

MY SO PRACTICE TEST

DIVISION C - HIGH SCHOOL, GRADES 9-12

PRACTICE TEST

Instructions

- There are 25 questions on this test.
- You have 50 minutes to complete this test.
- You may write your answers directly in the test.
- You may use any notes or resources you have created or collected.
- You may use a calculator and scratch paper if necessary.
- Good Luck!

Test Questions

1. What is the approximate gravitational force that the Earth exerts on the sun? Earth is 154,000,000 km from the sun.
 - a. 3.8×10^{21} N
 - b. 3.3×10^{22} N
 - c. 4.1×10^{21} N
 - d. 2.1×10^{25} N
 - e. 3.6×10^{19} N
2. Galaxy NGC 4442 is 120 Mpc away. Due to the expansion of the universe, how fast is it moving?
 - a. $820 \text{ Cm}^3 / \text{gs}^2$
 - b. 72 km/s
 - c. $1100 \text{ km}^3 / \text{gs}^s$
 - d. 8200 km/s
 - e. 1.76 km/s
3. Which single property is most responsible in determining the evolutionary stages of a star?
 - a. The mass of the star
 - b. The diameter of the star
 - c. The atomic makeup of the star
 - d. The temperature of the star
 - e. The asymptotic angle of the star

4. From what gases does a star form?
 - a. Carbon and Hydrogen
 - b. Helium and Oxygen
 - c. Hydrogen and Helium
 - d. Hydrogen, Helium, and Carbon
 - e. Oxygen and Carbon
5. What causes the pulsing appearance of pulsars?
 - a. Weak magnetic fields
 - b. Explosive movements on crust
 - c. Star rotation
 - d. Ionizing radiation
 - e. None of the above
6. Which of the following correctly puts the stellar classes in order of increasing luminosity?
 - a. K F B A
 - b. M G F B
 - c. F G K M
 - d. F O B A
 - e. K A F B
7. What force stops a white dwarf from collapsing into a neutron star?
 - a. Neutron degeneracy pressure
 - b. Gravity
 - c. Electron degradation pressure
 - d. Neutron degradation pressure
 - e. Electron degeneracy pressure
8. Which of the following is not one of the general shapes of galaxies?
 - a. Spiral
 - b. Elliptical
 - c. Obtuse
 - d. Irregular
9. What assumption was key in modelling the early life of galaxies?
 - a. Helium and hydrogen filled the early universe somewhat uniformly
 - b. Low density regions could collapse to form protogalactic clusters
 - c. Matter would only be traveling in one direction
 - d. Stars are produced at a constant annual rate.
10. What determines if a galaxy is an Active Galactic Nuclei?
 - a. The type of light emitted
 - b. The amount of light emitted
 - c. The regularity of X-ray bursts
 - d. The location of the source of light
11. How did the luminosity of quasar 3C 273 compare to the luminosity of the sun?
 - a. 100 billion times greater
 - b. 100 trillion times greater
 - c. 1000 billion times greater
 - d. 1000 trillion times greater

12. About how long have astronomers known about the existence of quasars?
- 50 years
 - 15 years
 - 100 years
 - 80 years
13. What is the specific cause of the continuous spectral energy emission of blackbody radiation?
- The wavelength of the energy
 - The temperature of the object
 - The distance of the object
 - The amount of incident radiation
14. There is/are ___ in population 1 stars, and ___ in population 2 stars.
- More heavy elements, more heat
 - Less helium, more heat
 - More heat, less luminosity
 - More heavy elements, more luminosity
15. The Chandrasekhar Limit is around ___ solar masses.
- 3
 - 1.8
 - 2.4
 - 1.4
16. The color index of a star provides information about that star's
- Luminosity
 - Temperature
 - Absolute magnitude
 - Age
17. Which of the following is NOT a use for Hertzsprung-Russell diagrams?
- Determining the distance of stars with high accuracy
 - Recognizing patterns in types of stars
 - Tracking the life cycle of stars
 - Categorizing stars based on their characteristics
18. What is the best description of a WHIM?
- Highly dense, inert
 - Globular, inert
 - Filamentary, highly ionized
 - Highly ionized, dispersed and amorphous
19. Which of these observation structures was responsible for the detection of a large WHIM reservoir in 2010?
- Spitzer
 - Chandra
 - ISS
 - Newton

20. Which of the following is not true about dark matter?
- a. Galaxy rotation was a clue to its existence
 - b. Accounts for the majority of matter in the universe
 - c. Classified according to free streaming length
 - d. Dark matter directly bends light to create a lensing effect
21. What is the order of the spectral classes from hottest to coolest?
- a. ABFGKMO
 - b. OBAFGKM
 - c. BAMFGKO
 - d. OBGMAFK
22. What is the spectral class of the Sun?
- a. G2
 - b. O1
 - c. B7
 - d. A2
23. What color are O class stars?
- a. Red
 - b. Yellow
 - c. White
 - d. Blue
24. Which part of the electromagnetic spectrum has the shortest wavelength?
- a. Radio
 - b. Micro
 - c. Gamma
 - d. X-ray
25. In the electromagnetic spectrum, what is the range of visible light?
- a. 380 km – 750 km
 - b. 380 nm – 750 nm
 - c. 380 mm – 750 mm
 - d. 380 cm – 750 cm

ANSWER KEY

- | | | | |
|-----|----------|-----|----------|
| 1. | B | 15. | D |
| 2. | D | 16. | B |
| 3. | A | 17. | A |
| 4. | C | 18. | C |
| 5. | C | 19. | B |
| 6. | B | 20. | D |
| 7. | E | 21. | B |
| 8. | C | 22. | A |
| 9. | A | 23. | D |
| 10. | D | 24. | C |
| 11. | C | 25. | B |
| 12. | A | | |
| 13. | B | | |
| 14. | C | | |