Set A

1. **Who invented the first telescope?**
   A) Galileo Galilei
   B) Hans Lippershey
   C) Isaac Newton
   D) Johannes Kepler

2. **What does a radio telescope detect?**
   A) Visible light
   B) Radio waves
   C) Gamma rays
   D) Ultraviolet rays

3. **What is the primary location of the asteroid belt in our Solar System?**
   A) Between Mars and Jupiter
   B) Between Jupiter and Saturn
   C) Beyond Neptune
   D) Between Earth and Venus

4. **Which comet is famous for being visible from Earth approximately every 76 years?**
   A) Comet Hale-Bopp
   B) Comet Swift-Tuttle
   C) Halley's Comet
   D) Comet Encke

5. **What is the primary byproduct of hydrogen fusion in the Sun?**
   A) Oxygen
   B) Helium
   C) Carbon
   D) Lithium

6. **Which telescope is known for capturing deep-space images and was launched in 1990?**
   A) Hubble Space Telescope
   B) Spitzer Space Telescope
   C) James Webb Space Telescope
   D) Voyager Telescope

7. **What unique feature does the Perseverance rover have for sampling Martian rocks?**
   A) A laser drill
   B) A rock grinder
   C) A coring drill with caching capability
   D) A soil scoop

8. **What phenomenon causes a comet to develop a glowing tail?**
   A) Gravitational pull of planets
   B) Interaction with solar winds and sunlight
   C) Friction from Mars' orbit
   D) Collision with asteroids

9. **What is the bright, cloud-like envelope surrounding a comet's nucleus when near the Sun called?**
   A) Corona
   B) Coma
   C) Nebula
   D) Halo

10. **Nuclear fusion releases energy because:**
    A) Mass is converted into energy
    B) Atoms break apart
    C) Neutrons are split
    D) Energy is absorbed by the nucleus

11. **Which instrument on the Curiosity rover detects organic molecules in Martian soil?**
    A) X-ray Spectrometer
    B) ChemCam
    C) SAM (Sample Analysis at Mars)
    D) APXS (Alpha Particle X-ray Spectrometer)

12. **Fusion in stars stops when the core accumulates too much of which element?**
    A) Helium
    B) Carbon
    C) Oxygen
    D) Iro

13. **Which scientist developed the equation that describes the energy released in** nuclear fusion?
    A) Albert Einstein
    B) Enrico Fermi
    C) Marie Curie
    D) Niels Bohr

14. **What is the term for a small fragment of an asteroid that survives atmospheric entry and lands on Earth's surface?**
    A) Meteor
    B) Meteoroid
    C) Meteorite
    D) Asteroid fragment

15. **The famous Rosetta mission was launched to study which comet?**
    A) 1P/Halley
    B) 67P/Churyumov–Gerasimenko
    C) 109P/Swift-Tuttle
    D) 2P/Encke

16. **Which atmospheric layer contains the ozone layer, responsible for absorbing most of the Sun's harmful ultraviolet radiation?**
    A) Troposphere
    B) Stratosphere
    C) Mesosphere
    D) Thermosphere

17. **What is the primary composition of the Earth's atmosphere in the troposphere?**
    A) Oxygen and hydrogen
    B) Nitrogen and oxygen
    C) Carbon dioxide and argon
    D) Methane and helium

18. **During which phase is the Moon located between the Earth and the Sun, making it invisible from Earth?**
    A) First Quarter
    B) Full Moon
    C) New Moon
    D) Third Quarter

19. **What is the Cosmic Microwave Background Radiation (CMB), and why is it significant?**
    A) Radiation from stars, evidence of star formation
    B) Remnant heat from the Big Bang, evidence of the early universe's hot, dense state
    C) Radiation emitted by black holes, evidence of their strong gravity
    D) Energy from galaxy collisions, evidence of an expanding univers

20. **What is the role of ailerons in an aircraft’s control surfaces?**
    A) Control pitch by adjusting the nose up or down
    B) Control yaw by adjusting the tail left or right
    C) Control roll by adjusting the wings up or down
    D) Control airspeed by reducing drag

21. **In which layer of the atmosphere do auroras primarily occur due to solar activity?**
    A) Troposphere
    B) Mesosphere
    C) Thermosphere
    D) Exosphere

22. **Mars’ gravity is approximately what percentage of Earth’s gravity, which could affect human health in long-term habitation?**
    A) 38%
    B) 56%
    C) 68%
    D) 85%

23. **What term describes the period it takes for the Moon to complete all its phases, returning to the same point in its orbit relative to the Sun and Earth?**
    A) Sidereal month
    B) Synodic month

C) Lunar rotation
D) Solar month

24. What concept explains the initial rapid expansion of the universe in the very first moments after the Big Bang?
A) Cosmic radiation
B) Cosmic inflation
C) Gravitational pull
D) Black hole formation

25. Why is a T-tail design used on certain aircraft?
A) To reduce the risk of turbulence from wingtip vortices
B) To improve yaw control
C) To keep the tailplane out of the engine exhaust for stability
D) To improve the fuel efficiency of the aircraft

26. Which greenhouse gas, available in Mars' atmosphere, could potentially be used in artificial habitats to help create a breathable environment?
A) Oxygen
B) Methane
C) Nitrogen
D) Carbon dioxide

27. What type of simulation technology allows astronauts to practice piloting spacecraft and docking with the International Space Station (ISS)?
A) VR and AR simulators
B) Thermal chambers
C) Neutral buoyancy simulators
D) Zero-gravity chairs

28. Which type of fuel, generated from resources available on Mars, is SpaceX planning to produce to support return missions to Earth?
A) Hydrogen fuel
B) Methane fuel
C) Solar fuel
D) Nitrogen fuel

29. Which elements were primarily formed during the initial stages of the Big Bang?
A) Hydrogen and helium
B) Carbon and oxygen
C) Iron and silicon
D) Uranium and lead

30. What is the purpose of the dihedral angle in aircraft wings?
A) To increase lift at low speeds
B) To improve the aircraft's roll stability and resistance to rolling motions
C) To reduce drag at high altitudes
D) To increase the speed of takeoff