



ENROLLMENT NO :	031 BPB 19 GT 062		
NAME OF SUBJECT :	Zoology		
SEMESTER :	3	SUBJECT CODE :	Bsz 303T
DATE OF EXAM :		TOTAL NO PAGES USED :	

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- Q.NO.
- Multiple Choice Question
- (i) Golden era of Reptiles
(c) Mesozoic
- (ii) Present in Chordata
(a) Notochord and Nerve chord
- (iii) "Origin of Species" book is written by
(a) Darwin
- (iv) Femur is the bone of -
(d) Hind limb
- (v) Mutation
(c) Step change

Part-B

Q.1 Write the general characters of phylum Chordata.

Phylum Chordata is characterized by the presence of a notochord, a dorsal hollow nerve cord, pharyngeal slits, an endostyle, and a post-anal tail at some point in their life cycle. Chordates exhibit bilateral symmetry, have a coelom, and possess a closed circulatory system. They can be divided into three subphyla: Vertebrata (vertebrates), Cephalochordata (lancelets), and Urochordata (tunicates).



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Q.2 Write a short note on types of feathers in birds.

Bird feathers come in various types, each serving different functions:

- Contour Feathers: Provide the bird with its shape and coloration; include flight feathers (remiges and rectrices).
- Down Feathers: Soft and fluffy, providing insulation by trapping air.
- Semiplume Feathers: Provide insulation and help in streamlining the bird's body.
- Filoplume Feathers: Hair-like feathers with sensory functions, aiding in the adjustment of other feathers.
- Bristle Feathers: Stiff feathers found around the mouth, eyes, and nostrils, providing protection and sensory input.

Q.3 Explain the heart of mammals.

The mammalian heart is a four-chambered organ consisting of two atria and two ventricles. It operates in a double circulatory system, where oxygen-poor blood is pumped from the right ventricle to the lungs via the pulmonary artery, and oxygen-rich blood is returned to the left atrium and then pumped to the body through the left ventricle. This separation ensures efficient oxygenation of blood and supports high metabolic rates necessary for endothermy (warm-bloodedness).

Q.4 Write short notes on:



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(a) Types of Feathers in Birds: See Q.2 above.

(b) Heart of Mammals: See Q.3 above.

Q.5 Write a note on Archaeopteryx.

Archaeopteryx is a transitional fossil that showcases characteristics of both dinosaurs and modern birds. It lived during the Late Jurassic period and is often considered the earliest known bird. Archaeopteryx had features such as feathers, a wishbone, and a partially reversed first toe (hallux), suggesting flight capability. However, it also had teeth, a long bony tail, and clawed fingers, typical of non-avian theropod dinosaurs. Its discovery provided significant evidence for the evolutionary link between birds and dinosaurs.

Part-C

Q.1 Explain the digestive system of Herdmania.

Herdmania, a type of tunicate, has a simple digestive system adapted to filter feeding. Water enters the body through the incurrent siphon, passes through the pharyngeal slits into the atrium, and exits via the excurrent siphon. Food particles are trapped by a mucous net secreted by the endostyle, then transported to the



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esophagus. The food is digested in the stomach and nutrients are absorbed in the intestine. Undigested waste is expelled through the anus into the atrium and then out of the body through the excurrent siphon.

Q.2 Describe functions of integument. Explain integument of birds and mammals.

The integument, or skin, serves several vital functions:

- Protection: Acts as a barrier against physical damage, pathogens, and dehydration.
- Sensation: Contains sensory receptors for detecting environmental stimuli.
- Thermoregulation: Helps maintain body temperature through sweat glands and insulation.
- Excretion: Removes waste products through sweat.
- Vitamin D Synthesis: Produces vitamin D when exposed to sunlight.

Integument of Birds:

Birds have a unique integument covered by feathers, which provide insulation, enable flight, and play a role in mating displays. The skin has specialized structures like the uropygial gland that secretes oil for feather maintenance. Birds' skin is thinner and less glandular compared to mammals.

Integument of Mammals:



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Mammalian skin is characterized by the presence of hair or fur, sweat glands, sebaceous glands, and mammary glands. Hair provides insulation and protection, while sweat glands aid in thermoregulation. The sebaceous glands secrete oils that keep the skin and hair moisturized.

Q.3 Write an essay on placentation in mammals.

Placentation in mammals involves the development of a placenta, an organ that facilitates nutrient and waste exchange between the mother and the developing embryo. There are different types of placentation based on the structure and function of the placenta:

- Diffuse Placenta: Found in horses and pigs, where the placental villi are spread evenly over the entire surface of the chorion.
- Cotyledonary Placenta: Found in ruminants like cows and sheep, where the villi are grouped into discrete patches called cotyledons.
- Zonary Placenta: Found in carnivores like dogs and cats, where the villi form a belt-like band around the embryo.
- Discoidal Placenta: Found in humans, rodents, and primates, where the villi are concentrated in a single disc-shaped area.

The placenta not only provides nutrients and oxygen to the fetus but also removes waste products and produces



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hormones that support pregnancy. It acts as a selective barrier, allowing only certain substances to pass between the mother and fetus, thereby protecting the developing embryo from harmful agents. The study of placentation reveals the intricate mechanisms that ensure the successful development of mammalian offspring.