

July 24, 2018

Q.1) Consider the following statements about Bombay Natural History Society (BNHS)

1. It is the partner of BirdLife International in India.
2. It is selected as an ENVIS Centre for avian ecology and inland wetlands.

Select the correct statement

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

Q.1) Solution (c)

BNHS is a pan-India wildlife research organization, has been promoting the cause of nature conservation for the past 133 years, since 1883.

BNHS ENVIS Centre on Avian Ecology is established under Environmental Information System (ENVIS) programme of the Ministry of Environment and Forests Govt. of India in the area of Avian Ecology.

The focus of ENVIS since its inception has been on providing environmental information to decision makers, policy planners, scientists and engineers, research workers, etc. all over the country. Since environment is a broad-ranging, multi-disciplinary subject, a comprehensive information system on environment would necessarily involve effective participation of concerned institutions/ organizations in the country that are actively engaged in work relating to different subject areas of environment. ENVIS has, therefore, developed itself with a network of such participating institutions/organizations for the programme to be meaningful.

The Focal Point of the present 76 ENVIS centres in India is at the Ministry of Environment and Forests, New Delhi. This ENVIS Focal Point is acting as a regional service centre to INFOTERRA (International Information System on Environment) set up by the United Nations Environment Programme (UNEP), to cater to environmental information needs in the South Asian Region, since 1985. As mentioned earlier, the Centre at the BNHS has been assigned the responsibility of being the focal point for information on 'Avian Ecology'.

BNHS is the partner of BirdLife International in India. It has been designated as a 'Scientific and Industrial Research Organisation' by the Department of Science and Technology.

Source: <https://www.thehindu.com/sci-tech/energy-and-environment/turn-on-the-lights-and-study-the-national-moth-week-is-here/article24485011.ece>

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Q.2) Consider the following statements about 'Pinjore Gardens'

1. It is an example of the Mughal Gardens architectural style
2. It came under the territory ruled by the Maharajas of Patiala before independence

Select the correct code:

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

Q.2) Solution (c)

Yadavindra Gardens, formerly Pinjore Gardens, is a historic 17th century garden located in Pinjore city of Panchkula district of Haryana. It is an example of the Mughal Gardens architectural style, which was renovated by the Patiala Dynasty Jat Sikh Rulers.

It came under the territory ruled by the Maharaja of Patiala during the 19th century British Raj, who used the garden terraces to grow roses for making Ittar perfume for the maharaja. The Maharaja Yadavindra Singh (1914-74) of the princely state of Patiala restored the garden to its former splendour.

Source: <https://www.thehindu.com/opinion/columns/an-evening-in-pinjore-gardens/article24484332.ece>

Q.3) Consider the following statements about 'Green fluorescent protein (GPF)'

1. It traditionally refers to the protein first isolated from the jellyfish
2. 2017 Nobel Prize in Chemistry was awarded for discovery and development of the green fluorescent protein

Select the correct statements

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

Q.3) Solution (a)

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The green fluorescent protein (GFP) is a protein composed of 238 amino acid residues that exhibits bright green fluorescence when exposed to light in the blue to ultraviolet range. Although many other marine organisms have similar green fluorescent proteins, GFP traditionally refers to the protein first isolated from the jellyfish *Aequorea victoria*.

Scientists Roger Y. Tsien, Osamu Shimomura, and Martin Chalfie were awarded the 2008 Nobel Prize in Chemistry on 10 October 2008 for their discovery and development of the green fluorescent protein.

Source: <https://www.thehindu.com/sci-tech/science/mouse-brain-allows-neuronal-patchwork-to-succeed/article24483394.ece>

Q.4) Consider the following statements about 'Cortisol'

1. It is called as "stress hormone" because of its connection to the stress response
2. It is made within the pituitary gland

Select the correct statements

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

Q.4) Solution (a)

Cortisol is often called the "stress hormone" because of its connection to the stress response, however, cortisol is much more than just a hormone released during stress. Understanding cortisol and its affect on the body will help you balance your hormones and achieve good health.

Cortisol is one of the steroid hormones and is made in the adrenal glands. Most cells within the body have cortisol receptors. Secretion of the hormone is controlled by the hypothalamus, the pituitary gland, and the adrenal gland, a combination glands often referred to as the HPA axis.

Source: <https://www.thehindu.com/sci-tech/health/a-patch-to-measure-cortisol/article24484795.ece>

Q.5) Consider the following statements about Voltage fade

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1. It reduces the energy density of a battery
2. Lithium-ion (Li-ion) batteries are immune from voltage fade

Select the correct statements

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

Q.5) Solution (a)

Voltage Fade is the bane of batteries, including phone batteries, and is said to be a key reason for lowering their performance. Voltage fade reduces the energy density of a battery which in turn limits the practical applications of these materials despite their high energy density in the initial charge-discharge cycles. Voltage fade is of concern now as it affects a promising class of cathode materials called Lithium-rich NMC (nickel magnesium cobalt) layered oxides. These cathode materials have drawn attention to their potential as components for better rechargeable batteries for electric vehicles.

Source: <https://www.thehindu.com/sci-tech/science/demystifying-science-july-22-2018/article24484659.ece>

