ASTU SPECIAL SCHOOL

2016 E.C 1st SEMESTER PHYSICS GRADE 11 SELF-PRACTICE QUESTIONS

NAME _____GRADE & SECTION _____NO_____

I. CHOOSE THE CORRECT ANSWER FROM THE GIVEN ALTERNATIVES

1. The mission of physics is to:
   A) Understand the fundamental laws and principles governing the universe
   B) Develop advanced technologies for societal progress
   C) Describe the behavior of living organisms
   D) None of the above
2. Physics aims to:
   A) Enhance our understanding of the physical world
   B) Solve complex mathematical problems
   C) Develop new business strategies
   D) None of the above
3. Physics contributes to our understanding of the universe through the study of _____.
   A) Gravitational wave B) Elementary particles C) Dark matter D) All of the above
4. Which technology uses the principles of physics to create detailed images of the human body for medical diagnosis?
   A) X-ray B) MRI C) CT scans D) All of the above
5. Physics plays a crucial role in the development of _____ technologies.
   A) Renewable energy B) Nuclear power C) Energy storage D) All of the above
6. Which field of physics studies the motion of objects and the forces acting on them?
   A) Thermodynamics B) Optics C) Classical mechanics D) Quantum mechanics
7. Which career involves using physics principles to design and improve electronic devices?
   A) Astrophysicist B) Biophysicist C) Electronics engineer D) Quantum physicist
8. Which career focuses on studying the behavior of atomic and subatomic particles?
   A) Particle physicist B) Geophysicist C) Medical physicist D) Materials scientist
9. Which career involves studying the properties and behavior of materials for practical applications?
   A) Materials scientist B) Nuclear physicist C) Environmental physicist D) Optics physicist

10. Which field of physics is exploring the properties and behavior of particles at the subatomic level?

A) Particle physics B) Condensed matter physics C) Astrophysics D) Optics

11. Which of the following medical imaging technologies uses magnetic field and radio waves to generate images of the human body?

A) X-ray B) Computed tomography (CT)

C) Magnetic resonance imaging (MRI) D) Positron emission tomography (PET)

12. A posteriori knowledge is acquired through:

A) Deductive reasoning B) Inductive reasoning C) Pure intuition D) None of the above

13. Which of the following is an example of a posteriori knowledge?

A) "All bachelors are unmarried." B) "Triangles have three sides."

C) "Water boils at 100 degrees Celsius at sea level." D) "God exists."

14. A priori knowledge is based on:

A) Sense experience B) Observations C) Pure reason and logic D) Inductive reasoning

15. Which of the following is an example of a priori knowledge?

A) "Water boils at 100 degrees Celsius at sea level."

B) "All unmarried men are bachelors."

C) "The sun rises in the east."

D) "Gravity attracts objects towards the Earth."

16. The scientific method is a process used to:

a) Develop new scientific theories b) Prove or disprove hypotheses

c) Conduct experiments d) All of the above

17. What is the transit method in exoplanet detection?

A) Observing the slight dimming of a star's light as an exoplanet passes in front of it

B) Analyzing the gravitational effects of a planet on its parent star's movement

C) Imaging an exoplanet directly using powerful telescopes

D) Analyzing the changes in the spectrum of starlight caused by an exoplanet

18. What is a black hole?

A) A region in space with intense light emissions

B) A massive star at the end of its life cycle

C) A region of extremely high gravitational pull

D) None of the above

19. What is quantum cryptography?

A) Using quantum computers for encryption

B) Using quantum principles for secure communication

C) Developing encryption algorithms based on classical physics

D) Creating unbreakable codes using advanced mathematics

20. What is high-energy physics?

A) The study of energy sources and production

B) The study of particles and forces at high speeds and energies

C) The study of energy conservation in mechanical systems

D) The study of nuclear reactions and radioactive decay

21. What is the Large Hadron Collider (LHC)?

A) A particle accelerator used for medical treatments

B) A facility for colliding atoms to create new elements

C) The world's largest and most powerful particle accelerator

D) An observatory for studying cosmic rays

22. What is the Higgs boson?

A) A particle that carries the force of gravity

B) A particle that gives mass to other particles

C) A particle that makes up dark matter

D) A particle that stabilizes atomic nuclei

23. Which scientist first predicted the existence of black holes?

A) Albert Einstein B) Isaac Newton C) Stephen Hawking D) Carl Sagan

24. What are gravitational waves?

A) Waves produced by the movements of celestial bodies

B) Waves of light in the gravitational spectrum

C) Ripples in the fabric of space time caused by accelerating masses

D) Waves that travel through the Earth's crust during earthquakes

25. What is the current focus of research in cosmology?

A) Understanding the origin and evolution of the universe

B) Examining the behavior of particles at the subatomic level

C) Developing new materials with unique properties

D) Exploring the human brain and consciousness