Jayden Smith
8-30-2020
H. Physics
Chap 2 Q. 14-22 P. 5-7

14. $E=mc^2$

15. When the kinetic energy of an object increases, it's outside observed mass increases; when protons and neutrons reach the low energy state in the nucleaus; they lose mass.

16. photon

17. a proton's up Quarks attract the neutron's down Quarks and Vise-versa

18. alpha decay involves the ejection of a helium nucleaus or alpha particle from the nucleaus, while beta decay is a neutron changing to a proton and emitting an electron and an antineutrino

19. neutrino; When Henri Becquerel discovered Beta radiation and realized that there was an anomaly that could only be accounted for by a new particle that Wolfgang Pauli proposed, the neutrino

20. gamma radiation passes through a heavy material and is converted into a position and electron. The positron finds another electron and annihilates, dissapearing

21. particles with exact same characteristics as normal particles but opposite charge

22. An antiparticle collides with a corresponding normal particle and they are turned into either a high energy or low energy photon

5. $r = 1.8\ cm \quad h = 3.2\ cm$

$V = \pi r^2 h$

$V = \pi (1.8\ cm)^2 (3.2\ cm)$

$V = 32.572032632 \pi\ cm^3$

$\rho = \frac{m}{V} \quad 0.24 \frac{g}{cm^3} (32.572032632\ cm^3)$

7.8 g cork

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6. $\rho = \frac{m}{V}$ $V = \frac{m}{\rho}$

$V = \frac{0.10\,g}{18.9\,\frac{g}{cm^3}}$

$V = 5.3 \times 10^{-3}\,cm^3$

7. 14.3