Progressive Education Society's
Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16
(Autonomous)
End Semester Examination: MAR / APR 2025
Faculty: Science and Technology

Program: BScGen03 **Semester: VI** **SET: A**
Program (Specific): Zoology **Course Type: DSEC**
Class: T.Y.B. Sc **Max.Marks: 35**
Name of the Course: Tools and Techniques in Biology
Course Code: 24- ZO-365 **Time: 2Hr**
Paper: V

Instructions to the candidate:

1) *There are 5 sections in the question paper. Write each section on separate page.*
2) *All Sections are compulsory.*
3) *Figures to the right indicate full marks.*
4) *Draw a well labelled diagram wherever necessary.*

Q1) Define or Explain **5**

a) What is microscope?

b) Define Coagulants.

c) Define Sample size.

d) Define Biological Databases.

e) What is the principle of PCR?

Q2) Very short answer questions (Attempt any 4/6) **4**

a) Describe Transmission Electron microscope.

b) What is Clotting Time?

c) Define species richness.

d) Comment on the general principle of Dehydration.

e) Define Impregnation.

f) What is Shannon index? How it is calculated?

Q3) Short answer questions (Attempt any 4/6) **8**

a) Enlist the types of PCR.

b) Explain Nuclear aperture with diagram.

c) Give an account of clearing agents.

d) Describe the Fab region of Antibody.

e) Name the type of interaction present in the Antigen-Antibody.

f) Comment on the general principle of Dehydration.

Q4) Short answer questions (Attempt any 4/6) **8**

a) Describe the various methods of Fixation.

b) Define Neutralization reaction.

c) Explain the significance of total count of Erythrocytes by Hemocytometry.

d) Write a short note on types of microtome knives.

e) Give the names of the tools used in Bioinformatics.

f) How are the WBCs counted?

Q5) Long answer type Questions **10**

Attempt any two of the following (2/4)

a) What is ELISA? Explain the principle and types of ELISA.

b) Distinguish between Affinity and Avidity.

c) Give a detailed account of the general procedure for staining of sections.

d) Explain the principle and working of Phase contrast microscope.