

SRI VENKATESWARA UNIVERSITY : : TIRUPATHI
ZOOLOGY SYLLABUS FOR IV SEMESTER
ZOOLOGY –PAPER-IV (THEORY)

EMBRYOLOGY , PHYSIOLOGY, ECOLOGY, ANIMAL BEHAVIOUR

TIME- 3 Hrs

MAX. MARKS -75

UNIT-1 (EMBRYOLOGY)

- 1.1. Gametogenesis & Fertilization
- 1.2. Types of Eggs – Alecithil, Microlecithil, Mesolecithil, Megalecithil & Centrolecithil.
- 1.2 . Development of Frog up to Gastrulation. Formation of Primary Germ Layers and their fate.
- 1.3. Foetal Membrane of Chick.
- 1.4 . Placentation in Mammals

UNIT-2: (PHYSIOLOGY- I)

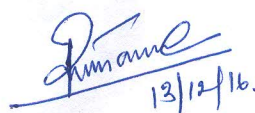
- 2.1. Digestion: Definition, Digestion of Carbohydrates, Proteins and Lipids. Absorption of digested food materials.
- 2.2. Respiration: Pulmonary Ventilation & Transport of Respiratory Gases
- 2.3. Circulation: Human Heart -Structure & Function and Cardiac Cycle.
- 2.4. Excretion: Structure of Human Kidney & Nephron and Urine Formation.

UNIT-3 (PHYSIOLOGY- II)

- 3.1. Nerve Impulse: Nature, Origin and Propagation- Local circuit theory, Saltatory Conduction & Synaptic Transmission.
- 3.2. Muscle Contraction: Ultra Structure of Skeletal Muscle Fiber & Sliding Filament Theory.
- 3.3; Human Endocrine Glands & Their Hormones: Hypothalamus, Pituitary, Pineal, Thyroid, Parathyroid and Adrenal glands, Pancreas and gonads.

UNIT-4 (ECOLOGY)

- 4.1. Meaning & Scope of Ecology
- 4 .2. Pond Ecosystem- Biotic & Abiotic Factors (Temperature, Light , Water), Food Chain & Energy Flow.
- 4.3. Bio-geo Chemical Cycles of Nitrogen, Carbon and Phosphorous
- 4.4 . Animal Habitat & Niche and Ecological Succession.
- 4.5. Community Interactions: Mutualism, Commensalism, Competition and Predation.



UNIT-5 (ANIMAL BEHAVIOUR)

- 5.1. Animal Behaviour: Definition & Types.
- 5.2. Innate Behaviour: Taxes & Reflexes- Reflex Arc Mechanism.
- 5.3. Learned Behaviour: Associate Learning (Eg. Classical Conditioning & Instrumental Learning).
- 5.4. Learning & Memory.
- 5.5. Biological Clocks & Circadian Rhythms.

Suggested Readings

- Gilbert , S. F.(2006) . Development Biology , VII Edition, Sinauer Associates , Inc., Publishers, Sunderland, Massachusetts, USA.**
- Balinsky, B.I.(2008). An Introduction to Embrology, International Thomson Computer Press.**
- Carlson , Bruce M (1996). Patten's Foundations of Embrology, Mc Graw Hill, Inc.**
- M.P Arora, ' Ecology ' Himalaya Publishing Company.**
- P.D Sharma, Environmental Biology.**
- P R Trivedi and Gurudeep Raj. ' Environmental Ecology.'**
- Buddhadev sarma and Tej Kumar, Indian Wildlife Thrarts and Preservation**
- Chapman J.L and Reiss M.J Ecology Principles and applications, Second Ed. Cambridge University Press, London .**
- Benny Joseph, Environmental Studies, TATA M Graw Hill Com., New Delhi.**
- Eugene P. Odum, Fundalmental of Ecology Third Ed., Nataraj Publishers, Dehradun.**
- Generd.J Tortora and Sandra Reynold Garwski Principles of Anatomu and Physiology , Tenth Ed. John Wiley & Sons**
- P D Sarma Ecology and environmental Rastogi Publications**
- P S Verma and V.K Agarwal-Evolution and Ecology –S Chand and Company**
- Arthur C. Guyton MD, A Tex Book of Medical Physiology , Eleventh ed., John E Hall Harcourt Asia ltd.**
- Sherwood Klandrof, Yanc , Human Physiology , Thompson Brooks/Colle, 2005**

Signature of BOS Chairman:

BOS: Members

SRI VENKATESWARA UNIVERSITY : : TIRUPATHI
ZOOLOGY MODEL QUESTION PAPER FOR IV SEMESTER
ZOOLOGY –PAPER-IV (THEORY)

EMBROLOGY , PSYSIOLOGY, ECOLOGY, ANIMAL BEHAVIOUR

TIME- 3 Hrs

MAX. MARKS -75

PART-A (Short Answer Questions) (5X5=25)

Answer any Five of the following. Each question carries 5 marks. Draw labeled diagrams wherever necessary

1. Types of Eggs
2. Gametogenesis
3. Structure of Nephron
4. Transport of Oxygen in Blood
5. Pituitary Gland
6. Energy Flow in an Eco System
7. Nitrogen Cycle
8. Ecological Niche

PART-B (Long Answer Questions) (5 x 10 = 50 Marks)

Answer any five questions . Each question carries 10 marks . Draw labeled diagrams wherever necessary

9. Write an essay on the development of Frog upto Gastrulation .
Or
Describe Placentation in Mammals.

10. Give an account of Process of Digestion in mammals.
Or
Explain the cardiac cycle and functioning in the human heart.

11. Write an account of the propagation of nerve impulse along a nerve fiber .
Or
Describe the ultra structure of muscle fiber and explain sliding filament theory of muscle contraction.

12. Write an essay on various types interactions in an animal community.
Or
Give an account on ecological succession.

SP
13/12/16


Prasanna
13/12/16
Dr. S. S. S. S.
12/12/16

13. What is associative learning? Explain it with reference to two examples you have studied.

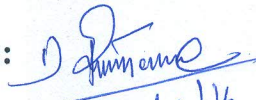
Or

Give account o circadian rhythms in animals

Signature of BOS Chairman

 13/12/16

BOS Members:


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EMBRYOLOGY , PHSYSIOLOGY, ECOLOGY

Periods-24

MAX. MARKS -50

1. Embryology

1.1 Observation of the following slides / handouts;

- ❖ Types of Eggs
- ❖ Frog Blastula
- ❖ Frog Gastrula

2. Physiology

- 2.1 Qualitative Tests for identification of carbohydrates, proteins and lipids.
- 2.2 Qualitative tests for identification of excretory products; ammonia, urea and uric acid.
- 2.3 Estimation of Haemoglobin (Sahli's Method)
- 2.4 Study of the histological slides / handout of stomach, intestine, liver, pancreas, lung, kidney, ovary and testis of any chordate.

3. Ecology

- 3.1 Estimation of salinity in a given water sample
- 3.2 Estimation of dissolved oxygen in a given water sample
- 3.3 Determination of PH of a given water sample.

- ❖ Certified Practical record should be submitted at the time of practical examination is compulsory .

Signatures

BOS Chairman

BOS Members:

13/12/16

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EMBRYOLOGY , PHSYSIOLOGY, ECOLOGY

Time : 2 hrs

MAX. MARKS -50

- | | | |
|------|---|-------------|
| Q. 1 | Physiology Experiment | - 10 M |
| Q. 2 | Ecolology Experiment | -10 M |
| Q. 3 | Slides or handouts | 5 X 4= 20 M |
| | A B C D E | |
| | (Two from Embryology & Three from Physiology) | |
| Q.4 | Certified Practical Record | -10 M |

Examiners are instructed to set the question paper as per the practical syllabus.

Slides	Identification	- 01 M
	Diagram	- 01 M
	Comments	- 02 M

Certified record is compulsory without certified record student is not admitted to Practical Exam.

Signatures

BOS Chairman

BOS Members:

13/12/16