

Name: _____

Intro Astro Lab Prep Quiz: Lab 11: Galaxies

Instructions: There are $(10 + x)$ multiple-choice problems each worth 10 marks for a total of $(100+10x)$ marks altogether. Choose the **BEST** answer, completion, etc., and **DARKEN** fully the appropriate circle on the table provided below. Read all responses carefully. **NOTE** long detailed responses won't depend on hidden keywords: keywords in such responses are bold-faced capitalized. This is a 10-or-so-minute quiz.

Answer Table for the Multiple-Choice Questions

	a	b	c	d	e		a	b	c	d	e
1.	O	O	O	O	O	11.	O	O	O	O	O
2.	O	O	O	O	O	12.	O	O	O	O	O
3.	O	O	O	O	O	13.	O	O	O	O	O
4.	O	O	O	O	O	14.	O	O	O	O	O
5.	O	O	O	O	O	15.	O	O	O	O	O
6.	O	O	O	O	O	16.	O	O	O	O	O
7.	O	O	O	O	O	17.	O	O	O	O	O
8.	O	O	O	O	O	18.	O	O	O	O	O
9.	O	O	O	O	O	19.	O	O	O	O	O
10.	O	O	O	O	O	20.	O	O	O	O	O

1. The history of the discovery of galaxies (other than the Milky Way) can be regarded as very long, slow cycle of _____ in action.

a) the Scientific Revolution b) a scientific revolution c) observation without theory
d) theory without observation e) the scientific method

2. "Let's play *Jeopardy!* For \$100, the answer is: The first person in the historical record to note the existence of nebulae (historical usage)."

Who is _____, Alex?

a) Berossos, priest of Bel Marduk (3rd century BCE) b) Ptolemy (c.100–c.170 CE)
c) Hypatia (c.360–415 CE) d) Abd al-Rahman al-Sufi (903–986)
e) Christopher Wren (1632–1723)

3. "Let's play *Jeopardy!* For \$100, the answer is: One of the early and impactful proposers of the theory that the nebulae (historical usage) were other galaxies."

Who is _____, Alex?

a) physicist Isaac Newton (1643–1727)
b) mathematician and philosopher Gottfried Leibniz (1646–1716)
c) philosopher Immanuel Kant (1724–1804) d) astronomer Caroline Herschel (1750–1848)
e) composer Wolfgang Amadeus Mozart (1756–1791)

4. "Let's play *Jeopardy!* For \$100, the answer is: They are large gravitationally bound systems of stars which have undergone multiple cycles of star formation, evolution, and death. In some cases, the cycles have nearly ended and almost all the stars are now just aging. In other cases, the cycles continue to the present epoch of cosmic time and are likely to continue for many billions of years into the future."

What are _____, Alex?

a) planetary systems b) binaries c) globular clusters d) bulges e) galaxies

5. “Let’s play *Jeopardy!* For \$100, the answer is: This pioneer of extragalactic astronomy is the discoverer of Hubble’s law as an observational result. The mathematical statement of the law includes as a factor the relative rate of the expansion of the universe at cosmic present. The said pioneer also devised the empirical galaxy morphological classification scheme that bears his name.”

Who is _____, Alex?

- a) William Parsons, 3rd Earl of Rosse (1800–1867) b) Vesto Slipher (1875–1969)
c) Edwin Hubble (1889–1953) d) Carl Seyfert (1911–1960) e) Allan Sandage (1926–2010)

6. “Let’s play *Jeopardy!* For \$100, the answer is: This pioneer of extragalactic astronomy was the founding director of Dyer Observatory—Dyer, not Dire—in Nashville, Tennessee.”

Who is _____, Alex?

- a) William Parsons, 3rd Earl of Rosse (1800–1867) b) Vesto Slipher (1875–1969)
c) Edwin Hubble (1889–1953) d) Carl Seyfert (1911–1960) e) Allan Sandage (1926–2010)

7. The _____ sequence is an empirical galaxy classification scheme that nowadays has a theoretical understanding. Its eponym (the person after which it is named) concluded it was premature to interpret the _____ sequence as an evolutionary sequence. We now know that it is not, in fact, an evolutionary sequence in a simple sense.

- a) Rosse b) Slipher c) Hubble d) Seyfert e) Sandage

8. The two most common galaxy morphological classification schemes are conventionally illustrated with a _____ diagram.

- a) tuning fork b) pitchfork c) Southfork d) South Park e) Gosford Park

9. The 6 main galaxy types are _____, lenticulars, spirals, intermediate spirals, barred spirals, and irregulars.

- a) ellipticals b) perpendiculars c) spectaculars d) chroniculars e) consulars

10. “Let’s play *Jeopardy!* For \$100, the answer is: These galaxies are spheroidal in shape, largely lack interstellar dust, and consist mainly of very old stars.”

What are _____, Alex?

- a) ellipticals b) lenticulars c) spirals d) barred spirals e) irregulars

11. Galaxies are often found in gravitationally bound systems called:

- a) bunches. b) clusters. c) flocks. d) gaggles. e) prides.

12. “Let’s play *Jeopardy!* For \$100, the answer is: Rich ones typically have thousands of galaxies, poor ones hundreds of galaxies.”

What are _____, Alex?

- a) galaxies b) galaxy clusters c) binaries d) Hubbles e) millionaires

13. The Virgo cluster is mostly in the constellation:

- a) Alien b) Lyra c) Norma d) Scorpius e) Virgo