Physics worksheet 5am 15.12.2017.

m3 = 0: 1. What particles mediate electromagnetic interaction?

A. electrons

B. protons

C. positrons

D. photons

m3 = 1: 2. What particles mediate strong interaction?

A. neutrons

B. gluons

C. photons

D. protons

m3 = 2: 3. How many times is Electromagnetic Force weaker than the Strong Force?

A. 137

B. 758

C. 3592

D. 126434

L = 0: 4. What is Doppler Effect?

L = 1: 5. How does radar work?

L = 2: 6. Explain implosion.

L = 3: 7. What is the Fat Man?

L = 4: 8. Explain the tunneling effect.

L = 5: 9. What is photon polarization?

L = 6: 10. How is photon polarization used in quantum computing and quantum cryptography?

L = 7: 11. Explain quantum teleportation.

L = 8: 12. Explain cosmology.

L = 9: 13. Explain the Big Bang.

L = 0: 14. What is the Standard Model of Physics?

L = 1: 15. Explain the Theory of Everything.

L = 2: 16. Explain extraterrestrial life.

17. If your velocity would be $v=\left(1-\frac{1}{e+2}\right)c$ then how would your height, mass, and time change?

L = 3: 18. Explain inertial reference frame.

L = 4: 19. What is General relativity?

L = 5: 20. Explain the Dark Matter.

L = 6: 21. What is Dark Energy?

L = 7: 22. Explain Critical Density of the Universe.

L = 8: 23. Give the equation for the critical density of the Universe.

L = 9: 24. Is the density of our Universe smaller, the same or larger than the critical density?

L = 0: 25. Explain the fundamental physical constants.

L = 1: 26. Explain the Big Bang.

L = 2: 27. Explain the physical vacuum.

L = 3: 28: Explain Heisenberg Uncertainty Principle.

29. Find the energy of a coin with mass of T grams, moving with the speed of T meters per second.

E2 = (mc2)2 + (pc)2.

L = 4: 30. Give the structure of neutron.

L = 5: 31. Give the structure of proton.

L = 6: 32. How can we travel faster than the speed of light?

L = 7: 33. Explain the Universe expanding faster than the speed of light.

L = 8: 34. What is tachyon?

L = 9: 35. Explain quantum computing and quantum communication.

36. Explain your project.