DSST® ASTRONOMY

EXAM INFORMATION

This exam was developed to enable schools to award credit to students for knowledge equivalent to that learned by students taking the course. The exam covers topics including celestial mechanics; celestial systems; astronomical instruments; the solar system; nature and evolution; the galaxy; the universe; determining astronomical distances; and life in the universe.

The exam contains approximately 87 questions to be answered in 90 minutes.

EXAM CONTENT OUTLINE

The following is an outline of the content areas covered in the examination. The approximate percentage of the examination devoted to each content area is also noted.

I. History of Astronomy – 9%
- a. Nature of science
- b. How scientists think and work

II. Celestial Mechanics, Including Gravitation and Relativity – 5%

III. Celestial Systems – 13%
- a. Earth and the sky
- b. Earth and the Moon
- c. Time and the calendar

IV. Astronomical Instruments – 12%
- a. Measurement and analysis of starlight
- b. The electromagnetic spectrum

V. The Solar System – 19%
- a. Contents, form, and motions
- b. Evolution

VI. The Sun and Stars: Nature and Evolution – 17%

VII. Our Galaxy: Contents and Structure – 7%

VIII. The Universe: Contents, Structure, and Evolution – 10%

IX. Determining Astronomical Distances – 5%

X. Life in the Universe – 3%

REFERENCES

Below is a list of reference publications that were either used as a reference to create the exam, or were used as textbooks in college courses of the same or similar title at the time the test was developed. You may reference either the current edition of these titles **or** textbooks currently used at a local college or university for the same class title. It is recommended that you reference **more than one textbook** on the topics outlined in this fact sheet. You should **begin by checking textbook content against the content outline** provided **before** selecting textbooks that cover the test content from which to study.

Sources for study material are suggested but not limited to the following:

1. Kaufmann, William J. *Discovering the Universe*. New York: Freeman, current edition.

2. Pasachoff, Jay M. *Astronomy: From Earth to the Universe.* Philadelphia: Saunders College Publishing, current edition.

3. Seeds, Michael. *Horizons: Exploring the Universe.* Belmont, CA: Wadsworth, current edition.

4. Zeilik, Michael. *Astronomy: The Evolving Universe.* New York: John Wiley and Sons, Inc., current edition.

5. Current textbook used by a local college or university for a course on the subject.

SAMPLE QUESTIONS

All test questions are in a multiple-choice format, with one correct answer and three incorrect options. These are samples of the types of questions that may appear on the exam. Other sample questions can be found in the form of practice exams by visiting our website at **www.getcollegecredit.com/testprep.**

Questions on the test require test takers to demonstrate the following abilities. Some questions may require more than one of the abilities.

- Knowledge of basic facts and terms (about 45 - 50% of the examination)
- Understanding of concepts and principles (about 40 - 45% of the examination)
- Ability to apply knowledge to specific cases or issues (about 5 - 10% of the examination)

1. In the northern hemisphere, the vernal equinox is the position occupied by the Sun on the first day of
   a. summer
   b. fall
   c. spring
   d. winter

2. Which of the following is the best illustration of Newton's third law?
   a. A skater coasting across the ice
   b. The spinning of a top
   c. The swinging of a pendulum
   d. The recoil of a shotgun

3. The energy in the interior of a white dwarf is transported outward in the same fashion as the energy is transmitted
   a. in an airplane shockwave
   b. from an electric oven
   c. from a hot-air furnace
   d. from tip to handle of a hot poker

4. The most important advantage of a large telescope aperture is that it
   a. allows a large amount of radiation to be collected
   b. gives a higher magnification of the objects observed
   c. is less affected by the trembling of the Earth's atmosphere
   d. produces a larger diffraction ring when distant stars are observed

5. Which of the following statements is true about the steady-state cosmology?
   a. It explains the isotropic nature of the remnant radiation from a giant fireball.
   b. It appears to violate the law of conservation of matter in empty space.
   c. It predicts a negative value for the Hubble Constant.
   d. It explains the galactic red shifts as gravitational effects.

6. The bending of rays of light as they pass from one transparent medium into another is called
   a. reflection
   b. diffraction
   c. dispersion
   d. refraction

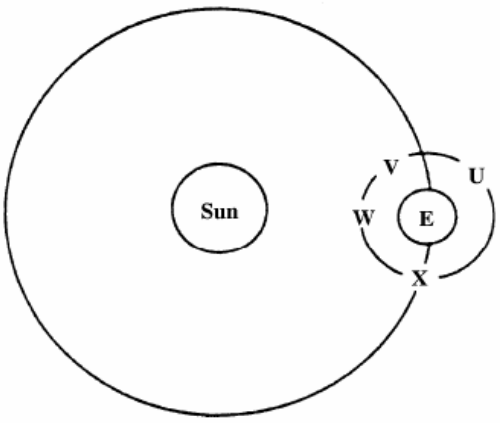
7. Which of the following planets has been observed to have extensive Van Allen belts similar to those of Earth?
   a. Mercury
   b. Mars
   c. Jupiter
   d. Venus

8. At the present time in the Sun's lifetime, the major source of the Sun's energy lies in
   a. electron-proton collisions
   b. gravitational contraction
   c. nuclear fusion
   d. matter-antimatter annihilation

9. The fact that most stars observed are on the Main Sequence implies that a star spends the greatest proportion of its lifetime
   a. contracting to reach the Main Sequence
   b. as a giant off the Main Sequence
   c. expanding to reach the Main Sequence
   d. on the Main Sequence

10. The Universe as we know it began its existence as a hot, dense cloud of matter and radiation approximately how many years ago?
    a. 5 billion
    b. 15 billion
    c. 50 billion
    d. 100 billion

11. Where is the Moon when there are spring tides on Earth?



E = Earth
U, V, W, X = Positions of the Moon

   a. U
   b. V
   c. W
   d. X

CREDIT RECOMMENDATIONS

The American Council on Education's College Credit Recommendation Service (ACE CREDIT) has evaluated the DSST test development process and content of this exam. It has made the following recommendations:

Area or Course Equivalent	Astronomy
Level	Lower-level baccalaureate
Amount of Credit	Three (3) semester hours
Minimum Score	48 (C-grade equivalent) 52 (B-grade equivalent)
Source	American Council on Education – College Credit Recommendation Service

Answers to sample questions: 1-C; 2-D; 3-D; 4-A; 5-B; 6-D; 7-C; 8-C; 9-D; 10-B; 11-C.

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