

Name: _____

Geol 250 – Examination One

Please answer the following questions (2 points each).

1. A pitcher has a volume of $20,000 \text{ cm}^3$. What is the volume of the pitcher in **liters**?
2. What would be the mass of the maximum amount of water (in **grams**) that could fit in the pitcher in question #1?
3. What would be the mass (in **kilograms**) of a volume of fluid with a density = 2 g/cm^3 that would fill the pitcher in question #1?
4. (**True or False**) The Sun radiates only in the visible spectrum.
5. (**True or False**) On the equinox which will occur later this month, the Sun will be directly overhead of the Tropic of Cancer.
6. Which main sequence star is hotter – a **blue star** or a **yellow star** (circle one)?
7. Which planet has a faster orbital velocity, **Earth** or **Jupiter** (circle one)?
8. The Earth revolves around the Sun once every _____ (fill in blank)
9. A scientifically accurate model of the natural world must be reliable. What does “reliable” mean in this context?
10. Which is more likely to be an accurate representation of the natural world, a **scientific theory** or a **scientific hypothesis**?

11. Most of the mass in Earth's Solar System is contained in what object?
12. What is the definition of the metric unit of volume, the liter?
13. The four rocky inner planets are characterized by (**low / high**) density and (**low / high**) mass (*circle your answers*).
14. Which fundamental force is primarily responsible for the functioning of chemistry?
15. What important characteristic do *all* main sequence stars share which distinguishes them from most other stars?
16. Define: absolute luminosity
17. Where are elements heavier than hydrogen being produced outside of Earth's Solar System right now?
18. What happens to a very, very large star after it reaches the end of its useful fuel?
19. Which kind of Main Sequence star burns longer, a **red star** or a **blue star** (*circle one*)?

20. Which of the following are composed of quarks (circle all that apply):

electrons

neutrons

protons

21. What causes seasonality on Earth?

22. When it is autumn in the Southern Hemisphere, what season is it in the Northern Hemisphere?

23. What is the only rocky, inner planet to have a relatively large moon?

24. Is the statement “electrons are leptons with a positive electrical charge” true (**yes** or **no**)?

25. What observable phenomenon do scientists cite to support the hypothesis that the universe used to be much more tightly compacted than it is today?

Please answer the following questions (**5 points each**).

1. Identify and briefly explain any one criterion scientists use to define the “natural world?”

2. List the four fundamental forces of our Universe:

3. Fill in the blanks below with the names of the eight planets of the Solar System in order starting with the one closest to the Sun. Spelling counts 100%

SUN

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

4. Briefly describe how main sequence stars form. Include all of the important steps starting with no star and ending with a stable, main sequence star.

5. Briefly describe one (and only one) observable natural phenomenon that specifically ***disproves*** the hypothesis that seasonality on Earth is caused by differences in the distance between the Sun and Earth at different times during the year. (Note: evidence that supports another hypothesis is ***NOT*** necessarily evidence that disproves this hypothesis)