



Daily Subject wise Quiz Day 68 Science & Technology I (Online Prelims Test)

1) Consider the following statements with respect to Asteroids

1. Asteroids called Trojans lie inside the belt between Venus and Mercury.
2. Atens, Amors, and Apollos are known as near-Earth asteroids, which sometimes cross the path of Mars and Earth

Which of the above statements is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : b

Asteroids

- Asteroids are found mostly between the orbits of Jupiter and Mars, while comets are found mostly between Venus and Mercury.
- Most asteroids lie in a vast ring between the orbits of Mars and Jupiter.
- Not everything in the main belt is an asteroid, for instance, comets have recently been discovered there, and Ceres, once thought of only as an asteroid, is now also considered a dwarf planet.
- Many asteroids lie outside the main belt, For instance, a number of asteroids called Trojans lie along Jupiter's orbital path.
- Three groups — Atens, Amors, and Apollos — known as near-Earth asteroids orbit in the inner solar system and sometimes cross the path of Mars and Earth.

2) Consider the following statements with respect to Meteoroid

1. A small particle from a comet or asteroid orbiting the Sun is known as Meteoroid
2. A meteoroid that survives its passage through the Earth's atmosphere and lands upon the Earth's surface is known as Meteor.

Which of the above statements is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : a

Meteoroid

- Asteroid: A relatively small, inactive, rocky body orbiting the Sun.
- Comet: A relatively small, at times active, object whose ices can vaporize in sunlight forming an atmosphere (coma) of dust and gas and, sometimes, a tail of dust and/or gas.
- Meteoroid: A small particle from a comet or asteroid orbiting the Sun.
- Meteor: The light phenomena which results when a meteoroid enters the Earth's atmosphere and vaporizes; a shooting star.
- Meteorite: A meteoroid that survives its passage through the Earth's atmosphere and lands upon the Earth's surface.

3) Which of the following statements are correct about Kuiper belt

1. It is a region of the Solar System that exists beyond Pluto.
2. It is similar to the asteroid belt, in that it contains many small bodies.

Select the correct answers using the codes given below

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : b

Kuiper Belt

- The Kuiper Belt (also known as the Edgeworth-Kuiper belt) is a region of the Solar System that exists beyond the eight major planets,
- It extending from the orbit of Neptune (at 30 AU) to approximately 50 AU from the Sun. (1 Astronomical Unit (AU) = distance between the Earth and the Sun)
- It is similar to the asteroid belt, in that it contains many small bodies, all remnants from the Solar System's formation.
- Ultima Thule is a Kuiper Belt object it was discovered by the Hubble Space Telescope in 2014.
- Ultima Thule will be the farthest object ever visited by a spacecraft.

4) Consider the following statements about Habitable-zone Planet Finder (HPF)

1. HPF is an astronomical spectrograph, searches for exoplanets by using the Doppler effect.
2. It provides the highest precision measurements of infrared signals from nearby low-mass star.

Which of the statements given above is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : c

Habitable-zone Planet Finder (HPF)

- HPF is an astronomical spectrograph, installed on the 10m Hobby-Eberly Telescope at McDonald Observatory (US).
- The HPF searches for exoplanets by using the Doppler effect.
- The HPF provides the highest precision measurements of infrared signals from nearby low-mass stars, and astronomers use it to validate the candidate planet by excluding all

possibilities of contaminating signals to a very high level of probability.

- It is designed to detect and characterise planets in the habitable-zone also known as 'Goldilocks zone'- the region around the star where a planet could sustain liquid water on its surface.
- The Habitable-zone Planet Finder (HPF) has confirmed its first planet (exoplanet) called G 9-40b.

5) Consider the following statements with respect to Neutron stars

1. It comprise one of the possible evolutionary end-points of high mass stars.
2. It may be seen as a pulsar if its magnetic field is favourably aligned with its spin axis.

Which of the above statements is/are correct?

- a. 1 only
- b. 2 only
- c. Both 1 and 2
- d. Neither 1 nor 2

Answer : c

Neutron Stars

- Neutron stars comprise one of the possible evolutionary end-points of high mass stars.
- Once the core of the star has completely burned to iron, energy production stops and the core rapidly collapses, squeezing electrons and protons together to form neutrons and neutrinos.
- A star supported by neutron degeneracy pressure is known as a 'neutron star', which may be seen as a pulsar if its magnetic field is favourably aligned with its spin axis.

