Table 3. **Comparative Account of Integument and Exoskeleton in Vertebrate Animal Types.**

Characters	FISH Dogfish *(Scoliodon)*	AMPHIBIA Frog *(Rana)*	REPTILIA Lizard *(Uromastix)*	AVES Pigeon *(Columba)*	MAMMALIA Rabbit *(Oryctolagus)*
			A . INTEGUMENT		
1. Skin surface & attachment	Skin hard, rough, rigid, leathery and firmly attached to body.	Skin thin, moist, slimy, smooth, fitting loosely on body enclosing large subcutaneous lymph spaces beneath dermis.	Skin thicker, dry, rough, and loosely folded along the sides of neck and trunk.	Skin thin, dry, hard flexible and loosely attached to achieve maximum freedom of movement for flight.	Skin thickest, dry, elastic and loosely attached. Variously modified.
2. Colouration	Colour of *Scoliodon* is dark, grey dorsally and pale white ventrally. Fishes in general show greatest colour patterns and brilliance amongst chordates.	Colour of *Rana* is green with black and brown patches above and lighter pale-yellow below.	Body of *Uromastix* is yellow-brown with dark spots above, and lighter and paler below. In reptiles in general color patterns elaborate for warning or concealment.	Rock pigeon is slaty-grey with green and purple sheen around neck and breast and 2 black bars on each wing. Birds in general are beautifully coloured.	Colour of rabbit is dusty-brown and protective. Mammals, in general, are dull coloured.
3. Colour change	Body colour does not change. Some fishes have protective colouration.	Frog has protective colouration for camouflage and can change body colour to match with the surroundings.	*Uromastix* has no power to change colour. However, *Calotes* and chamaeleons can change body colours.	No capacity for change of body colouration in birds in general.	Usually, no capacity to change body colouration.
4. Pigmentation	Pigment containing chromatophores and guanin containing iridophores located in dermis.	Chromatophores located in dermis.	Chromatophores located in dermis.	Pigment cells found in feathers, not in dermis. Colours also due to reflection and refraction of light by feathers.	Pigment granules located in hairs and epidermis, pigment cells in dermis.
5. Cutaneous respiration	Skin protective and sensory. Not permeable to water, hence no cutaneous respiration.	Skin protective and permeable to water, hence serves as an organ of respiration.	Skin protective and water-proof, without cutaneous respiration.	Skin protective, insulating and water-proof. No skin respiration.	Skin protective, insulating and water-proof. No cutaneous respiration.
6. Epidermis	Epidermis many-layered or stratified, but simple, thin and without a cornified stratum corneum, No moulting.	Many-layered or stratified epidermis with a thin stratum corneum of flat and dead keratinized cells continuously shed in patches.	Epidermis stratified with a relatively thicker stratum corneum periodically shed in bits or in one piece.	Epidermis stratified, relatively thinner, and seasonally shed and replaced.	Epidermis greatly stratified. Stratum corneum highly specialized with several modifications. No regular moulting.

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Characters	Dogfish *(Scoliodon)*	Frog *(Rana)*	Lizard *(Uromastix)*	Pigeon *(Columba)*	Rabbit *(Oryctolagus)*
7. Epidermal glands	Epidermis con- tains numerous unicellular mucus- secreting goblet gland cells. Mul- ticellular poison glands and lumi- nescent glands or photophores also occur in some fishes.	Epidermis is rich in multicellular mucous glands. Some amphibians have poison glands like parotid glands of toad.	Lizard has few but no mucous glands. Male lizard has fémoral glands on thighs. Some reptiles have scent or musk glands.	No skin glands occur in birds except a single large preen or uropygial gland on tail. No mucous glands present.	Skin richly glandu- lar containing characteristic ma- mmary, sweat and sebaceous glands besides scent glands. No mucous glands present.
8. Dermis	Dermis is typical with connective tissue fibres, blood and lymph vessels and pigment cells. But all connective tissue fibres run parallel to surface.	Dermis is thin and typical. It consists of an outer loose layer or stratum spongiosum, and an inner compact layer of collagen fibres called stra- tum compactum. Connective tissue fibres are vertical as well as horizon- tal.	Dermis is thick and typical, containing connective tissue fibres, muscle and nerves, blood capillaries and lymphatic vessels, and also pigment cells.	Dermis is mostly thin and typically made of muscle fibres, nerves, blood capillaries and connective tis- sue. It has no pig- ment.	Dermis is propor- tionately thickest of all vertebrates, containing intri- cate fibres, tactile organs, nerves, blood vessels and pigment cells.
9. Dermal scales	Dermal scales are present as placoid scales.	Dermal scales are absent in frog, al- though embedded in the skin of some Gymnophiona.	Dermal scales ab- sent in *Uromastix*, but dermal scales, scutes or plates, called osteoderms, occur in some liz- ards, crocodilians and turtles.	Dermal scales are absent in birds.	Dermal scales or plates occur only in armadillos and whales.

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