

Q.1) Which of the following statements about 'INS Karanj' is/are correct?

- a) It is a Scorpene Class Submarine
- b) It is built by Mazagon Dock Limited (MDL) in collaboration with the Russian Shipbuilding Naval Group
- c) Both (a) and (b)
- d) Neither (a) nor (b)

Q.1) Solution (a)

It is Navy's third state-of-the-art Scorpene class submarine.

The new submarine is named after the earlier Kalvari class INS Karanj, which was decommissioned in 2003.

Six Scorpene class submarines are being built under Project 75 by the Mazagon Dock Shipbuilders Limited (MDSL), Mumbai, under a \$3.75 billion technology transfer signed in October 2005 with the Naval Group of France.

Source: <https://www.thehindu.com/todays-paper/tp-national/submarine-plan-moves-forward-after-delays/article24959037.ece>

Q.2) Coral reefs in India can be seen in which of the following areas?

- 1. Gulf of Mannar
- 2. Gulf of Kutch
- 3. Lakshadweep islands
- 4. Andaman and Nicobar islands

Select the correct code:

- a) 1, 2 and 3
- b) 2, 3 and 4
- c) 1, 3 and 4
- d) All of the above

Q.2) Solution (d)

The major reef formations in India are restricted to the Gulf of Mannar, Palk bay, Gulf of Kutch, Andaman and Nicobar Islands and the Lakshadweep islands. While the Lakshadweep

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reefs are atolls, the others are all fringing reefs. Patchy coral is present in the inter-tidal areas of the central west coast of the country.

Corals have a symbiotic relationship with the unicellular algae dinoflagellates. An increase in sea surface temperatures leads to coral bleaching and the breaking of this relationship. This ecosystem is so sensitive that an increase of sea surface temperature by one degree can cause the corals to bleach and die. Apart from sea surface temperatures, increase in carbon dioxide levels in the sea water and a change in its chemical composition can also trigger bleaching.

Not all corals are equally sensitive. The most susceptible are the branching corals, for example, Acropora species, and the least susceptible are the massive ones, for example Favia species.

Source: <https://www.thehindu.com/sci-tech/science/researchers-dive-in-to-restore-coral-ecosystems/article24955896.ece>

Q.3) Consider the following statements about 'Listeria monocytogenes'

1. It is capable of surviving in the absence of oxygen.
2. It is an electricity producing bacteria

Select the correct code:

- a) 1 Only
- b) 2 Only
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.3) Solution (c)

Listeria monocytogenes is the species of pathogenic bacteria that causes the infection listeriosis. It is a facultative anaerobic bacterium, capable of surviving in the presence or absence of oxygen.

It is discovered that a common diarrhea-causing bacterium, Listeria monocytogenes, produces electricity using an entirely different technique from known electrogenic bacteria, and that hundreds of other bacterial species use this same process.

Bacteria generate electricity for the same reason we breathe oxygen: to remove electrons produced during metabolism and support energy production.

Source: Hindu (16th September- S&T)

Q.4) 'Indian Rock Agama' is mostly found in

- a) Rocky hills of South India
- b) Aravallis
- c) Himalayan Ranges in North East India
- d) Dhaula Dhar range

Q.4) Solution (a)

They are found in southern India, south of about 16°N latitude. In the Western Ghats, Nilgiris, South Arcot, and Nallamalai Hills, they are found in the hilly regions at altitudes up to 6000 ft above sea level in the Nilgiris. It is very common in some parts of the Nilgiris and it was noted as being particularly common near Bangalore.

Source: <https://www.thehindu.com/sci-tech/science/lizards-adapt-to-city-life/article24955827.ece>

Q.5) Consider the following statements about 'BUFFALO Survey'

1. It is one of the missions co-ordinated by NASA to explore the origins of the earliest galaxies
2. It is built around the six Hubble Space Telescope (HST) Frontier Fields clusters

Select the correct statements

- a) 1 Only
- b) 2 Only
- c) Both 1 and 2
- d) Neither 1 nor 2

Q.5) Solution (c)

Beyond Ultra-deep Frontier Fields And Legacy Observations (BUFFALO) is an astronomical survey built around the six Hubble Space Telescope (HST) Frontier Fields clusters designed to learn about early galactic assembly and clustering and prepare targets for observations with the James Webb Space Telescope. BUFFALO will place significant new constraints on

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Read More - <https://buffalo.ipac.caltech.edu/>

Source: Hindu (16th September- S&T)

