

**Q: Consider the following statement regarding Natural Farming:**

1. It is a way of chemical free farming.
2. It helps to increase organic matter in the soil.
3. It does not help in climate change resilience and carbon sequestration in soils.

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:

- Natural Farming is a way of chemical free farming based on desi cow and locally available resources, with no chemical fertilizers and pesticides and promotes traditional indigenous practices which give freedom to farmers from externally purchased inputs.
- It is largely based on on-farm biomass recycling with major stress on biomass mulching, use of on-farm desi cow dung-urine formulation; managing pests through diversity, on-farm botanical concoctions and exclusion of all synthetic chemical inputs directly or indirectly and emphasis is given on improving natural nutrient cycling and increase in organic matter in the soil, which can help with climate change resilience and carbon sequestration in soils.

**Q: Consider the following statement regarding Gamma Ray Burst (GRB):**

1. Astronomers classify them as long only based on whether the event lasts for more or less than two seconds.
2. They observe long bursts in association with the demise of massive stars.
3. When a star much more massive than the Sun runs out of fuel, its core suddenly collapses and forms a black hole.

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:

- Astronomers classify them as long or short based on whether the event lasts for more or less than two seconds.
- When a star much more massive than the Sun runs out of fuel, its core suddenly collapses and forms a black hole. As matter swirls toward the black hole, some of it escapes in the form of two powerful jets that rush outward at almost the speed of light in opposite directions.
- Astronomers only detect a GRB when one of these jets happens to point almost directly toward Earth. When a star much more massive than the Sun runs out of fuel, its core suddenly collapses and forms a black hole.

**Q: Consider the following statement Trappist solar system:**

1. It is a size of seven planet of our own.
2. Three of the seven planets are in their star's habitable zone.

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:

- The Trappist solar system, **a rarity with seven planets about the size of our own** has enticed astronomers ever since they spotted it just 40 light-years away.
- That's close by cosmic standards; a light-year is about 5.8 trillion miles. Three of the seven planets are in their star's habitable zone, making this star system even more alluring.

**Q: Recently the central government laid down the procedures for dehorning cattle and castration, branding or nose-roping of any animal. Consider the following statements:**

1. All procedures are to be carried out with the involvement of a registered veterinary practitioner.
2. The rules also demand the breeding of naturally hornless cattle over dehorning.

3. Tagging, branding and radio-telemetry devices should be placed on dead tissues.

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:

- The new law was announced through a notification and defined how painful procedures such as castration of bulls, horses and other animals are to be carried out.
- All procedures are to be carried out with the involvement of a registered veterinary practitioner, along with the mandatory use of general and local anaesthetics.
- The existing methods involve pushing a bull to the ground to use a castrator sans painkillers. The castration method involves crushing the blood vessels, nerves and vas deferens to cause the testicles to become defunct.
- The rules also demand the breeding of naturally hornless cattle over dehorning and using face halters and other humane procedures for nose roping and preventing cold and hot branding on live tissues.
- The rules also demand animals be blindfolded to reduce stress levels, laid on soft ground, and given post-surgical care.
- Tagging, branding and radio-telemetry devices should be placed on dead tissues.

**Q: Consider the following statement regarding Climate smart agriculture:**

- 1. It sustainably increasing agricultural productivity.
- 2. Adapting and building resilience to climate change.
- 3. It does not help in reducing greenhouse gas.

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:

- Climate smart agriculture is an integrated approach to managing landscapes-cropland, livestock, forests and fisheries- that address the interlinked challenges of food security and climate change.
- It aims to tackle three main objectives:
  - a) sustainably increasing agricultural productivity and incomes,
  - b) adapting and building resilience to climate change and reducing greenhouse gas emissions wherever possible and
  - c) supports FAO strategic framework 2022-2031.