

VI Semester B.Sc. Examination, May/June 2018
(CBCS) (F+R) (2016-17 and Onwards)
ZOOLOGY – VII
Genetics and Biotechnology

Time : 3 Hours

Max. Marks : 70

Instructions : 1) **Draw** labelled diagrams **wherever** necessary.
2) Answers should be **completely** in **Kannada** or **English**.

PART – A

(5×3=15)

I. Answer **any five** of the following :

- 1) Write a note on norm of reaction.
- 2) Define :
 - a) Rh factor
 - b) Gene interaction
 - c) Polygenes.
- 3) List any three applications of blood groups.
- 4) Write a note on biological mutagens.
- 5) Mention the names of components of rDNA technology regarded as
 - a) Molecular scissors
 - b) Molecular glue
 - c) Molecular vector.
- 6) Give an account of bioreactors.
- 7) List the applications of stem cells.

PART – B

II. Answer **any five** of the following :

(5×5=25)

- 1) State the law of segregation. Explain it with a suitable example.
- 2) Write notes on :
 - a) Y-linked inheritance
 - b) Criss-cross inheritance.

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- 3) Describe cytoplasmic inheritance of coiling of shells in snail.
- 4) Explain CIB method of detection of mutations.
- 5) Define eugenics. Explain any two aspects of negative eugenics.
- 6) Mention the benefits and limitations of embryo transfer.
- 7) What is gene therapy ? Explain any two approaches of gene therapy.

PART - C

(3×10=30)

III. Answer **any three** of the following :

- 1) With reference to the inheritance of comb shape in fowls, work out the following :
 - A) Homozygous rose comb is crossed with single comb.
 - B) Homozygous pea comb is crossed with single comb.
 - C) Conduct a cross between F_1 of A and B, find the offsprings.
- 2) What is aneuploidy ? Give an account of one autosomal and one allosomal aneuploidy.
- 3) Explain inducible operon concept with a suitable example.
- 4) Write notes on :
 - a) Genic balance theory
 - b) Sickle cell anaemia.
- 5) Define transgenesis. Explain knock-out and knock-in transgenesis technology in mice.
- 6) Write notes on :
 - a) Hybridoma technology
 - b) DNA fingerprinting.