SMU Physics 1313 : Fall 2008

QUIZ2

1. When we look up in the night sky, from what galaxy are most of the objects that we can see with our eyes?

A All galaxies equally.

B Andromeda.

[C] The Milky Way.

D The Large Magellanic Cloud.

2. Which best describes what the fate of the universe now appears to be?

A It will stay at about same size forever.

B It will recollapse in a big crunch.

C It will slow to some constant rate of expansion.

[D] It will experience accelerated expansion.

3. Which of the following best describes the Cosmic Microwave Background (CMB)?

A The CMB consists of gluons left over from the formation of nucleons.

B The CMB consists of electrons emitted from the Sun.

C The CMB consists of photons coming from the first stars.

[D] The CMB consists of redshifted photons left over after the formation of atoms.

4. Which best describes Hubble's discovery about the motion of the galaxies?

[A] Galaxies are speeding away from each other at a rate in proportion to their relative distance.

B Galaxies are at rest with respect to each other.

C Galaxies are exploding out from a specific point in the universe.

D Galaxies are moving in the direction of the Milky Way.

5. Which ordering reflects increasing time for cosmological events?

[A] Plank Era, Nucleosynthesis, Dark Era, First galaxies.

B Plank Era, Dark Era, Nucleosynthesis, First galaxies.

C Nucleosynthesis, Plank Era, Dark Era, First galaxies.

D Dark Era, Plank Era, Nucleosynthesis, First galaxies.

6. Why is the CMB the earliest light we can see?

A Earlier light is too high frequency.

[B] Earlier light would have been scattered by free charge before decoupling.

C There were no photons before decoupling.

D Earlier light has been redshifted to extremely low frequencies.

7. Which of the following does not provide some confirmation of the Big Bang Theory?

A Abundance of Helium.

B Doppler shifting of light from galaxies.

[C] Rotation rate of galaxies.

D Uniformity of the CMB.

8. What period directly followed the emission of the CMB during decoupling?

A Third generation star formation.

B Primordial nucleosynthesis.

C The Planck Era.

[D] The Dark Era in which the first stars were formed.

9. Which nuclei were not produced in abundance during primordial nucleosynthesis?

A Deuterium.

B Helium.

C Lithium.

[D] Iron.

10. Which phenomenon is responsible for the acceleration of the expansion of the universe?

A Dark Matter.

[B] Dark Energy.

C Decoupling.

D Supernovae.

11. Why is there more matter than antimatter in the universe?

A The antimatter left the universe through black holes.

B The antimatter was consumed by Dark Matter.

[C] No one knows.

D All of the excess antimatter was consumed in fusion in stars.

12. Dark matter accounts for which of the following phenomenon?

A Fusion.

[B] Otherwise unexplained galactic rotation.

C Antimatter.

D Accelerated expansion of the universe.

13. Which does not apply to the Big Bang model?

A Assumption of Homogeneity and Isotropy.

B Extremely hot and dense early universe.

[C] Well-defined center of explosion.

D Redshifting and cooling over time.

14. Why has the CMB cooled from 5000 °K to 2.7 °K ?

A Because of Antimatter.

B Most of the photons in the CMB have been absorbed.

[C] The Universe has expanded since decoupling.

D Because of the homogeneity of the Universe.

15. Which era came before the combining of quarks and gluons into protons and neutrons ?

A Primordial nucleosynthesis.

B Decoupling.

C Dark Era.

[D] Planck Era.

16. Isaac Newton invented which of the following three subjects?

A Calculus, Electromagnetism, and Gravity.

[B] Calculus, Mechanics, and Gravity.

C Mechanics, Special Relativity, and Electromagnetism.

D Special Relativity, Electromagnetism, and Calculus.

17. Which of the following is not true of decoupling?

A Allowed inhomogeneities to form.

[B] Led to the existence of Dark Matter.

C Permitted light to travel lightyears without scattering.

D Left behind radiation that we can detect today.

18. General Relativity describes which of the four forces?

A Strong Force.

[B] Gravity.

C Electromagnetism.

D Weak Force.

19. Which of the following is not associated with Edwin Hubble?

A Discovery of Galaxies.

B Expansion of the Universe.

[C] General Relativity.

D Space Telescope.

20. Which of the following is considered to be known with reasonable precision?

A Origin of Dark Matter.

[B] Age of Universe.

C Reason for predominance of matter over anti-matter in early universe.

D Origin of Dark Energy.