Review Test Submission: Major-2-ch7-11

User	HASSAN ALALI
Course	222-PHYS-215-02(Introduction to Astronomy)
Test	Major-2-ch7-11
Started	4/2/23 1:02 PM
Submitted	4/2/23 1:52 PM
Status	Completed
Attempt Score	11.5 out of 20 points
Time Elapsed	50 minutes out of 52 minutes
Results Displayed	All Answers, Submitted Answers, Correct Answers

Question 1

0 out of 1 points

Trigonometric parallax is used to measure the distance of nearby stars. If the parallax of a star is 0.3 arcsec , find its distance from the earth in light years.

Selected Answer: ✗ a. 5.4

Answers:
a. 5.4
✓ b. 10.9
c. 32.6
d. 2.3

Question 2

1 out of 1 points

Two binary stars, A and B rotate about a common center in circular orbits of 7 AU and 41 AU respectively. If the mass of star A is calculated from its luminosity as 66 times the mass of the Sun. Find the mass of star B in terms of the solar mass.

Selected Answer: ✓ d. 11

Answers:
a. 5
b. 15
c. 7
✓ d. 11

Question 3

0 out of 1.2 points

An absorption line from a star moving in the light of sight is observed to be 450.3 nm. If its rest wavelength is 450 nm, estimate the speed of the star in km/s. (speed of light is 3 x 10^5 km/s)

Selected Answer: ✗ d. 67

Answers:
a. 400
b. 267
✓ c. 200
d. 67

Question 4

0 out of 1 points

The luminosity of a star is 120 times the luminosity of the sun. Estimate the mass of the star in terms of solar mass.

Selected Answer: ✗ c. 4.5

Answers:
a. 5.1
✓ b. 3.3
c. 4.5
d. 5.5

Question 5

0 out of 1.2 points

A star is 440 times more luminous than the sun and its surface temperature is 2.8 times that of the sun. Find the approximate radius of the star as compared to the solar radius.

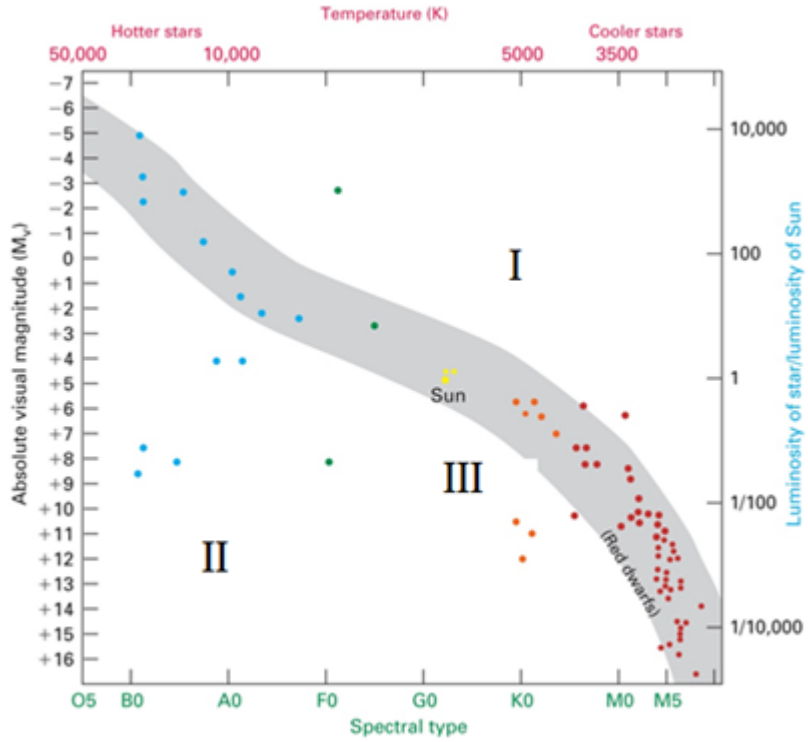
Selected Answer: ✗ d. 7.8

Answers:
a. 6.4
b. 13.8
✓ c. 2.7
d. 7.8

Question 6

0.7 out of 0.7 points

In the following H-R diagram at which regions could Red Giants be located?



Selected Answer: a. I

Answers: a. I

b. II

c. in main sequence

d. III

Question 7

0.7 out of 0.7 points

One of the NASA's spacecraft that was sent to investigate Exoplanets is:

Selected Answer: a. Kepler

Answers: a. Kepler

b. MAVEN

c. Messenger

d. Galileo

Question 8

0.7 out of 0.7 points

Stars generate their energy through nuclear fission, the breaking apart of unstable heavy elements into lighter ones.

Selected Answer: False

Answers: True

False

Question 9

0 out of 0.7 points

The major piece of evidence that Pluto has an atmosphere has been obtained from

Selected Answer: b.
The abrupt winking of the light of a known star as Pluto passed in front of (occulted) that star.

Answers: a.
measuring the gradual decrease, then increase in the light of a known star as Pluto passed in front of (occulted) that star.

b.
The abrupt winking of the light of a known star as Pluto passed in front of (occulted) that star.

c. Infrared radiation emitted from Pluto's surface.

d. Radar waves

Question 10

0.7 out of 0.7 points

The cloud that collapsed to form the solar system was mostly

Selected Answer: d. hydrogen

Answers: a. helium

b. silicate

c. carbon

d. hydrogen

Question 11

0 out of 0.7 points

In 2006, the International Astronomical Union classified Pluto as a dwarf planet rather than a planet. Which of the statements below explains why Pluto is not a planet?

Selected Answer: b. Pluto is too small for gravity to have formed it into a sphere

Answers: a.
Pluto is located in the Kuiper Belt and has not cleared its orbit free from other debris.

b. Pluto is too small for gravity to have formed it into a sphere

c. Pluto orbits Neptune instead of the Sun.

d. Pluto has no moons.

Question 12

0.7 out of 0.7 points

Massive stars live significantly longer lives than low-mass stars, since they have much more fuel available to them

Selected Answer: False
Answers: True
False

Question 13

0 out of 0.7 points

Since 1995, nearly a thousand exoplanets around normal main-sequence stars have been detected with ground-based optical telescopes. Which one of the following statements about these planets is true?

Selected Answer: a. They all have circular or nearly circular orbits.

Answers:
a. They all have circular or nearly circular orbits.
b. All of them are less massive than Jupiter.
c. In some cases, the planet's mass is as small as Mercury's mass.
d. In some cases, they are so close to their parent stars that they complete a full orbit in only a few days.

Question 14

0.7 out of 0.7 points

In a few days after a powerful solar flare, we might expect to see what at night in earth's atmosphere?

Selected Answer: c. Auroras

Answers:
a. Clouds
b. Meteorite
c. Auroras
d. Meteors

Question 15

0.7 out of 0.7 points

A white dwarf is a main sequence star

Selected Answer: False
Answers: True
False

Question 16

0.7 out of 0.7 points

Most known comets do not reappear in our sky very often because

Selected Answer: c. the orbits of comets are highly eccentric and their semimajor axes are large

Answers:
a. comets are not gravitationally bound to the solar system
b. most comets only pass close to the Sun two or three times, and then they disintegrate
c. the orbits of comets are highly eccentric and their semimajor axes are large
d. comets burn quite rapidly, losing up all their fuel within a few decades

Question 17

0.7 out of 0.7 points

The steps of the formation sequence for a terrestrial planet are shown below. What is the correct order of these steps?

- accretion of planetesimals
- collapse of the solar nebula
- clearing of debris
- condensation of grain

Selected Answer: b. collapse, condensation, accretion, clearing

Answers:
a. condensation, accretion, accretion, collapse
b. collapse, condensation, accretion, clearing
c. accretion, clearing, collapse, condensation
d. accretion, collapse, clearing, condensation

Question 18

0.7 out of 0.7 points

exoplanets can sometimes be detected by monitoring the brightness of a star, and seeing it decrease as the planet blocks part of the star's light

Selected Answer: True

Answers: True
False

Question 19

0.7 out of 0.7 points

Pluto

Selected Answer: b. has a density intermediate between that of the terrestrial and Jovian planets

Answers:
a. has no moons
b. has a density intermediate between that of the terrestrial and Jovian planets
c. has a nearly circular orbit around the Sun, due to its interactions with other objects in its vicinity

d. is about as large as the planet Mercury

Question 20

0.7 out of 0.7 points

Sunspots appear dark because

Selected Answer: c. they are cooler than their surrounding surface of the Sun

Answers:
a. they are patches of the photosphere that occasionally burn up, creating soot
b. they are much hotter than the surrounding area, so their emission peaks at ultraviolet wavelengths, which our eyes cannot see
c. they are cooler than their surrounding surface of the Sun
d. they are holes in the photosphere through which the cooler interior of the Sun is visible

Question 21

0.7 out of 0.7 points

Many exoplanets have already been found with the astrometric method, in which a star's measured position in the sky moves back and forth very slightly

Selected Answer: False

Answers:
True
False

Question 22

0.7 out of 0.7 points

Which one of the following is *not* influenced by the Sun's magnetic field?

Selected Answer: b. The Sun's blackbody spectrum

Answers:
a. Prominences and filaments
b. The Sun's blackbody spectrum
c. Sunspots
d. Solar flares

Question 23

0.7 out of 0.7 points

A binary star that varies in apparent brightness as one member of the binary passes in front of the other is

Selected Answer: d. an eclipsing binary

Answers:
a. a spectroscopic binary
b. a visual binary

c. an astrometric binary

d. an eclipsing binary

Question 24

0 out of 1 points

If Stars A and B have the same apparent brightness, but Star A is 3 times farther away from us than Star B. How many times Star A's luminosity (power) is as compared with the luminosity of Star B?

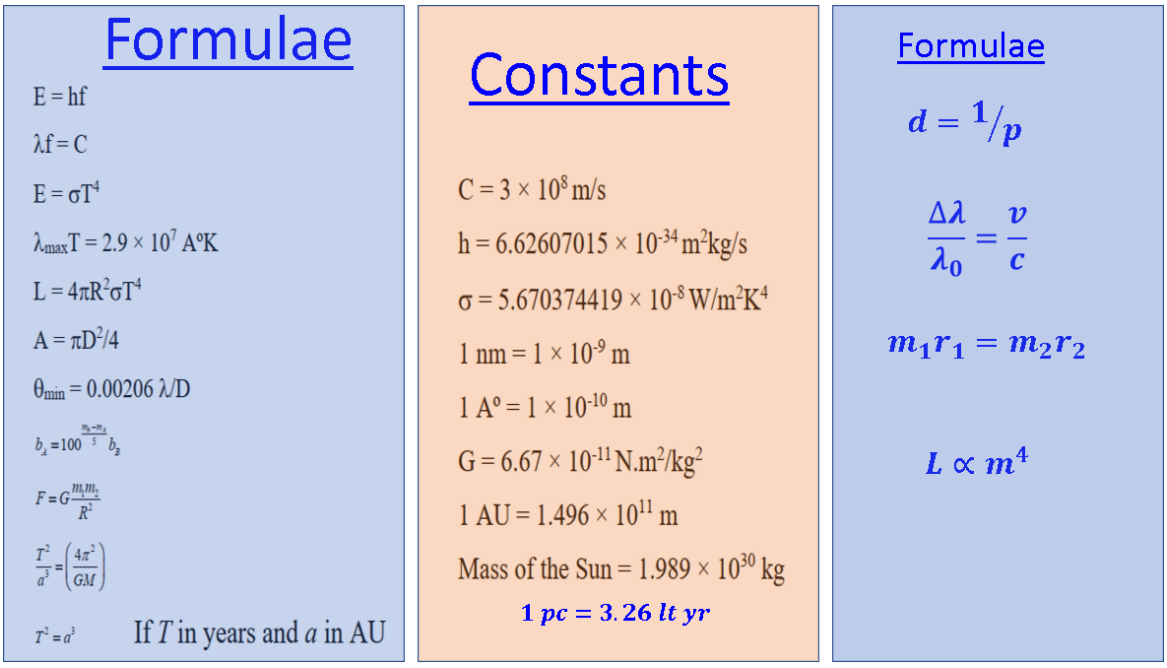
Selected Answer: d. 27

Answers:
a. 9
b. 1/3
c. 1/9
d. 27

Question 25

0 out of 0 points

All important formulae and constants are provided (**True/False**).



Selected Answer: True

Answers: True
False

Question 26

0 out of 1 points

Suppose exoplanets X and Y both orbit the same star. The orbital period of exoplanet X is 8 times that of exoplanet Y. How far the exoplanet X from its star as compared with exoplanet Y?

Selected Answer: b. 2

Answers:

a. 16

b. 2

c. 4

d. 64

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