

2015

ZOOLOGY

( Major )

Paper : 5.4

Full Marks : 60

Time : 3 hours

*The figures in the margin indicate full marks  
for the questions*

1. Answer the following questions in brief :  $1 \times 6 = 6$

- (a) Which instrument measures colour of a sample?
- (b) What is the principle of cryopreservation?
- (c) What is radiotracer?
- (d) What is the measure of central tendency?
- (e) What is the application of fluorescence microscope?
- (f) Write the principle of geometric mean.

2. Answer any *five* of the following questions :

2×5=10

- (a) What is the basic difference between colorimeter and spectrophotometer?
- (b) Distinguish between paper chromatography and thin-layer chromatography.
- (c) Distinguish between median and mode.
- (d) Describe the basic principle of ultracentrifugation.
- (e) Describe the significance of regression.
- (f) Write the application of ANOVA in biological science.

3. Answer any *three* of the following questions :

5×3=15

- (a) Describe the uses of spectrophotometer in zoology.
- (b) Define harmonic mean with suitable example.
- (c) Describe 'less than ogive' with suitable example.

( 3 )

- (d) The following are the 6 groups of planktons collected from three sampling stations of river Brahmaputra. Represent the data using bar diagram :

Planktons	Site-1	Site-2	Site-3
Bacillariophyceae	55	64	69
Chlorophyceae	105	98	78
Cyanophyceae	59	61	62
Copepoda	53	52	61
Rotifers	43	38	32
Cladocera	23	25	27

4. Calculate median from the following data : 4

<i>x</i>	0-10	10-20	20-30	30-40	40-50	50-60	60-70
<i>f</i>	6	14	16	27	22	15	18

Or

What do you mean by sampling units? Describe the merits and demerits of random sampling techniques. 1+3=4

5. Describe the principle and application of thin-layer chromatography. 2+3=5

Or

Write the procedure and application of agarose gel electrophoresis. 5

( 4 )

6. What is independent sample  $t$ -test? Describe when to use the independent sample  $t$ -test. Discuss independent sample  $t$ -test with suitable example.  $2+2+6=10$

Or

Describe the principle and procedure of autoradiography for study or to understand cellular function. Describe its various applications.  $3+3+4=10$

7. Describe the principle of electron microscopy. Write the procedure and application of Transmission Electron Microscopy (TEM).  $2+4+4=10$

Or

Discuss the principle and procedure of cryopreservation techniques for preservation of egg and sperm.  $5+5=10$

★ ★ ★