Astronomy 104: First Exam

Stephen Lepp

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• Each question is worth 2 points.
• Write your name on this exam and on the scantron.

Short Answer

A What is the closest Planet to the sun?

Mercury

B What is the name of our galaxy?

Milky Way

Multiple Choice

1. What is $7 \times 10^3$?

(a) 700
(b) 7,000
(c) 7,000,000
(d) 0.007
(e) 0.0007
2. How many Constellations are there?

   (a) 8
   (b) **88**
   (c) 8,80
   (d) 8,800
   (e) 0.00088

3. About how many Stars are visible to the naked eye?

   (a) 70
   (b) 700
   (c) **7,000**
   (d) 7,000,000
   (e) 7 billion

4. What is an Astronomical Unit?

   (a) The average distance from the Sun to Galactic Center.
   (b) The average distance from the Sun to Nearest Stars.
   (c) The average distance from the Moon to Earth.
   (d) **The average distance from the Sun to Earth.**
   (e) The average diameter of the solar system.

5. Which of the following is not Electromagnetic Radiation?

   (a) light
   (b) **cosmic rays**
   (c) radio waves
   (d) infrared
   (e) x-rays
6. The longer the wavelength of Electromagnetic radiation the
   (a) larger the frequency.
   (b) smaller the frequency.
   (c) larger the energy.
   (d) larger the velocity.
   (e) smaller the velocity.

7. The larger the focal length of a telescope the
   (a) smaller the angle it can resolve
   (b) more light it can gather
   (c) bigger the aperture must be
   (d) all of the above
   (e) none of the above

8. A Cassegrain telescope uses
   (a) uses a lens to focus the light
   (b) has a corrective lens on the front
   (c) uses a mirror to focus the light
   (d) a and b
   (e) b and c

9. A telescope which uses a lens to focus light is called
   (a) a refractor
   (b) a reflector
   (c) a nautical
   (d) a terrestrial
   (e) none of the above
10. When the intensity is plotted versus the wavelength it is called a

(a) atomic line
(b) spectrum
(c) molecular line
(d) all of the above
(e) none of the above

11. The Doppler effect is

(a) a shift in intensity with velocity
(b) a shift in frequency with velocity
(c) a shift in velocity with distance
(d) a shift in velocity with brightness
(e) a shift in wavelength with distance

12. Mirrors have this advantage over lenses for big telescopes

(a) easier to mount
(b) don’t suffer from spherical aberration
(c) don’t suffer from chromatic aberration
(d) a and b
(e) a and c

13. An array of radio telescopes compared to a very large single dish can

(a) see much more distant objects
(b) see much dimmer objects
(c) see much hotter objects
(d) resolve much smaller angles
(e) see much longer wavelengths
14. A telescope with twice the aperture of another telescope, but otherwise the same, can gather how much more light

(a) one quarter
(b) one half
(c) the same
(d) double
(e) four times

15. The focal length of a telescope is

(a) ratio of its length to width
(b) distance at which light from a distant star would be focused
(c) diameter of its front opening
(d) all of the above
(e) none of the above

16. Hubble found that distant galaxies

(a) were all smaller than ours
(b) were all bigger than ours
(c) were all moving toward us
(d) were all moving away from us
(e) were quasars

17. How many light years to the next nearest star

(a) a few
(b) a few hundred
(c) a few thousand
(d) a few million
(e) a few billion
18. How many light years to the next nearest galaxy
   (a) a few
   (b) a few hundred
   (c) a few thousand
   (d) a few million
   (e) a few billion

19. Which of the following has the longest wavelength
   (a) x-rays
   (b) ultraviolet
   (c) infrared
   (d) visible
   (e) gamma-rays

20. The x-rays emitted from our sun come from
   (a) the center of the sun
   (b) the surface
   (c) hot spots on the surface
   (d) cold spots on the surface
   (e) our sun doesn’t emit x-rays

21. Which of the following are characteristic of light
   (a) comes in particles
   (b) interferes
   (c) travels in a straight line
   (d) a and b
   (e) b and c
22. The largest optical telescopes are
   (a) about 10 feet long
   (b) about 10 feet across
   (c) about 100 feet across
   **(d) about 10 meters across**
   (e) about 100 meters across

23. An optical and a radio telescope have the same apperature and focal length, which of the following is true.
   **(a) The optical telescope is capable resolving smaller angles**
   (b) The radio telescope is capable resolving smaller angles
   (c) They resolve the same angle in the sky

24. Neutrino’s are detected from
   (a) Galactic Center
   (b) Sun
   (c) Moon
   **(d) a and b**
   (e) a and c

25. Why are neutrino’s so hard to detect
   (a) to short a wavelength
   (b) to long a wavelength
   **(c) hardly interact with matter**
   (d) all Electromagnetic radiation is hard to detect
   (e) they are easy to detect
26. The season’s are caused primarily by

(a) the tilt of the Earths rotational axis to the normal of the Earths orbital plane
(b) the tilt of the Moons orbital plane to the Earths orbital plane
(c) the tilt of the Earths orbital plane to the ecliptic
(d) the changes in the Earth Sun distance
(e) the changes in the Earth Moon distance

27. A waxing moon is a

(a) quarter moon
(b) crescent moon
(c) growing moon
(d) shrinking moon
(e) harvest moon

28. The southernmost point in the travels of the Sun through the sky is called

(a) winter solstice
(b) summer solstice
(c) vernal equinox
(d) autumnal equinox
(e) right ascension

29. The Sun is directly over the Tropic of Cancer at

(a) winter solstice
(b) summer solstice
(c) vernal equinox
(d) autumnal equinox
(e) right ascension
30. The Sun is directly over the equator on its way south on the
   (a) winter solstice
   (b) summer solstice
   (c) vernal equinox
   (d) **autumnal equinox**
   (e) right ascension

31. The white part of the moon points toward the
   (a) east
   (b) north
   (c) south
   (d) west
   (e) **sun**

32. A new moon occurs when the moon is
   (a) very far from the sun in the sky
   (b) **very close to the sun in the sky**
   (c) about 90° from the sun in the sky
   (d) about 45° from the sun in the sky
   (e) not in the same sky as the sun

33. A quarter moon appears when
   (a) very close to the sun in the sky
   (b) very far from the sun in the sky
   (c) **about 90° from the sun in the sky**
   (d) about 45° from the sun in the sky
   (e) not in the same sky as the sun
34. The time between a new moon and the next full moon is
   (a) about 1 day
   (b) about 2 days
   (c) about 1 week
   (d) about 2 weeks
   (e) about a month

35. The time between a new moon and the first quarter is
   (a) about 1 day
   (b) about 2 days
   (c) about 1 week
   (d) about 2 weeks
   (e) about a month

36. The time between a new moon and the next new moon is
   (a) about 1 day
   (b) about 2 days
   (c) about 1 week
   (d) about 2 weeks
   (e) about a month

37. A star which is always up for us is called a
   (a) very strange star indeed
   (b) high star
   (c) north star
   (d) circumpolar star
   (e) circumnavigate star
38. Declination measures

(a) the height of a star

(b) **angle of star with equator**

(c) angle of star with horizon

(d) mass of star

(e) none of these

39. Right Ascension measures

(a) the height of a star

(b) angle of star with equator

(c) angle of star with horizon

(d) mass of star

(e) **none of these**

40. In summer the sun is

(a) high in the sky at noon

(b) low in the sky at noon

(c) closer than average

(d) farther than average

(e) over the equator

41. A full moon in winter is

(a) high in the sky at noon

(b) low in the sky at noon

(c) **high in the sky at midnight**

(d) low in the sky at midnight

(e) not visible at midnight
42. A new moon
   (a) high in the sky at noon
   (b) low in the sky at noon
   (c) high in the sky at midnight
   (d) low in the sky at midnight
   **(e) not visible at midnight**
43. The circle the sun follows through the sky is called the ecliptic.
   (a) true
   (b) false
44. The Sun is directly over the north pole twice a year.
   (a) true
   **(b) false**
45. Jupiter is the largest planet
   (a) true
   (b) false
46. Neptune is always the furthest planet from the sun.
   (a) true
   (b) false
47. Mercury is always the closest planet to the sun.
   (a) true
   (b) false
48. Red is the highest frequency visible light.
   (a) true
   **(b) false**