

# SET-C

**1.What is the initial stage of a star's life cycle called?**

- A) Main Sequence
- B) Protostar
- C) Red Giant
- D) White Dwarf

**2.What is the final remnant of a massive star that has undergone a supernova explosion?**

- A) Planetary nebula
- B) Neutron star or black hole
- C) Brown dwarf
- D) Red giant

**3.Which of the following is an example of an emission nebula?**

- A) The Orion Nebula
- B) The Crab Nebula
- C) The Horsehead Nebula
- D) The Helix Nebula

**4.What role do nebulae play in the lifecycle of stars?**

- A) They are remnants of dead stars
- B) They are sites of star formation
- C) They are regions of stellar explosion
- D) They only serve as visual phenomena in the night sky

**5.In a barred spiral galaxy, what structure forms the central region?**

- A) A bulge of old stars
- B) A bar-shaped region of stars
- C) A ring of dust and gas
- D) A supermassive black hole

**6.What is the event horizon of a black hole?**

- A) The surface of the black hole where light can escape
- B) The boundary beyond which nothing can escape the gravitational pull

- C) The center point of a black hole
- D) The region around a black hole where stars can form

**7.What is the significance of gravitational waves in relation to black holes?**

- A) They are produced by the merger of black holes
- B) They are used to detect black holes in other galaxies
- C) They provide information about the mass of black holes
- D) All of the above

**8.What is the term for galaxies that do not fit into the regular classification system (spiral, elliptical, or lenticular)?**

- A) Irregular galaxies
- B) Anomalous galaxies
- C) Active galaxies
- D) Quasars

**9.How do black holes affect the fabric of spacetime?**

- A) They flatten spacetime
- B) They create a dip in spacetime
- C) They have no effect on spacetime
- D) They stretch spacetime uniformly

**10.Which method is primarily used by astronomers to detect black holes?**

- A) Observing the gravitational waves they emit
- B) Measuring their light emissions directly
- C) Observing the effects of their gravity on nearby stars and gas
- D) Detecting their temperature

**11.What process primarily led to the first production of light in the universe?**

- A) Nuclear fusion
- B) Cosmic inflation
- C) Recombination
- D) Photon emission

**12.What event is known as the "decoupling" of light from matter?**

- A) The moment when stars began to form
- B) The time when electrons combined with protons to form neutral hydrogen

- C) The creation of heavy elements in stars
- D) The explosion of the first supernova

**13.What is the average distance from the Sun's center to its surface (radius)?**

- A) 1.39 million kilometers
- B) 695,508 kilometers
- C) 1 million kilometers
- D) 1.5 million kilometers

**14.What does the photoelectric effect demonstrate about light?**

- A) Light can be reflected.
- B) Light can only behave as a wave.
- C) Light can emit electrons from a material when it shines on it.
- D) Light has no effect on matter.

**15.What phenomenon occurs when light changes direction as it passes from one medium to another?**

- A) Reflection
- B) Refraction
- C) Diffraction
- D) Dispersion

**16.What causes solar flares?**

- A) The collision of asteroids with the Sun
- B) The release of energy from twisted magnetic field lines
- C) The gravitational pull of the Earth
- D) The fusion of heavy elements in the Sun

**17.What scale is used to classify the intensity of solar flares?**

- A) Richter scale
- B) Fujita scale
- C) X-ray classification scale
- D) Beaufort scale

**18.What major astronomical event in 1920 provided evidence for the expansion of the universe?**

- A) Discovery of Pluto
- B) Measurement of the redshift of galaxies

C) Observation of the Cosmic Microwave Background

D) Detection of gravitational waves

**19.What did Sir Isaac Newton's work in the late 17th century contribute to astronomy?**

A) The development of the telescope

B) The formulation of the laws of motion and universal gravitation

C) The discovery of comets

D) The mapping of the stars

**20.What is a potential challenge in detecting life on exoplanets?**

A) Exoplanets are too close to their stars.

B) The vast distances involved make it difficult to gather data.

C) All exoplanets are gaseous and lack solid surfaces.

D) Exoplanets do not have any atmosphere.

**21.Which space telescope has significantly contributed to the discovery of exoplanets?**

A) Hubble Space Telescope

B) Kepler Space Telescope

C) James Webb Space Telescope

D) Chandra X-ray Observatory

**22.What was the main innovation of the Schmidt telescope, introduced in the 1930s?**

A) Use of mirrors instead of lenses

B) The use of a wide-field photographic plate

C) The ability to observe ultraviolet light

D) The first use of computer-controlled tracking

**23.Which telescope is known for its ability to observe in infrared wavelengths and was launched in 2003?**

A) Hubble Space Telescope

B) Spitzer Space Telescope

C) James Webb Space Telescope

D) Kepler Space Telescope

**24.What is the phenomenon of light trespass?**

A) Light pollution caused by the moon

B) Light that intrudes into areas where it is not needed or wanted

- C) Light that enhances the visibility of celestial objects
- D) The absence of artificial light in urban areas

**25. Which of the following is a potential health effect of light pollution on humans?**

- A) Improved sleep patterns
- B) Disruption of circadian rhythms
- C) Enhanced vision at night
- D) Reduced stress levels

**26. What are the primary forces acting on a rocket during launch?**

- A) Thrust and drag
- B) Lift and weight
- C) Gravity and pressure
- D) Centripetal force and friction

**27. What type of rocket propulsion uses chemical reactions to produce thrust?**

- A) Ion propulsion
- B) Electric propulsion
- C) Solid and liquid rocket engines
- D) Solar sails

**28. What was the primary purpose of NASA's Space Shuttle program?**

- A) To explore distant planets
- B) To transport astronauts and cargo to and from low Earth orbit
- C) To conduct experiments in deep space
- D) To replace the Apollo lunar missions

**29. What was the name of the last Space Shuttle mission?**

- A) STS-135
- B) STS-134
- C) STS-133
- D) STS-132

**30. In a vacuum, if two objects with different masses are dropped, which will hit the ground first?**

- A) The heavier object
- B) The lighter object

C) Both will hit at the same time

D) It depends on their shape