

Name: _____

Intro Astro Lab Prep Quiz: Lab 4: The Moon

Instructions: There are 10 to 20 multiple-choice problems worth 1 mark for a total of 10 to 20 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 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

004 qmult 00100 1 1 3 easy memory: Earth-Moon system

1. The Earth and Moon orbit _____ in _____ to 1st order.

- a) the Earth's center; circles b) the Earth's center; ellipses
 c) their mutual center of mass; ellipses d) their mutual center of mass; ovals
 e) the Moon's center; ovals

SUGGESTED ANSWER: (c)

Wrong answers:

- a) As Lurch would say AAAaaargh.

Redaction: Jeffery, 2013jan01

004 qmult 00110 1 4 5 easy deducto-memory: barycenter defined

2. "Let's play *Jeopardy!* For \$100, the answer is: It is the center of mass of a gravitationally bound system."

What is _____, Alex?

- a) pericenter b) apogee c) perigee d) barometer e) barycenter

SUGGESTED ANSWER: (e)

Wrong answers:

- a) As Lurch would say AAAARGH.

Redaction: Jeffery, 2013jan01

004 qmult 00130 1 1 2 easy memory: Newtonian physics and inertial frames

3. Newtonian physics was always defined with respect to inertial frames. However, our understanding of inertial frames has evolved since the days of Isaac Newton (1643–1727). Newton thought the fixed stars defined a fundamental inertial frame (which he called absolute space) and reference frames unaccelerated with respect to that inertial frame were also exactly inertial frames. Other references frames could be approximately inertial frames like the Earth's surface (at any point). However, according to general

relativity (which has been fully confirmed so far), _____ in uniform external gravitational fields are exact inertial frames. Among other things, this means that it is still true that the Earth's surface is approximately an inertial frame for most purposes.

- a) rotating frames
- b) free-fall frames
- c) non-free-fall frames
- d) spherical frames
- e) picture frames

SUGGESTED ANSWER: (b)

Wrong answers:

- a) As Lurch would say AAAaaargh.

Redaction: Jeffery, 2013jan01

004 qmult 00200 1 4 5 easy deducto-memory: tidal locking

4. "Let's play *Jeopardy!* For \$100, the answer is: This effect causes the lunar orbital rotation rate and axial rotation rate to be exactly equal on average."

What is _____, Alex?

- a) lunar libration
- b) lunar phase
- c) the ocean tide
- d) the tide in the affairs of men
- e) tidal locking

SUGGESTED ANSWER: (e)

Wrong answers:

- d) As Lurch would say AAAARGH.

Redaction: Jeffery, 2013jan01

004 qmult 00310 1 1 3 easy memory: the lunar phases in sequence

5. The standard lunar phases in time sequence are: new moon, waxing crescent, _____, waxing gibbous, full, waning gibbous, 3rd quarter, _____.

- a) quarter lit; waning crescent
- b) quarter full; morning crescent
- c) 1st quarter; waning crescent
- d) half lit; morning crescent
- e) quartic; Mornington Crescent

SUGGESTED ANSWER: (c)

Wrong answers:

- e) A 4th degree polynomial and a game with no rules played on the BBC.

Redaction: Jeffery, 2013jan01

004 qmult 00330 2 5 2 moderate thinking question: Moon phase 1999jan20

6. Describe the Moon's phase on 1999 January 20. **HINT:** You could look up the answer (except in an exam situation), but do you really have to?

- a) Waning crescent in the western sky at sunset.
- b) Waxing crescent in the western sky at sunset.
- c) A new moon in opposition.
- d) A full moon in the western sky at sunset.
- e) Waning gibbous moon in the eastern sky at sunrise.

SUGGESTED ANSWER: (b)

A moderate thinking question.

Wrong answers:

- a) There are no waning crescents east of the Moon at sunset. A waning crescent is west of the Moon at sunrise.
- c) New moons are in inferior conjunction with the Sun, not in opposition. Conjunction: aligned with the Sun as seen from the Earth; the body can be in front of or behind the Sun. Opposition: opposite the Sun on the sky.
- d) A full moon is in opposition, not near the Sun.
- e) A waning gibbous moon would be in the western sky at sunrise.

Redaction: Jeffery, 2001jan01

004 qmult 00360 1 4 5 easy deducto-memory: werewolf defined

7. "Let's play *Jeopardy!* For \$100, the answer is: This creature changes into a wolf on the night of the full moon."

What is a _____, Alex?

- a) vampire b) zombie c) ghoul d) sasquatch e) werewolf

SUGGESTED ANSWER: (e)

Wrong answers:

- a) As Lurch would say AAAARGH.

Redaction: Jeffery, 2013jan01

004 qmult 00370 1 1 2 easy memory: blue moon

8. A rare event is said to happen once in a:

- a) red moon. b) blue moon. c) wolf moon. d) black swan moon. e) harvest moon.

SUGGESTED ANSWER: (b)

Wrong answers:

- a) Oh, c'mon.

Redaction: Jeffery, 2013jan01

004 qmult 00372 1 1 2 easy memory: named full moons

Extra keywords: Not good for lab quizzes, prep quizzes only

9. Full moons occurring at particular times of the year often have traditional names associated with them that varying with culture. The traditional English name for a full moon in or near January is:

- a) June Moon. b) Wolf Moon. c) Juney Moon. d) Green Cheese Moon.
e) Waning Moon.

SUGGESTED ANSWER: (b) See Wikipedia: Full Moon: Farmers' Almanacs.

Wrong answers:

- a) A nonsense answer.

Redaction: Jeffery, 2013jan01

004 qmult 00430 1 1 3 easy memory: 3 prominent craters on the near side of the Moon

10. Three prominent lunar craters on the near side of the Moon are:

- a) Copernicus, Pluto, Tycho. b) Copernicus, Plato, Groucho. c) Copernicus, Plato, Tycho.
d) Copper-nickel, Plato, Tycho. e) Copper-nickel, Pluto, Groucho.

SUGGESTED ANSWER: (c)

Wrong answers:

- e) Everything is wrong.

Redaction: Jeffery, 2013jan01