

FIRST SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2020

(CCSS)

Applied Zoology

ZOO 1C 04—SYSTEMATICS AND ANIMAL BEHAVIOUR

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

Part A (Systematics)I. Write an essay on any *one* of the following :

- 1 Describe different types of classification.
- 2 Explain different species concepts.

(1 × 15 = 15 marks)

II. Write short essays on any *two* of the following :

- 3 Write an account on taxonomic collections.
- 4 Explain the methods and utility of molecular taxonomy.
- 5 Elaborate on the ethical aspects of taxonomic publications.
- 6 Describe type method and its significance in Taxonomy.

(2 × 10 = 20 marks)

III. Write short notes on any *five* of the following :

- 7 Functions of taxonomic characters.
- 8 Levels of taxonomy.
- 9 Synopses and Reviews.
- 10 First Reviser Principle.
- 11 Impediments to build up taxonomic collections and maintenance.
- 12 Ethological taxonomic characters.
- 13 Law of Homonymy.

(5 × 3 = 15 marks)

Turn over

Part B (Animal Behaviour)

IV. Write an essay on any *one* of the following :

- 14 Elaborate on the physiological aspects of behaviour.
- 15 Explain the role of genes and environment in the development of behaviour.

(1 × 15 = 15 marks)

V. Write short notes on any *five* of the following :

- 16 Contributions of Konrad Lorenz to Ethology.
- 17 Kinship selection.
- 18 Bruce effect.
- 19 Stimulus filtering.
- 20 An experiment to demonstrate genetic basis of behaviour.
- 21 Behaviourism.
- 22 Advantages and disadvantages of social life.

(5 × 3 = 15 marks)

CHMK LIBRARY UNIVERSITY OF CALICUT

FIRST SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2020

(CCSS)

Applied Zoology

ZOO 1C 03—BIOSPHERE ECOLOGY

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

I. Write essays on any *two* of the following. Each question carries 15 marks :

- 1 Elaborate on the ecology of tropical rain forests with reference to functions, threats and management.
- 2 Explain the concept and applications of bioremediation.
- 3 Elaborate on the various aspects of population growth.
- 4 Explain the concept of ecological modeling.

(2 × 15 = 30 marks)

II. Write short essays on any *three* of the following. Each question carries 10 marks :

- 5 Write on the important environmental laws in India.
- 6 What do you know about indexing of world's known species ?
- 7 Explain ozone hole. Describe its causes and effects.
- 8 "Species invasion is one of the major causes of loss of biodiversity". Explain.
- 9 Explain the concept of environmental monitoring utilizing living organisms.

(3 × 10 = 30 marks)

III. Write short notes on any *five* of the following. Each question carries 10 marks :

- 10 Paris Agreement on climate change.
- 11 Applications of molecular ecology in agriculture.
- 12 Concept of sustainable development.

Turn over

- 13 Jaccard's Similarity index.
- 14 Mechanism of soil erosion.
- 15 Biofilms.
- 16 Coral bleaching
- 17 Role of remote sensing in ecological research.

(5 × 4 = 20 marks)

CHMK LIBRARY UNIVERSITY OF CALICUT

FIRST SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2020

(CCSS)

Applied Zoology

ZOO 1C 02—BIOPHYSICS AND BIostatISTICS

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

Part A (Biophysics)I. Write an essay on any *one* of the following :

- 1 Explain the principle and applications of TEM and SEM.
- 2 Describe different spectroscopic techniques.

(1 × 15 = 15 marks)

II. Write short essays on any *two* of the following :

- 3 Write on liquid scintillation counter and its applications.
- 4 Explain the various biophysical and chemical aspects of osmosis.
- 5 Write on immuno electrophoresis.
- 6 Explain HPLC.

(2 × 8 = 16 marks)

III. Write short notes on any *three* of the following :

- 7 Patch clamp recording.
- 8 FACS.
- 9 Flow cytometry.
- 10 Stoke-Einstien's law.
- 11 CAT.

(3 × 3 = 9 marks)

Part B (Biostatistics)IV. Write an essay on any *one* of the following :

- 12 What is probability distribution ? Explain different types.
- 13 What is ANOVA ? Write on different techniques of ANOVA.

(1 × 15 = 15 marks)

Turn over

V. Write short essays on any *two* of the following :

- 14 Write on different types of regression.
- 15 What is statistical inference ? Explain chi-square test.
- 16 Explain measures of central tendency.
- 17 Write briefly on the methods of estimating population density.

(2 × 8 = 16 marks)

VI. Write short notes on any *three* of the following :

- 18 Parametric and Non-parametric test.
- 19 Variable.
- 20 Standard deviation.
- 21 Random sampling.
- 22 Correlogram.

(3 × 3 = 9 marks)

CHMK LIBRARY UNIVERSITY OF CALICUT

FIRST SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2020

(CCSS)

Applied Zoology

ZOO 1C 01—BIOCHEMISTRY

(2019 Admissions)

Time : Three Hours

Maximum : 80 Marks

I. Write essays on any *two* of the following :

- 1 Explain citric acid cycle.
- 2 Write on fatty acid biosynthesis.
- 3 Present the classification of amino acids.
- 4 Explain Michaelis-Menten mechanism of enzyme catalysis.

(2 × 15 = 30 marks)

II. Write short essays on any *three* of the following :

- 5 Elucidate the role of ATP in biological systems.
- 6 Briefly explain glycogenesis.
- 7 Explain the structure, types and functions of prostaglandins.
- 8 What are coenzymes ? List out coenzyme forms of B complex vitamins with their significance.
- 9 Briefly describe Electron Transport Chain.

(3 × 10 = 30 marks)

III. Write short notes on any *five* of the following :

- 10 What is Lineweaver-Burke plot ? Mention its advantages.
- 11 Distinguish between entropy and enthalpy.
- 12 Write a short account on alpha and omega oxidation of fatty acids.
- 13 Write on zwitter ions ?

Turn over

- 14 What is Deamination ? Give an example.
- 15 Give an account on uncouplers of oxidative phosphorylation.
- 16 What are disaccharides ? Give the structure of a disaccharide.
- 17 A mixture of 0.20 M acetic acid and 0.30 M sodium acetate is given. Calculate the P^{H} of the medium if the $\text{P}^{\text{K}^{\text{a}}}$ of the acetic acid is 4.76.

(5 × 4 = 20 marks)

CHMK LIBRARY UNIVERSITY OF CALICUT