

**Q: Consider the following statement regarding Kavach System:**

1. It is an indigenously developed Automatic Train Protection (ATP) system.
2. It helps the loco pilot in running the train during inclement weather conditions such as dense fog.
3. It cannot controls the speed of the train.

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:

- Kavach System is an indigenously developed Automatic Train Protection (ATP) system.
- Kavach was developed by the Research Design and Standards Organisation (RDSO) under Indian Railway (IR) in collaboration with Medha Servo Drives Pvt Ltd, HBL Power Systems Ltd and Kernex Microsystems.
- The system can alert the loco pilot, take control of the brakes and bring the train to a halt automatically when it notices another train on the same line within a prescribed distance.
- The device also continuously relays the signals ahead to the locomotive, making it useful for loco pilots in low visibility.
- It also controls the speed of the train by an automatic application of brakes in case the loco pilot fails to do so.
- It helps the loco pilot in running the train during inclement weather conditions such as dense fog.

**Q: Consider the following statement regarding Fixed-Dose Combination (FDC) Drugs**

1. It increase the risk of medication, which is particularly important in patients with chronic diseases.
2. It includes two or more active pharmaceutical ingredients (APIs) combined in a single dosage form.
3. Cough syrups is one of the common example.

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:

Explanation:

- A Fixed-Dose Combination (FDC) Drugs includes two or more active pharmaceutical ingredients (APIs) combined in a single dosage form, which is manufactured and distributed in fixed doses.
- They have been shown to appreciably reduce the risk of medication non-adherence, which is particularly important in patients with chronic diseases.
- However, their rationality for use should be based on sound medical principles as there have been concerns with their irrationality and utility in several countries.
- Common examples: Cough syrups Phensedyl and Corex, Vicks Action 500.

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

1. They do not extract nutrition from the roots.
2. They often form dense growths on rocky shores or accumulations in shallow water

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:

- "Seaweed" is the common name for countless species of marine plants and algae that grow in the ocean as well as in rivers, lakes, and other water bodies.
- They range in colours from red, green, brown and black and also vary in size, from microscopic to large underwater forests.
- Seaweeds are generally anchored to the sea bottom or other solid structures by rootlike "holdfasts," which perform the sole function of attachment and do not extract nutrients as do the roots of higher plants.
- Seaweeds often form dense growths on rocky shores or accumulations in shallow water.

**Q: Consider the following:**

1. Argentina
2. Bolivia
3. Chile

Which of the above following country is the part of Lithium triangle?

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

Ans: d

Explanation:

- Lithium is a soft, silvery-white metal that heads group 1, the alkali metals group, of the periodic table of the elements.
- It has the lowest density of all metals and the lightest of the solid elements.
- It reacts vigorously with water.
- It does not occur as a metal in nature but is found combined in small amounts in igneous rocks.
- Major Reserves: Lithium reserves are concentrated in the lithium triangle in South America – Argentina, Bolivia & Chile, with 50% of the deposits concentrated in these regions.

**Q: Consider the following statement regarding Petroleum Coke:**

1. It releases toxic gases after burning.
2. It is widely used in cement, steel and textile plants in India.
3. It has low calorific value.

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:

- Petroleum Coke is a final carbon-rich solid material and residual waste material extracted from oil refining.
- It is a spongy, solid residue from oil distillation that can be burned for fuel similar to coal.
- It is a byproduct created when bitumen is found in tar sands.
- Bitumen contains a higher number of carbon atoms than regular oil and it's these atoms, extracted from large hydrocarbon molecules using heat, that go on to form petcoke.
- It is high in calorific value and easy to transport and store.
- It releases toxic gases like carbon dioxide, nitrous oxide, mercury, arsenic, chromium, nickel, and hydrogen chloride after burning.
- There are two distinctive grades of Petroleum Coke viz. Calcinable or Green Petcoke and Fuel Grade Petcoke.
- It is widely used by power stations and several manufacturing industries including cement, steel and textile plants in India.