

SHRI R.L.T. COLLEGE OF SCIENCE, AKOLA
ZOOLOGY- QUESTION BANK

B.Sc. II (SEM IV)

Session: 2021-22

Advanced Genetics and Animal Ecology

Name of Teacher-Archana S. Sawarkar

UNIT –I

A) Long answer questions 12 Marks each

- Q. 1) Explain Mendel's Law of Independent Assortment with suitable example.
- Q. 2) Explain Mendel's Law of Dominance and Law of Segregation.
- Q. 3) Explain Dihybrid cross with suitable example.
- Q. 4) What is mean by Interaction of Gene? Describe Complementary and Supplementary Factor.
- Q. 5) Explain Complementary and Duplicate Factor.
- Q. 6) Explain Supplementary Factor and Inhibitory Factor.
- Q.7) What is mean by Interaction of Gene? Describe Lethal Factor and Duplicate Factor.

B) Short answer questions 4 Marks each

- a) Complementary factor.
- b) Supplementary factor.
- c) Duplicate factor.
- d) Lethal factor.
- e) Inhibitory factor.
- f) Monohybrid cross.
- g) Dihybrid cross.
- i) Law of Dominance
- j) Law of Segregation.
- k) Law of independent assortment.

UNIT –II

A) Long answer questions.....12 Marks each.

- Q. 1) What is linkage? Describe types linkage.
- Q. 2) What is crossing over? Describe the mechanism of crossing over
- Q. 3) Describe the types of linkage? Arrangement of linked genes.
- Q. 4) Describe the theories crossing over and give significance of crossing over
- Q. 5) Explain factor affecting crossing over and five significance of crossing over.

B) Short answer questions.....4 Marks each.

- a) Complete linkage in Drosophila.

- b) Incomplete linkage in Drosophila.
- c) Chiasma type theory of crossing over.
- d) Significance of crossing over.
- e) Linkage group and arrangement of linked genes
- f) Kinds of crossing over.
- g) Break and Exchange theory.
- h) Copy choice theory

Unit-III

A) Long answer questions. 12 marks.

- Q.1) Give a brief account on chromosomal theory of sex determination in animals.
- Q.2) Describe in details Environmentally and Hormonally controlled sex determination.
- Q.3) Give an account on Genetic Disorders: 1) Edward's syndrome and 2) Down's syndrome.
- Q.4) Describe in Details Non-disjunction: 1) Turner's syndrome 2) Down's syndrome.
- Q. 5) Give brief account on sex linked genetic disorders and their inheritance in man

B) Short answer questions.....4 Marks each.

- a) Sickle cell anemia.
- b) Diabetes mellitus.
- c) Turner's syndrome.
- d) Albinism.
- e) Down's syndrome.
- f) Hemophilia.
- g) PKU (phenylketonuria).
- h) Edward's syndrome.
- i) Goiters.
- j) Colour blindness.
- k) AKU (alkaptonuria).
- l) Huntingtin's chorea.
- m) Cystic fibrosis.
- n) Autosomes and sex chromosomes.

Unit-IV

A) Long answer questions. 12 marks.

- Q.1) Give brief account on recessive genes and consanguineous marriages.
- Q.2) Describe in detail Birth control measures (male and female).
- Q.3) Explain in detail – kinds of twins and add note on significance of twins study.
- Q.4) Give an brief account on genes on human heredity, Inheritance of eye and skin colour.

B) Short answer questions.....4 Marks each.

- a) CVS (Chorionic Villus Sampling)

- b) Kinds of Twins.
- c) Amniocentesis.
- d) Birth control measures in male.
- e) Significance of twins.
- f) Inheritance of skin colour.
- g) DNA analysis.
- h) Inheritance of eye colour.
- i) Gene probe.
- j) Birth control measures in Female.

Unit-V

A) Long answer questions. 12 marks.

- Q.1) Describe the biological effects of temperature on animals.
- Q.2) Describe the biological effect of light on animals.
- Q.3) Explain the properties of water in respect to animal life.
- Q.4) Describe the water problems faced by animals of terrestrial habitat.
- Q.5) Discuss the movements of an organism with response to light.
- Q.6) Explain the intraspecific and interspecific competition among the living organisms

B) Short answer questions.....4 Marks each.

- a) Dormancy
- b) Aestivation
- c) Hibernation
- d) Water problem in freshwater animals
- e) Water problem in Marine animals
- f) Diapause in insects
- g) Spectral distribution of light
- h) Photokinesis
- i) Photoperiodism
- j) Effect of light on migration
- k) Predation
- l) Mutualism
- m) Commensalism

Unit-VI

A) Long answer questions. 12 marks.

- Q.1) Give an account on Lentic and lotic ecosystem.
- Q.2) Explain the characteristics of Marine ecosystem with special reference to salinity and temperature.

B) Short answer questions.....4 Marks each.

- a) Food web

- b) Pyramid of energy
- c) Salinity of marine ecosystem
- d) Lentic ecosystem
- e) Lotic ecosystem
- f) Autotrophs
- g) Heterotrophs
- h) Energy flow in ecosystem
- i) Estuarine ecosystem
- j) Zonation in Marine ecosystem
- k) Ecological niche
- l) Ecotypes



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