

**Q: Consider the following statement regarding Pulsars:**

1. They are rotating neutron stars.
2. They have very strong magnetic fields.
3. Pulsar mass is less than Sun.

Choose the correct option from the codes given below:

- a) 1 and 2
- b) 2 and 3
- c) 1 and 3
- d) 1, 2 and 3

Ans: a

Explanation:

- Pulsars are rotating neutron stars observed to have pulses of radiation at very regular intervals that typically range from milliseconds to seconds.
- Pulsars have very strong magnetic fields, which funnel jets of particles out along the two magnetic poles. These accelerated particles produce very powerful beams of light.
- Often, the magnetic field is not aligned with the spin axis, so those beams of particles and light are swept around as the star rotates.
- When the beam crosses our line of sight, we see a pulse; in other words, we see pulsars turn on and off as the beam sweeps over Earth.
- Pulsar masses range between 1.18 and 1.97 times that of the Sun, but most pulsars have a mass 1.35 times that of the Sun.

**Q: Consider the following statement regarding Megamouth Shark:**

1. They are found in cold oceanic water.
2. Their range is believed to span the region between latitudes 40°N and 40°S.
3. This species has only been observed in the wild a few times.

Choose the correct option from the codes given below:

- a) 1 and 2
- b) 2 and 3
- c) 1 and 3
- d) 1, 2 and 3

Ans: b

Explanation:

- Megamouth Shark is an extremely rare and unusual species of deep-water shark.
- Their range is believed to span the region between latitudes 40°N and 40°S.
- These sharks inhabit the Atlantic, Indian, and Pacific oceans.
- They are found in deep, warm oceanic water.
- This species has only been observed in the wild a few times, and less than 60 individuals are known by scientists to have ever been captured or observed.

**Q: Consider the following statement regarding Solar Orbiter:**

1. It is a Sun-observing satellite designed to provide unprecedented insight into how the sun works.
2. It is a joint mission of the European Space Agency (ESA) and NASA.

Choose the correct option from the codes given below:

- a) 1 Only
- b) 2 Only
- c) 1 and 2
- d) None of the above

Ans: c

Explanation:

- Solar Orbiter is a Sun-observing satellite with 10 science instruments, all designed to provide unprecedented insight into how the sun works.
- It is conceived to perform a close-up study of our Sun and inner heliosphere-the uncharted innermost regions of our Solar System.
- It is a joint mission of the European Space Agency (ESA) and NASA.
- It is the most complex scientific laboratory ever to have been sent to the Sun.

**Q: Consider the following statement regarding Multiple Sclerosis:**

1. It is a chronic disease of the central nervous system.
2. The disease can cause permanent damage or deterioration of the nerve fibres.
3. Women are more affected than men by this disease.

Choose the correct option from the codes given below:

- a) 1 and 2
- b) 2 and 3
- c) 1 and 3
- d) 1, 2 and 3

Ans: d

Explanation:

- Multiple Sclerosis is a long-lasting (chronic) disease of the central nervous system.
- In people with MS, the immune system attacks cells in the myelin, the protective sheath that surrounds nerves in the brain and spinal cord.
- Damage to the myelin sheath interrupts nerve signals from your brain to other parts of your body. The damage can lead to symptoms affecting your brain, spinal cord, and eyes.
- Eventually, the disease can cause permanent damage or deterioration of the nerve fibres.
- MS affects women more than men. The disorder is most commonly diagnosed between ages 20 to 40, but it can be seen at any age.

**Q: Consider the following statement regarding Elephant Endotheliotropic Herpesvirus:**

1. It is a double-stranded DNA virus.
2. It is a fatal hemorrhagic disease in wild and captive juvenile Asian and African elephants.
3. There is a cure for herpesviruses in animals.

Choose the correct option from the codes given below:

- a) 1 and 2
- b) 2 and 3
- c) 1 and 3
- d) 1, 2 and 3

Ans: a

Explanation:

- Elephant Endotheliotropic Herpesvirus is a double-stranded DNA virus that is classified in the family Herpesviridae.
- It causes acute, fatal hemorrhagic disease in wild and captive juvenile Asian and African elephants.
- It is lethal for young elephants between the ages of one and 12.
- The disease is usually fatal, with a short course of 28-35 hours.
- It includes a combination of antiviral therapy, aggressive fluid therapy (to counter haemorrhaging), immunostimulant drugs (selenium and Vitamins C, E), antipyretics and analgesics (to bring down fever).
- There is no true cure for herpesviruses in animals or in humans because herpes viruses go latent.