UNIVERSITY OF KOTA, KOTA

SYLLABUS AND COURSE SCHEME

ACADEMIC YEAR: 2018-19

BACHELOR OF SCIENCE- ZOOLOGY

IV SEMESTER

EXAMINATION- 2019

B. Sc. IV Semester

Z- 401. Paper I: Animal Diversity - IV
(Pisces to Mammalia and Comparative Anatomy)

Z- 402. Paper II: Animal Behaviour and Economic Zoology

Z- 403. Practical: Exercise based on papers I and II.

University of Kota, Kota

B.Sc. – IV Semester (Zoology) Examination- 2019

Z - 401Paper I: Animal Diversity IV
(Pisces to Mammalia and Comparative Anatomy)

UNIT-I
(Fishes)

1. Pisces: Differences between cartilaginous and bony fishes; *Latimaria*; Dipnoans, aquatic adaptations in fishes. General morphology of *Scoliodon* and *Labeo rohita;* types of scales and fins in fishes.
2. Pisciculture: Introductory knowledge of Pisciculture; important fresh water and marine fishes as food.

UNIT-II
(Tetrapoda –I)

1. Amphibia: Adaptations for amphibious life, neoteny and paedogenesis.
2. Reptilia: Adaptations for terrestrial life, Identification of poisonous and non-poisonous snakes, biting mechanism in snakes, snake venom, Dinosaurs.

UNIT-III
(Tetrapoda-II)

1. Aves: Flight mechanism, flight adaptations, perching mechanism, migration, *Archaeopteyx* as a connecting link.
2. Mammalia: oviparity; ovo-viviparity and viviparity in mammals; adaptive radiation; convergent evolution of placental and Australian mammals.

UNIT-IV
(Comparative Anatomy of Vertebrates-I)

Comparative anatomy of the following organ systems of *Scoliodon, Rana, Varanus, Columba* and *Oryctolagus:*

1. Integument and integumentary derivatives.
2. Alimentary canal and accessory digestive glands.
3. Respiratory organs.

UNIT-V
(Comparative Anatomy of Vertebrates-II)

Comparative anatomy of the following organ systems of *Scoliodon, Rana, Varanus, Columba* and *Oryctolagus:*

1. Endocrine system and sense organs.
2. Heart, aortic arches and their evolution.

3. Urinogenital system (pro-, meso- and meta-nephric kidney and genital ducts in male and female vertebrates).

Z – 402 Paper II: Animal Behaviour and Economic Zoology

UNIT- I

1. Introduction, Significance and history of science of behaviour, Branches of Ethology.
2. Methods of studying animal behavior, Nervous system and behaviour.
3. Hormones (including pheromones) and behaviour.

UNIT- II

1. Patterns of behaviours.
2. Biological clocks: Circannual , Circatidal, Circalunar, circasyzygic clocks and circadian rhythms.
3. Orientation; Migration of Animals (especially of fishes and birds)

UNIT- III

1. Communication: types and significance.
2. Feeding behaviour; Searching of food in Honey bee, rhesus monkey and languor; Antipredator behaviour.
3. Aggressive and Territorial Behaviours. Conflict.

UNIT- IV

1. Social behaviour and social organizations.
2. Motivation and Learning behavior
3. Reproductive (Courtship and mating) and Parental behaviour.

UNIT - V

1. Economic Zoology: definition, scope and importance.
2. Harmful Animals - Parasites, pests and vectors: pathogenicity, including diseases, causes, symptoms and control.
3. Beneficial Animals – (culturable and domesticated animals): Aquaculture, Pearl and Prawn culture, Sericulture, Apiculture, Lac-culture; Dairy and Poultry practices. Applied Ethology: Stress, Social aggression, Wars and Drug addiction (with treatment and rehabilitation).

Z – 403 Practical (based on Z – 401 and Z – 402)

1. **Study of museum specimens / models / chart / photograph:**
   Acipenser, Amia, Anguilla Clarius, Lepidosteus, Labeo, , Hippocampus, Exocoetus, Echeneis, Ichthyophis, Protopterus, Proteus, Ambystoma, axolotl larva, *Siren, Alytes, Hyla, Haplobatrachus, Bufo (Duttafrancis), Chelone, Testudo*, tortoise, *Sphenodon, Hemidactylus, Phrynosoma, Draco, Chamaelion, Eryx, Hydrophis, Naja, Vipera, Bungarus, Cocodylus*, Alligator, *Archaeopteryx, Pavo cristatus, Psittacula, Collumba, Mylvus*, great Indian bustard, sarus crane, vulture, crow,

Ornithorhynchus, Tachyglossus, Macropus, bat, *Loris, Manis, Herpestes, Erinaceous (hedgehog), Camel, Tiger and Panther.*

2. **Permanent slides:**
   Mammalian Histology: V. S. skin, T.S. spinal cord, stomach, duodenum, ileum, rectum, pancreas, liver, lung, kidney, bone, cartilage, testis, ovary, placenta, pituitary gland, V. S. eye; striated muscle fibre.
3. **Dissection:** Through Chart / Model / Photograph / CD.
   Any bony fish : External features, general anatomy, afferent and efferent branchial vessels, brain, cranial nerves, eye ball, its muscles and innervations, internal ear, urinogenital system.
4. **Permanent mounting:**
   Cycloid and ctenoid scales, striated and non-striated muscle fibers, filoplume, blood film.
5. **Osteology:**
   A comparative study of articulated and disarticulated (original / artificial) bones of frog, *Varanus*, fowl and rabbit.
6. **Animal Behaviour:**
   a. Thigmotactic, phototactic, and chemotactic response of Paramecium.
   b. Antennal grooming in cockroach.
   c. Geotatic response in *Triboleum* and *earthworm.*
   d. Chemotactic response of Cockroach and Ant. (using synthetic pheromone).
   e. Social behavior of monkey/deer/bees/termite/langoors.
   f. Food preference in any insect.
   g. Observation and description of animals in wild/captivity and submission of report of this work.

Skeleton paper and Marking scheme

Duration: 4 Hrs. MM 50

Q1. Major dissection	05
Q2. Minor dissection	04
Q3. Slide preparation	04
Q4. Exercise on animal behavior	05
Q5. Spotting (2X10)	20
Q6. Report of field work (u/s 6g)	02
Q7. Class record	05
Q8, Viva-voce	05
Total	50

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