 3) red shift of light from distant galaxies
2) apparent shape of star constellations 4) presence of volcanoes on Earth

3. The red shift of visible light waves that is observed by astronomers on Earth is used to determine the

- 1) rotation periods of the planets 3) relative motions of distant galaxies
2) sizes of nearby galaxies 4) densities of the planets

4. Evidence that the universe is expanding is *best* provided by the

- 1) red shift in the light from distant galaxies
2) change in the swing direction of a Foucault pendulum on Earth
3) parallelism of Earth's axis in orbit
4) spiral shape of the Milky Way Galaxy

5. 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.



5. The shift in the spectral lines indicates that the star is moving

- 1) in a circular orbit around the Sun 3) away from Earth
2) toward Earth 4) in an elliptical orbit around the Sun

6. The diagram below represents the shape of the Milky Way Galaxy.



6. The Milky Way Galaxy is *best* described as

- 1) elliptical 2) spiral 3) circular 4) irregular

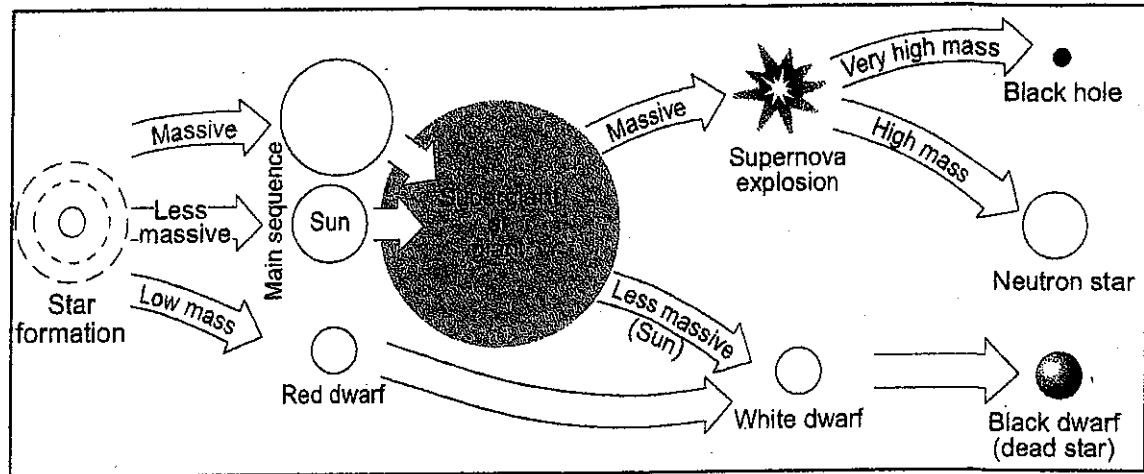
7. Which of the following objects forms by the contraction of a large sphere of gases causing the nuclear fusion of lighter elements into heavier elements?

- 1) planet 2) comet 3) moon 4) star

1.
2.
3.
4.
5.
6.
7.
8.
9.
10.
11.
12.
13.
14.
15.
16.
17.
18.
19.
20.

HW TOPIC 3

8. By which process do stars convert mass into great amounts of energy?
- 1) nuclear fusion
 - 2) heat transfer
 - 3) radioactive decay
 - 4) gravitational pull
9. Compared to the surface temperature and luminosity of massive stars in the Main Sequence, the smaller stars in Main Sequence are
- 1) hotter and less luminous
 - 2) cooler and less luminous
 - 3) cooler and more luminous
 - 4) hotter and more luminous
10. Compared with our Sun, the star *Betelgeuse* is
- 1) smaller, hotter, and less luminous
 - 2) smaller, cooler, and more luminous
 - 3) larger, hotter, and less luminous
 - 4) larger, cooler, and more luminous
11. The diagram below represents possible stages in the life cycle of stars.



- Which star has the *greatest* probability of producing a supernova explosion?
- 1) *Procyon B*
 - 2) *Barnard's Star*
 - 3) *Betelgeuse*
 - 4) *Sun*
12. The symbols below are used to represent different regions of space.

Universe = □ Earth = ○
Galaxy = ▭ Solar system = ○

Which diagram shows the correct relationship between these four regions? [If one symbol is within another symbol, that means it is part of, or included in, that symbol.]



13. Which object in our solar system has the *greatest* density?
- 1) Jupiter
 - 2) the Sun
 - 3) Earth
 - 4) the Moon

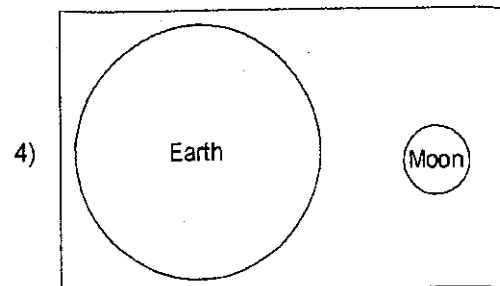
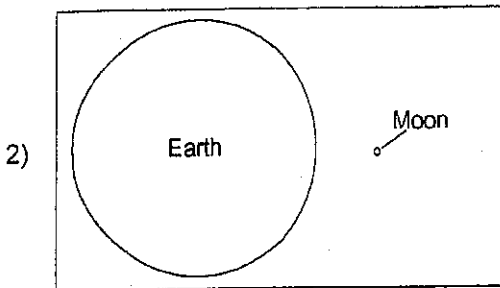
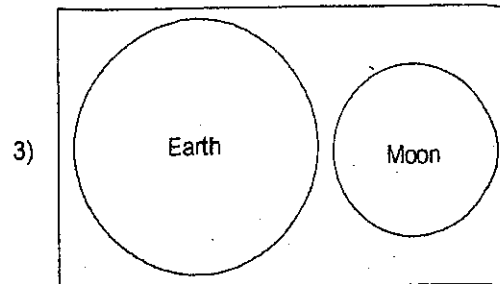
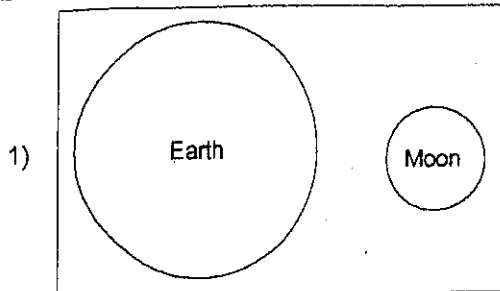
11 Compared to the Jovian planets in our solar system, Earth is

- 1) more dense and closer to the Sun
- 2) less dense and farther from the Sun
- 3) more dense and farther from the Sun
- 4) less dense and closer to the Sun

12 Which planet is located approximately ten times farther from the Sun than Earth is from the Sun?

- 1) Uranus
- 2) Mars
- 3) Jupiter
- 4) Saturn

13 Which diagram best represents the size of the Moon, compared to Earth, when drawn to scale?



14 Compared to the other planets in our solar system, Jupiter, Saturn, and Neptune have

- 1) greater densities
- 2) greater eccentricities
- 3) shorter periods of rotation
- 4) shorter periods of revolution

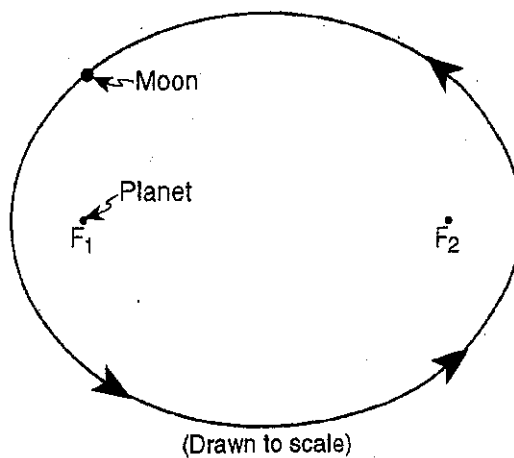
15 How do Jupiter's density and period of rotation compare to Earth's?

- 1) Jupiter is less dense and has a longer period of rotation.
- 2) Jupiter is less dense and has a shorter period of rotation.
- 3) Jupiter is more dense and has a shorter period of rotation.
- 4) Jupiter is more dense and has a longer period of rotation.

16 Which planet takes more time to complete one rotation on its axis than to complete one revolution around the Sun?

- 1) Jupiter
- 2) Mars
- 3) Mercury
- 4) Venus

- 20 The diagram below represents the elliptical orbit of a moon revolving around a planet. The foci of this orbit are the points labeled F_1 and F_2 .



What is the approximate eccentricity of this elliptical orbit?

- 1) 0.7 2) 1.4 3) 0.5 4) 0.3