Astronomy 100—Quiz 3

Prof. Wang

INSTRUCTIONS: Write your name and ID number on the computer grading form. Choose the letter of the response that you think *best* answers the question.

Use a #2 Pencil on the computer grading form. Be careful to match up your question number with the number on the computer form, and thoroughly erase all changed answers and stray marks on the form.

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1. Most of the light we see coming from the sun originates in the

A. chromosphere. **B.** photosphere. **C.** corona. **D.** sunspots. **E.** magnetic field.

2. Granulation is caused by

A. sunspots.
B. rising gas below the photosphere.
C. shock waves in the corona.
D. the solar wind flowing away from the corona.
E. the heating in the chromosphere.

3. Sunspots are dark because

A. they contain so much heavy material that light can't readily escape.
B. they are at a lower temperature than the surrounding regions.
C. magnetic fields bring up iron from the core which blocks the light.
D. locally heavy solar winds blow out the solar flame.
E. they are so hot that they emit most of their energy in gamma rays.

4. What is the most abundant element in the universe and thus the most abundant element in stars like the Sun?

A. Hydrogen **B.** Helium **C.** Calcium **D.** Neon **E.** Iron

5. The fusion of four hydrogen nuclei into a helium nucleus releases energy because

A. fusion only occurs at high temperatures.
B. a helium nucleus has two protons, hydrogen only has one.
C. a helium nucleus weighs less than four hydrogen nuclei.
D. fusion can only occur at the centers of stars.
E. helium is made of antimatter.

6. If the sun were twice as far away as it is now, we would receive

A. twice as much flux. **C.** half as much flux. **E.** four times as much flux.
B. the same amount of flux. **D.** one-fourth as much flux.

7. Parallax would be easier to measure if

A. Earth's orbit were larger.
B. the stars were further away.
C. Earth moved backwards along its orbit.
D. all of these
E. none of these

8. You see two bright stars in the night sky. One clearly looks red, and the other appears blue. Which of the two is hot ter?

A. the red star.
B. the blue star.
C. the color does not provide enough information to answer the question.
D. the brighter star.
E. they are the same.

9. In main-sequence stars the gravitational force which tends to compress a star is counterbalanced by

A. rapid rotation. **C.** magnetic force. **E.** nuclear force.
B. electrical force in the atom. **D.** thermal gas pressure.

10. Binary stars allow us to find the _____ of stars.

A. temperatures **B.** colors **C.** masses **D.** luminosities **E.** composition

11. To calculate a star's radius, you must know its

A. chemical composition and temperature.
B. color and chemical composition.
C. temperature and luminosity.
D. surface gravity and color.
E. luminosity and surface gravity.

12. The order of the spectral classes from high to low temperature is

A. O B A F G K M
B. A B F G K M O
C. M K G F A B O
D. G F E D C B A
E. A B F K G M O

13. The H-R diagram is a graph of

A. apparent brightness verses actual brightness
B. actual brightness verses period
C. color verses age
D. actual brightness verses color
E. mass verses age

14. In the Hertzsprung-Russell Diagram, stars with the smallest radius are found in the

A. lower left corner of the diagram.
B. lower right corner of the diagram.
C. center of the diagram.
D. upper left corner of the diagram.
E. upper right corner of the diagram.

15. The most important characteristic of a star for determining its lifetime is its

A. temperature
B. color
C. distance from the main sequence
D. radius
E. mass

Key for quiz3$_c$

1. B
2. B
3. B
4. A
5. C
6. D
7. A
8. B
9. D
10. C
11. C
12. A
13. D
14. A
15. E