

Q: Consider the following statement:

1. Ozone hole allowed harmful ultraviolet (UV) radiation to pass into the lowest layer of the Earth's atmosphere.
2. Skin cancer and cataracts is linked with ultraviolet radiation.
3. The first ozone hole was discovered in the tropospheric layers over the Arctic region.

Choose the correct option from the codes given:

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

Ans: a

Explanation:

- The first ozone hole was discovered in the stratospheric layers over the Antarctic in 1985, which allowed harmful ultraviolet (UV) radiation to pass into the lowest layer of the Earth's atmosphere (troposphere) where humans live.
- UV radiation is linked with health hazards such as skin cancer, cataracts and other conditions in the eye and reduced immunity.

Q: Consider the following statement:

1. India is world's most heavily dammed nation.
2. Asia-Pacific region, is estimated to have lost 13 per cent of its initial dam storage capacity by 2022.
3. Asia-Pacific region is home to 60 per cent of the world's population and water storage.

Choose the correct option from the codes given:

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

Ans: b

Explanation:

- In 2022, the Asia-Pacific region, the world's most heavily dammed region, is estimated to have lost 13 per cent of its initial dam storage capacity. It will have lost nearly a quarter (23 per cent) of initial storage capacity by mid-century.
- The region is home to 60 per cent of the world's population and water storage is crucial for sustaining water and food security.
- China, meanwhile, the world's most heavily dammed nation, has lost about 10 per cent of its storage and will lose a further 10 per cent by 2050.

Q: Consider the following statement regarding Uttarakhand Himalaya:

1. The construction of highways and railway tracks has now become a prime cause for landslides.
2. The increased anthropogenic activities such as road construction have made the hill slopes extremely unstable.

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:

- In the next decade, the Government proposes to build 66 tunnels in the Uttarakhand Himalaya and 18 tunnels are already in operation. Building these subsurface structures could result in gross damage to the environment, including the concentration of pollutants from traffic exhaust compounded by a microenvironment with no sunlight and limited dispersion in such long-distance tunnels.
- The rail traffic may rely on electric locomotion, but constantly generated vibrations during the train movements will keep the mountain slope eternally unstable and thus, make it vulnerable to slide at the slightest trigger.
- The construction of highways and railway tracks has now become a prime cause for landslides and its occurrences have doubled over the years. The increased anthropogenic activities such as road construction have made the hill slopes extremely unstable. That is why the recurring landslides have gone up in numbers in the Himalayas.

Q: Consider the following statement regarding National Science Day:

1. It is celebrated to commemorate the discovery of the 'Raman Effect'.
2. Government of India designated 28 February as National Science Day in 1986.
3. On this day Sir C.V. Raman announced the discovery of the 'Raman Effect' for which he was awarded the Nobel Prize in 1930.

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 National Science Day (NSD) is celebrated every year on 28 February to commemorate the discovery of the 'Raman Effect'.
- Government of India designated 28 February as National Science Day (NSD) in 1986.
- On this day Sir C.V. Raman announced the discovery of the 'Raman Effect' for which he was awarded the Nobel Prize in 1930.
- On this occasion, theme-based science communication activities are carried out all over the country.

Q: Consider the following statement:

1. Injection of sulphuric acid into the stratosphere, would damage the ozone layer.
2. Stratospheric aerosol injection (SAI) lowers the amount of heat and enters the troposphere.
3. Stratospheric aerosol injection (SAI) can decrease sunlight reflection.

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:

- Stratospheric aerosol injection (SAI) can increase sunlight reflection, thereby lowering the amount of heat that enters the troposphere.
- But this method "could also affect stratospheric temperatures, circulation and ozone production and destruction rates and transport.
- Injection of sulphuric acid into the stratosphere, for example, would damage the ozone layer.
- Aerosol sprays, like other commonly used substances such as dry-cleaning solvents, refrigerants and fumigants, contain ODS.