

Q.1) Consider the following statements about 'nucleic acid vaccines':

1. It uses genetic material from a disease-causing pathogen to stimulate an immune response against it.
2. Such vaccines use only RNA of the pathogen for making a specific protein to trigger immune response from the human body.
3. There are no live components in these vaccines.

Which of the statements given above is/are correct?

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

Q.2) Which among the following are major applications of microbes in the industry?

1. Manufacturing synthetic insulin for diabetic patients.
2. Production of Alcoholic and non-alcoholic beverages.
3. Reducing metal pollutants in the environment.
4. Manufacturing of Bio Fertilizers.
5. Production of Vitamins.

Select the correct answer using the code given below:

- a) 1, 2, 3 and 4 only
- b) 2, 3 and 4 only
- c) 3, 4 and 5 only
- d) 1, 2, 3, 4 and 5

Q.3) The term 'metaverse' was recently in news in the context of:

- a) A secure digital communication network based on quantum mechanics.
- b) A network of always-on virtual environments in which people can interact.
- c) The waves of dark particles recently found emanating from a black hole.
- d) A revolutionary method to counter the spread of zoonotic diseases like COVID-19.

Q.4) Which of the following are correct with reference to the application of Nanotechnology?

1. Carbon nanotubes are completely toxic free nanomaterials used in water purification.
2. Magnetic water repellent nanoparticles can be used to remove oil from the water after oil spills.
3. Wires containing carbon nanotubes can be used to reduce transmission power loss.

Select the correct answer using the codes given below:

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

Q.5) Consider the following pairs:

Commonly used/ consumed materials	Unwanted or controversial chemicals likely to produce found in them
1. Lipstick	Lead
2. Soft Drinks	Brominated vegetable oils
3. Chinese fast food	Monosodium glutamate

Which of the pairs given above is/are correctly matched?

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

Q.6) In the context of environment and ecology, consider the following statements:

1. Keystone species can be an animal, plant or microorganism.
2. The Great Indian Bustard is an indicator species of the grasslands.
3. Umbrella species help in the selection and in the determination of the composition of Protected areas.

Which of the statement(s) given above is/are correct?

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