Physics 1061. Stars and Galaxies

Quiz 6 Galaxies and Distances Name:_____

1. Which of the following is NOT one of the Hubble types of galaxy?

   (a) spiral (b) lenticular/S0 (c) globular (d) irregular (e) elliptical

2. Which type of galaxy has the highest percentage of Population II stars?

   (a) normal spiral (b) barred spiral (c) globular (d) irregular (e) elliptical

3. What Hubble type is the Milky Way galaxy?

   (a) Irr I (b) E2 (c) E6b (d) SBb/c (e) SAd

4. Which type of galaxy can grow to the greatest mass and possess the largest number of globular clusters?

   (a) normal spiral (b) barred spiral (c) globular (d) irregular (e) elliptical

5. On images of galaxies, a line of equal brightness or intensity is called a(n) _____.

   (a) isophote (b) terminator (c) isotope (d) trendline (e) isomer

6. T or F. The subtype that we assign to ellipticals (e.g., E2 or E6) depends on it's orientation in space.

7. T or F. It is impossible to distinguish a face-on S0 galaxies from an E0 elliptical.

8. T or F. The mixture of stars in ellipticals is basically the same as in spirals and irregulars.

9. Which *two* of the following is not a criterion for classifying spiral galaxies between Sa and Sd?

   (a) bulge to disk ratio (b) clumpiness of arms (c) distance to galaxy (d) tightness of winding of arms (e) inclination angle

10. Most spiral galaxies have a rotation velocity that stays nearly constant with radius rather than decreasing. This indicates the presence of

    (a) globular clusters (b) dark matter (c) enhanced star formation (d) isotropy (e) Keplerian orbits

11. Why are Cepheid variable stars so important in cosmology?

    (a) They are abundant in the solar neighborhood.

    (b) They can be used to find galaxy distances out to ~ 30 Mpc.

    (c) They have an easily identifiable spectrum.

    (d) They are the oldest stars known.

(e) They are brighter than RR Lyrae stars.

12. When we know the apparent (or "relative") magnitude of an object, all that we need to calculate its distance is _____.

    (a) its diameter (b) its absolute magnitude (c) its radius (d) its m_v
    (e) its velocity

13. Most of the galaxies ($> 99\%$) are

    (a) moving around randomly.
    (b) showing Doppler blueshifts.
    (c) moving in circles.
    (d) rushing away from us.
    (e) approaching us.

14. Galaxy distance and Doppler redshift are correlated for galaxies. What do we call that correlation?

    (a) the Hubble law
    (b) Wein's law
    (c) Kirchoff's law
    (d) the period luminosity relation
    (e) Einstein's postulate of special relativity

15. (3pts) Order these distance estimators by their height on the "distance ladder". Here, "1" will be the estimator for the lowest rung (limited to the shortest distances).

    _____ Hubble's Law _____ Radar
    _____ Stellar Parallax _____ Tully-Fischer
    _____ Cepheids _____ Type Ia Supernovae
    _____ Spectroscopic Parallax