

Q.1) Consider the following statements about Tawny lark

1. They are found in the arid grasslands and scrub lands of central and west-central India
2. They imitate the calls of other bird species

Select the correct statements

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

Q.1) Solution (c)

The diminutive crested Tawny lark – found only in the arid grasslands and scrub lands of central and west-central India including Gujarat, Uttar Pradesh and Maharashtra – belongs to a family of larks well-known for their mimicking abilities.

A team of scientists from Cornell University and the Bombay Natural History Society studied the flight songs of these birds in Gujarat and analysed the acoustics of their calls.

- The male Tawny larks imitate the calls of 34 other bird species, including babblers and lapwings, with varied accuracy.
- They even mimicked a squirrel and whistles of local shepherds – indicating that the birds learn from their surroundings.
- Not only are the males listening to other species [in their environment] but if it is a signal of male quality then it means that the females know all the calls well too and are choosing males that can either mimic the most number of species or can mimic the most species really accurately or both.
- Birds often learn to mimic other birds and sounds they hear, like Australia's Superb lyrebird which can imitate chainsaws and car alarms.
- Also a songbird, the Tawny lark is one of India's 22 lark species. It is endemic to the Deccan region, locally common in its range and not yet threatened. However, the habitat it lives in – grasslands and scrub lands – are one of the fastest disappearing in the country.

Source: <http://www.thehindu.com/sci-tech/science/for-a-lark-this-bird-imitates-34-others/article19897541.ece>

Q.2) _____ is the first state to formulate an Organic Farming Policy.

- a) Sikkim
- b) Karnataka
- c) Maharashtra
- d) Tamil Nadu

Q.2) Solution (b)

Karnataka is the first State to formulate an organic farming policy way back in 2004.

Karnataka announced an organic policy (Karnataka Organic Policy, 2017) that seeks to cater to the entire organic value chain and signals the shift in emphasis from traditional agriculture, which is increasingly becoming unsustainable. The state is the first in the country do so.

Source: <http://www.thehindu.com/todays-paper/tp-national/tp-karnataka/state-takes-the-lead-in-lobbying-with-fao-for-an-international-year-of-millet/article19899680.ece>

Q.3) Which of the following is a Russian Ice Shelf?

- a) Ward Hunt Ice Shelf
- b) Milne Ice Shelf
- c) Alfred Ernest Ice Shelf
- d) None of the above

Q.3) Solution (d)

All Canadian ice shelves are attached to Ellesmere Island and lie north of 82°N. Ice shelves that are still in existence are the Alfred Ernest Ice Shelf, Milne Ice Shelf, Ward Hunt Ice Shelf and Smith Ice Shelf. The M'Clintock Ice Shelf broke up from 1963 to 1966; the Ayles Ice Shelf broke up in 2005; and the Markham Ice Shelf broke up in 2008.

Q.4) 'Thermohaline Circulation' controls large-scale movement of oceanic flow. Thermohaline circulation is driven by which of the following gradients?

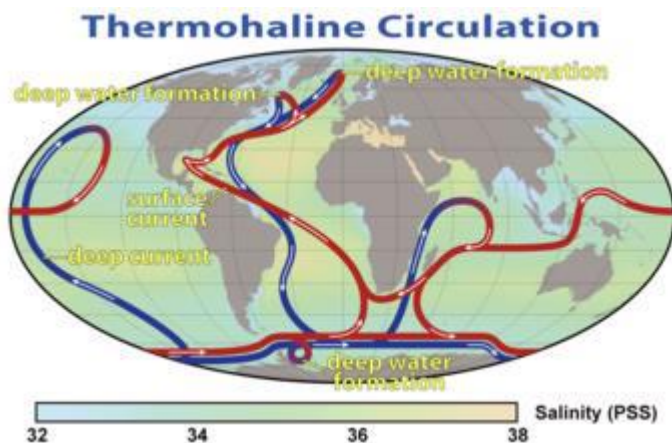
- a) Temperature
- b) Salinity
- c) Both (a) and (b)
- d) Neither (a) nor (b)

Q.4) Solution (c)

Winds drive ocean currents in the upper 100 meters of the ocean's surface. However, ocean currents also flow thousands of meters below the surface. These deep-ocean currents are driven by differences in the water's density, which is controlled by temperature (thermo) and salinity (haline). This process is known as thermohaline circulation.

In the Earth's polar regions ocean water gets very cold, forming sea ice. As a consequence the surrounding seawater gets saltier, because when sea ice forms, the salt is left behind. As the seawater gets saltier, its density increases, and it starts to sink. Surface water is pulled in to replace the sinking water, which in turn eventually becomes cold and salty enough to sink. This initiates the deep-ocean currents driving the global conveyor belt.

The thermohaline circulation is sometimes called the ocean conveyor belt, the great ocean conveyor, or the global conveyor belt. On occasion, it is used to refer to the meridional overturning circulation (often abbreviated as MOC). The term MOC is more accurate and well defined, as it is difficult to separate the part of the circulation which is driven by temperature and salinity alone as opposed to other factors such as the wind and tidal forces. Moreover, temperature and salinity gradients can also lead to circulation effects that are not included in the MOC itself.



Q.5) Hydraulic conductivity is primarily controlled by?

- a) Porosity
- b) Hydraulic gradient
- c) Potentiometric surface
- d) Permeability

Q.5) Solution (d)

Hydraulic conductivity, symbolically represented as K , is a property of vascular plants, soils and rocks, that describes the ease with which a fluid (usually water) can move through pore spaces or fractures. It depends on the intrinsic permeability of the material, the degree of saturation, and on the density and viscosity of the fluid. Saturated hydraulic conductivity, K_{sat} , describes water movement through saturated media.

By definition, hydraulic conductivity is the ratio of velocity to hydraulic gradient indicating permeability of porous media.

Source: <https://timesofindia.indiatimes.com/city/kochi/vedanta-in-talks-with-kerala-govt-to-use-copper-slag-in-road-works/articleshow/61146991.cms>