

between the objects. Nothing material moves across the boundary. The changes in temperature are wholly explained as the result of the gains and losses of kinetic energy during collisions.

Convection: Convection is the process of heat transfer from one location to the next by the movement of fluids. The moving fluid carries energy with it. The fluid flows from a high temperature location to a low temperature location. As the kettle is hot, it begins to conduct heat to the water. The water at the boundary with the metal pan becomes hot. Fluids expand when heated and become less dense. So as the water at the bottom of the pot becomes hot, its density decreases. Differences in water density between the bottom of the pot and the top of the pot results in the gradual formation of circulation currents.

Q 6.B

For regulating development activities, the coastal stretches within 500 metres of High Tide Line on the landward side are classified into four categories, namely:

- Category I (CRZ-I): (i) Areas that are ecologically sensitive and important, such as national parks/marine parks, sanctuaries, reserve forests, wildlife habitats, mangroves, corals/coral reefs, areas close to breeding and spawning grounds of fish and other marine life, areas of outstanding natural beauty/historically/heritage areas, areas rich in genetic diversity, areas likely to be inundated due to rise in sea level consequent upon global warming and such other areas as may be declared by the Central Government or the concerned authorities at the State/Union Territory level from time to time. (ii) Area between Low Tide Line and the high Tide Line.

No new construction shall be permitted in CRZ- I except (a) Projects relating to Department of Atomic Energy and (b) Pipelines, conveying systems including transmission lines and (c) facilities that are essential for activities permissible under CRZ-I.

- Category-II (CRZ-II): The areas that have already been developed upto or close to the shoreline. For this purpose, 'developed area' is referred to as that area within the municipal limits or in other legally designated urban areas which is already substantially built up and which has been provided with drainage and approach roads and other infrastructural facilities, such as water supply and sewerage mains. The area upto 200 metres from the High Tide Line is to be earmarked as 'No Development Zone'. No construction shall be permitted within this zone except for repairs of existing authorised structures
- Category-III (CRZ-III): Areas that are relatively undisturbed and those which do not belong to either Category-I or II. These will include coastal zone in the rural areas (developed and undeveloped) and also areas within Municipal limits or in other legally designated urban areas which are not substantially built up.
- Category-IV (CRZ-IV): Coastal stretches in the Andaman & Nicobar, Lakshadweep and small islands, except those designated as CRZ-I, CRZ-II or CRZ-III.

Q 7.C

- Mahalwari system was introduced in 1833 during the period of Sir William Bentick. It was introduced in Central Province, North-West Frontier, Agra, Punjab, Gangetic Valley, etc of British India. **Hence, statement 1 is correct.**
- The settlement under the Mahalwari operation was directly made with the villages or estates or Mahals. **Hence, statement 2 is not correct.**
- The settlement possesses a mixture of Bengal Zamindari as well as Madras Rayotwari. Here, the settlements had neither been with great hereditary revenue farmers like the Bengal 'Zamindars nor with the humble cultivators as in madras, but generally with the co-sharing village brotherhood called as village community.
- Most of the historians placed the new system as a modified version of Permanent Zamindari of Bengal which was usually made with the body of co-sharers.
- The rent was fixed with the consultation of lambardar and the land revenue was revised periodically, generally after 30 years. **Hence, statement 3 is correct.**