Lecture 5.3 Galaxies

Types of Galaxies
There are three main classifications of galaxies:

- ________________
- ________________
- ________________

The Milky Way is a _____________ galaxy. In particular, it also has a __________ along with about a 5th of other spiral galaxies.

Spirals
Contains lots of __________ and __________.
Star formation is ________________ occurring.
About ______ % of the galaxies we see are spirals.
They tend to have a mass range of about __________ to __________ solar masses.
Spirals with no arms but an obvious disk component are known as _______ galaxies.

Ellipticals
Very little visible __________, __________, or bright stars.
Star formation is ________________.
About ______ % of the galaxies we see are ellipticals.
They tend to have a mass range of about __________ to __________ solar masses.
The very small ellipticals are called ________________ or ________________ _________.

Irregulars
Galaxies which seem to be neither spirals or ellipticals (often through recent inter-galactic interactions).
Both young and old stars.
Usually faint and difficult to detect.

Hubble Tuning Fork Diagram
Below draw and label a quick tuning fork diagram:
Distances
RR Lyrae stars are ________________ to see in distant galaxies.

Individual stars can't be resolved in distant galaxies and so ________________ parallax can't be used.

Cepheids are only identifiable in the nearest galaxies.

One common method is to use Doppler Shift to measure a galaxy's rotation as an indicator of mass and hence brightness. This is a crude description of using the ________________ Relation to find distance.

______________ tend to have a common peak brightness. Thus they can be used to determine distances.

Hubble found a relationship between galactic recessional redshift and distance. This is known as _______ ____________ and is written as ________________.

Today, Hubble's constant is believed to be about _______ km/(Mpc s)

Mass
The mass can be roughly measured by looking at a galaxy's ________________ curve. Often the mass found in this way is much greater than that suggested by the luminous stars. This implies a presence of ___ ________________ matter.