Assignment 2

1. The mass of the sun at a distance of 1 AU is approximately in the range of 2-3.4 times the mass of the Earth. A distance of 1 AU is the average distance of the Earth from the sun. The specific value is typically:

   a. 2 AU
   b. 3 AU
   c. 2.5 AU
   d. 2.2 AU

2. The mass of the Earth is approximately 5.976 x 10^24 kg. The mass of Venus is approximately 4.867 x 10^24 kg. The value closest to the mass of Venus is:

   a. 1.3 AU
   b. 0.8 AU
   c. 0.9 AU
   d. 0.5 AU

3. The number of hydrogen nuclei required to sustain the continuous expansion of a star with a mass at least equal to the mass of the sun depends on two values: the number of hydrogen nuclei, \( n \), and the number of free electrons, \( e \). These values are related by the equation:

   a. \( n = 2e \)
   b. \( n = 3e \)
   c. \( n = 4e \)
   d. \( n = 5e \)

4. The number of hydrogen nuclei required to sustain the continuous expansion of a star with a mass at least equal to the mass of the sun depends on two values: the number of hydrogen nuclei, \( n \), and the number of free electrons, \( e \). These values are related by the equation:

   a. \( n = 2e \)
   b. \( n = 3e \)
   c. \( n = 4e \)
   d. \( n = 5e \)

5. A plasma rocket produces a thrust that drives a plasma rocket from the surface of the Earth to the moon. The thrust produced by a plasma rocket is given by the equation:

   \[ T = \frac{m \cdot V}{t} \]

   where:
   - \( T \) is the thrust
   - \( m \) is the mass of the plasma expelled per unit time
   - \( V \) is the velocity of the plasma expelled
   - \( t \) is the time of the process

   a. \( T = 1 \times 10^7 \text{ N} \)
   b. \( T = 1 \times 10^8 \text{ N} \)
   c. \( T = 1 \times 10^9 \text{ N} \)
   d. \( T = 1 \times 10^10 \text{ N} \)

6. The plasma rocket produces a thrust that drives a plasma rocket from the surface of the Earth to the moon. The thrust produced by a plasma rocket is given by the equation:

   \[ T = \frac{m \cdot V}{t} \]

   where:
   - \( T \) is the thrust
   - \( m \) is the mass of the plasma expelled per unit time
   - \( V \) is the velocity of the plasma expelled
   - \( t \) is the time of the process

   a. \( T = 1 \times 10^7 \text{ N} \)
   b. \( T = 1 \times 10^8 \text{ N} \)
   c. \( T = 1 \times 10^9 \text{ N} \)
   d. \( T = 1 \times 10^10 \text{ N} \)

7. The plasma rocket produces a thrust that drives a plasma rocket from the surface of the Earth to the moon. The thrust produced by a plasma rocket is given by the equation:

   \[ T = \frac{m \cdot V}{t} \]

   where:
   - \( T \) is the thrust
   - \( m \) is the mass of the plasma expelled per unit time
   - \( V \) is the velocity of the plasma expelled
   - \( t \) is the time of the process

   a. \( T = 1 \times 10^7 \text{ N} \)
   b. \( T = 1 \times 10^8 \text{ N} \)
   c. \( T = 1 \times 10^9 \text{ N} \)
   d. \( T = 1 \times 10^10 \text{ N} \)

8. The plasma rocket produces a thrust that drives a plasma rocket from the surface of the Earth to the moon. The thrust produced by a plasma rocket is given by the equation:

   \[ T = \frac{m \cdot V}{t} \]

   where:
   - \( T \) is the thrust
   - \( m \) is the mass of the plasma expelled per unit time
   - \( V \) is the velocity of the plasma expelled
   - \( t \) is the time of the process

   a. \( T = 1 \times 10^7 \text{ N} \)
   b. \( T = 1 \times 10^8 \text{ N} \)
   c. \( T = 1 \times 10^9 \text{ N} \)
   d. \( T = 1 \times 10^10 \text{ N} \)

9. The plasma rocket produces a thrust that drives a plasma rocket from the surface of the Earth to the moon. The thrust produced by a plasma rocket is given by the equation:

   \[ T = \frac{m \cdot V}{t} \]

   where:
   - \( T \) is the thrust
   - \( m \) is the mass of the plasma expelled per unit time
   - \( V \) is the velocity of the plasma expelled
   - \( t \) is the time of the process

   a. \( T = 1 \times 10^7 \text{ N} \)
   b. \( T = 1 \times 10^8 \text{ N} \)
   c. \( T = 1 \times 10^9 \text{ N} \)
   d. \( T = 1 \times 10^10 \text{ N} \)