Functions of Integument

1. Integument gives a characteristic form to the body.

2. **Protection** : It acts as a wrapper for the enclosed organs and protects them in the following ways :

(i) **From mechanical injury** : The skin protects the soft body organs from friction, injury and shocks. Various accessory structures of integument like scales in **fishes** and **reptiles,** feathers in **birds** and hairs, spines and horny plates or dermal scutes in **mammals** assist in this function. The subcutaneous layer of fat is shock-absorbing.

(ii) **From enemies :**

(a) Structures like bony scutes, horny plates, hairs, feathers, horns, claws, nails and spines, etc., are utilized for offence and defence.

(b) Concealment is another device of protection against enemies. Since the colour of certain harmless individulas completely blends with the surroundings, it conceals them in the environment.

(iii) **From the access of foreign bodies** : Due to the presence of skin, the bacteria, fungal spores and algal spores, etc., do not enter the body. Also a variety of cells present in the connective tissue of integument fight against infection and help in healing the wound and in the replacement of damaged tissues.

(iv) **From loss and intake of water :** Hairs, feathers and scales form an impervious covering over the body and check the loss of water by evaporation. Similarly, in aquatic animals it avoids the entrance of water into the body.

(v) **From harmful sunrays** : In bright sun the colour of the integument changes so that the harmful sunrays cannot enter the body.

3. Control of Body Temperature : In warm-blooded animals the skin controls the body temperature. The presence of hairs, feathers and scales help in conservation of body heat in winter. The excess of heat is lost by the evaporation of sweat which is formed by the sweat glands of mammals. The heat is also retained by the contraction of blood vessels of the integument .

4. Storage of Nourishing Material : The subcutaneous fat present below the dermis serves as reserve food and also gives form to the body.

5. As a Sensory Organ : The integument is richly supplied with nerve fibres which form nerve endings and special cutaneous receptors or **tactile corpuscles** in the epidermis. These are sensitive to change in temperature, pressure, chemical substances and touch.

6. As an excretory organ : The excess of water with urea and salts, etc., is removed by integument in the form of sweat.

7. As a Secretory Organ : The integument possesses various glands producing useful secretions.

(i) The secretion of sebaceous glands lubricates the hairs and skin.

(ii) Sebum of sebaceous glands contains an ester which is converted into Vit. D in presence of sunlight.

(iii) The mammary glands in mammals produce milk to nourish the young ones.

(iv) The cutaneous glands in frog produce mucus which lubricates and keep the skin moist.

(v) The poison glands in frog and certain other animals produce poison or some other sticky secretion which protects them against enemy.

8. As Respiratory Organ : The skin of frog and other aquatic vertebrates facilitates exchange of gases and helps in respiration.

9. As an Absorbing Organ : The integument exhibits selective absorption, absorbing substances like oil, ointments and useful sunrays.

10. As a Locomotory Organ : The wing membrane of **bats, flying lizard** and **squirrels,** the web in the feet of **frogs** and **ducks** and the fins of **fishes** help in locomotion.

11. In Sexual Selection : The brightly coloured and variously spotted multicoloured integument and the antlers in male deer, etc., help in the attraction of mate.

12. Formation of Enzymes : The integument of certain larvae of fish and frog produces enzymes which dissolve the covering around their body and help in hatching.