

ASTRONOMY 2 — Overview of the Universe
Third Practice Problem Set

1. True or False: Mark **T** if you believe the statement to be true in its entirety. Mark **F** if any part of the statement is false.

- (1) The energy of an optical photon is less than the energy of a radio photon **F**
- (2) Time on a stationary clock appears to tick slower than time on a moving clock **F**
- (3) The formula: $E = h\nu$ is one of Maxwell's equations and explains the wave nature of electromagnetic radiation **F**
- (4) There are absorption lines in the spectrum of the Sun that indicate the presence of Calcium atoms in its outer regions **T**
- (5) Most of the stars in an Sc galaxy's disk participate in organized rotation about its center **T**
- (6) The shape of an E7 galaxy is closer to spherical than the shape of an E1 galaxy **F**
- (7) The basic structural components of an elliptical galaxy include a disk with spiral arms, a centrally concentrated bulge, and an extended spherical halo **F**
- (8) A Cepheid variable is a star that is named for the fact that its luminosity varies with time. **T**
- (9) The further away a galaxy is from us, the faster it recedes from us over time. **T**
- (10) Stars in the disk of a spiral galaxy are older on average than stars in the bulge or halo of the galaxy **F**