

Radiation Protection and Radiation Applications
(PHYS-450)

Quizzz
Week 11

Problem 1:

- What type of galaxy is our Milky Way?
 - A. An elliptical galaxy
 - B. A spiral galaxy
 - C. An irregular galaxy

- Which of these planets are the largest?
 - A. Earth
 - B. Mars
 - C. Venus

- What is the ultimate fate of our sun?
 - A. Red giant
 - B. White dwarf
 - C. Black hole

- How much of the galaxy can you see in a night sky?
 - A. 10%
 - B. 1%
 - C. 0.000003 %

- How many galaxies are there in the observable universe?
 - A. 100 million
 - B. 200 billion
 - C. 1 billion

- Light in one year travels 9,460,000,000,000 km.
 - A. True
 - B. False

- The largest planet in our solar system is
 - A. Jupiter
 - B. Saturn
 - C. Mars
- The coldest planet in our solar system is
 - A. Uranus
 - B. Neptune
 - C. Venus
- Who first proposed that the galaxy was expanding?
 - A. Einstein
 - B. Kepler
 - C. Hubble
- An open Universe is one that is brought to a stop and then collapses back on itself
 - A. True
 - B. False

Problem 2:

- A small rocky body that drifts around the Solar System is known as a(n)
- The bits of the asteroids that arrive on Earth are called
 - A. Comets
 - B. Earth asteroids
 - C. Meteorites
 - D. Constellations
- Comets are mixtures of rock and ice in elliptical orbits around the sun. Their tails always point towards the sun.
 - A. True
 - B. False
- Stars are grouped into so-called stellar
 - A. Groups
 - B. Constellations
 - C. Clusters

- The total power radiated by a star is called its
 - Apparent brightness
 - Absolute brightness
 - Apparent magnitude
 - Luminosity
- The seven main spectral classes, in order of increasing surface temperature, are the following:
 - O, B, A, F, G, L, T
 - O, B, A, F, G, K, M
 - M, K, G, F, A, B, O
 - T, L, G, F, A, B, O
- Within spectral class O, the stars are the hottest. Which color do these stars have?
 - Blue
 - Yellow
 - White
 - Red
- A star moving relative to the Earth will show a Doppler shift in its absorption spectrum. Light from stars that are receding - red-shifted Light from stars that are approaching - blue-shifted
 - True
 - False
- Which of the following is not a characteristic of a red giant star?
 - Very large
 - Red in color
 - Source of energy is fusion
 - Comparatively hot
- White dwarves are comparatively hot
 - True
 - False
- On a Hertzsprung-Russell diagram, what do the dots represent?
 - Spectral classes
 - Different stars
 - Absolute magnitude
- The normal, stable stars can be seen along a line moving from the top left corner and then diagonally down the H-R Diagram. This "line" is known as the

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- It is believed that most matter in the Universe does not radiate sufficiently for us to detect it. This type of matter is known as
 - A. Cold matter
 - B. Invisible matter
 - C. Dark matter
 - D. Doesn't matter

Problem 3:

- "Below a certain, no photoelectrons are emitted" Above, an aspect of the photoelectric effect is described. Which are the missing words?
- The dual nature of light is simply called "wave-particle duality"
 - A. True
 - B. False
- "All moving particles have a "matter wave" with a wavelength associated with them" This hypothesis has a name. Which?
 - A) Davisson and Germer hypothesis
 - B) De Broglie hypothesis
 - C) Schrödinger hypothesis
 - D) Bainbridge hypothesis
- When a particle is observed, the wave function is said to
- Our sun is stable because there is an equilibrium between outward pressure and inward force
- The description of particles (matter and /or radiation) in quantum mechanics is in terms of a(n) ...
 - A. Work function
 - B. Wave function
 - C. Orbital
 - D. Interpretation (the Copenhagen interpretation)
- "Position and momentum cannot be measured simultaneously" "Energy and time cannot be measured simultaneously" These linked variables are known as conjugate quantities in the uncertainty principle
 - A. Heisenberg
 - B. Bainbridge
 - C. De Broglie
 - D. Schrödinger

- "The discrete energies observed, having been emitted by an alpha particle or gamma photon from a nucleus, correspond to the difference between two nuclear

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- The electrically neutral, virtually undetectable particle accounting for the "missing" energy in beta decay is known as a(n)

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- Antineutrino is the antimatter form of the neutrino, and accounts for missing energy in beta minus decay"

A. True

B. False