2019

ZOOLOGY

(Major)

Paper : 5.4

(Biological Techniques and Biostatistics)

Full Marks : 60

Time : 3 hours

The figures in the margin indicate full marks for the questions

1. Answer the following questions : 1×7=7

(a) What is paired *t*-test?

(b) What is numerical aperture (NA) of a microscope?

(c) State the significance of pH value.

(d) How can long oocyte be frozen?

(e) Write the principle of geometric mean.

(f) What is radiotracer?

(g) What is reverse phase chromatography?

2. Answer any *four* of the following questions : 2×4=8

(a) What do you mean by standard error of mean?

(b) What is fluorescence chemical?

(c) State the significance of Chi-square test.

(d) What is cryotome?

(e) Define concept of data and data processing.

3. Answer any *five* of the following questions : 3×5=15

(a) What is Lambert-Beer law? Establish the relation between absorption and concentration.

(b) Write the utility of biostatistics.

(c) Discuss the basic difference in working principles of scanning electron microscope and transmission electron microscope.

(d) What is computer language? Which programme language is used in Unix?

(e) What is radioisotope? Write briefly the uses of radioisotopes in chromatographic process.

(f) What is correlation in statistics? Explain the Karl Pearson's co-efficient of correlation.

(*Continued*)

4. What do you understand by sampling error? Write on the types of sampling error. What are the methods used to reduce sampling error? 3+4+3=10

Or

What is regression equation? What is line of best fit? Describe regression equation Y on X with suitable example. 2+2+6=10

5. What is assisted reproductive technology? Write about the different types of freezing process for sperm and ova preservation. Mention the characteristics of cryoprotectant. 3+5+2=10

Or

What is electrophoresis? Write about the theory of electrophoresis. Describe about the immunoelectrophoresis. 2+3+5=10

6. Describe the working principle and application of fluorescence and phase contrast microscopy with suitable illustrations. 5+5=10

(*Turn Over*)

Or

What is the basic principle of gas chromatography? Write about the application of gas chromatography in biology. Distinguish between paper chromatography and thin-layer chromatography. 2+6+2=10

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