leaves are peltate, usually **circular in shape** and have a **strong leathery texture.** The upper leaf surface is waxy and smooth, as a result, water **glides off and does not** adhere.

- Mechanical **tissues such as sclerenchyma, woody xylem,** and **secondary wood bark** are normally present in the **terrestrial plants to** provide mechanical support but are **absent in hydrophytes**. Therefore, the **presence of lacunae tissue**, filled with air and the absence of mechanical tissues are two chief adaptations.

Q.47) Ans: d
Exp:

- Homeostasis is the state of **steady internal chemical and physical** conditions maintained by **living systems**. It is referred to as the **mechanism to maintain a stable internal environment** instead of changes taking place in the **external environment**. Some organisms are able to maintain homeostasis by the following process:
- **Regulate**: Some organisms are able to **maintain homeostasis** by physiological (sometimes behavioural also) means which ensures constant body **temperature**, constant **osmotic concentration**, etc. The mechanisms used by most mammals to regulate their body temperature are similar to the ones that we **humans** use it.
- We maintain a **constant body temperature** of **37 degrees C**. In summer, when the outside temperature is more than our body temperature, we sweat profusely and thus bring down the body temperature.
- **Conform**: An overwhelming majority (99 percent) of animals and nearly all **plants cannot maintain a constant** internal environment. Their body temperature changes with the **ambient temperature.** In aquatic animals, the osmotic concentration of the body fluids changes with that of the **ambient air, water osmotic** concentration. These animals and plants are simply conformers. Examples: Lizards, insects and fish.
- **Migrate**: The organism can **move away temporarily** from the stressful habitat to a more **hospitable area and return** when the stressful period is over. Example: Every winter the famous Keoladeo National Park (Bharatpur) in Rajasthan hosts thousands of migratory birds coming from Siberia and other extremely cold northern regions.
- **Suspend**: In bacteria, fungi and lower plants, various kinds of **thick-walled spores** are formed which **help them to survive unfavourable conditions** – these germinate on availability of suitable environment. Example: bears going into hibernation during winter is an example of an escape in time. Some snails and fish go into aestivation to avoid summer-related problems- heat and desiccation.

Q.48) Ans: a
Exp:

- Each organism is **adapted to its environment**. The form of nutrition differs depending on the type and availability **of food material** as well as how it is obtained by the organism. Chemoheterotrophs are unable to **utilize carbon dioxide** to form their own organic compounds. Their Carbon **source is rather** derived from sulfur, carbohydrates, lipids, and proteins.
- **Chemoheterotrophs** are only able to thrive in environments that are capable of sustaining other forms of life due to their dependence on these organisms for carbon sources. Chemoheterotrophs are the most abundant type of chemotrophic **organisms** and include most **bacteria, fungi and protozoa.**
- **Yeast, mushroom and bread** mould have a saprophytic mode of nutrition which is **chemoheterotrophic in nature**. They break down **complex organic** substances by secreting digestive enzymes outside their body and absorb simple molecules as nutrients.
- **Phototrophs** are organisms that **carry out photon capture** to acquire energy. Photoautotrophs convert **inorganic materials into organic materials** for use in cellular functions such as biosynthesis and respiration and provide nutrition for many other forms of life.
- **Photoheterotrophs** depend on light for their source of energy and mostly organic compounds from the environment for their source of carbon. i.e. cyanobacteria- that build up carbon dioxide and **water into organic** cell materials using energy from **sunlight, starch** is produced as the final product.

Q.49) Ans: c
Exp:

- **Statement 1 is correct**. The National Tiger Conservation Authority (NTCA) is a statutory body under **the Ministry of Environment, Forests and Climate Change** constituted under enabling provisions of the Wildlife (Protection) **Act, 1972, as** amended in 2006, for strengthening tiger