2016

ZOOLOGY — HONOURS

Seventh Paper

(Unit – I)

Full Marks – 50

The figures in the margin indicate full marks

Candidates are required to give their answers in their own words as far as practicable

Answer ***Question No. 1*** and ***any four*** from the rest

1. Answer ***any five*** of the following : 2×5

   (a) What is polyculture?

   (b) State the differences between penaeid and non-penaeid prawns.

   (c) Write down the causative organism and symptoms of Botulism.

   (d) What is a variable?

   (e) Write down the chemical composition of silk.

   (f) What do you mean by "degrees of freedom"?

   (g) What is meant by Monophagous pest? Give one example.

   (h) What is a teratogen? Name one teratogen.

   (i) What is 'contact insecticide'? Name one contact insecticide extracted from plant.

2. *(a)* State various advantages of induced breeding of carp. Mention the causative agent, symptoms and treatment of knot disease in fish. 2+3

   (b) What do you mean by 'measures of central tendency'? What are the advantages of calculating mode? Find the median from the following data recorded on number of fishes captured per net : 2+1+2

   5, 19, 42, 11, 50, 30, 21, 0, 52, 36, 27.

3. *(a)* What is student's t-test? A drug was administered to 10 patients and the increments in their diastolic pressure were recorded to be 4, 6, 0, 6, 3, –3, –2, 0, 4 and 2. Is it reasonable to believe that the drug has no effect on change of diastolic blood pressure? (Use 5% level of significance and assume that for 9 degrees of freedom, $t_{0.5,\,9} = 2.26$) 1+4

   (b) Give an illustrative account of life cycle of Brinjal fruit-borer studied by you. Make a comment on the biological control of the pest. 3+2

4. *(a)* Write down the composition of Royal Jelly. Discuss the precautions to be taken during artificial inoculation of lac. 2+3

(b) What is product-moment correlation? When can correlation be negative? Explain with example, what is meant by dependent event? 2+1+2

5. *(a)* What is reeling? Discuss two bacterial diseases of silk moth and their control measures. 1+4

(b) What do you mean by standard error? Calculate Karl Pearson's co-efficient between marks in Biometry and Biophysics obtained by 5 students :

Marks in Biometry	35	30	15	45	20
Marks in Biophysics	25	25	20	35	15

2+3

6. *(a)* Name four common breeds of cow in India. What is mad-cow disease? What do you mean by 'corn-fed' cattle? 2+2+1

(b) Crossing a grey-bodied scarlet-eyed *Drosophila* with a black-bodied red-eyed one produced all grey-bodied red-eyed flies in the F_1 generation. On crossing the F_1 flies, The F_2 generation gave following phenotypes : grey-bodied red-eyed = 362; black-bodied red-eyed = 128; grey-bodied scarlet-eyed=122; black bodied scarlet-eyed = 44. Do the data have a goodness of fit with the Mendelian 9 : 3 : 3 : 1 distribution? 5

7. *(a)* Write down the advantages of chick farming. What is intensive system of fowl farming? Why is it necessary to mention duration of exposure in case of LC_{50} value of a chemical? 2+1+2

(b) Explain the "Product Rule" and "Addition Rule" of probability. Assuming a sex ratio of 1 : 1 what is the probability that a family of 4 children will consist of (i) 3 daughters and 1 son, (ii) all daughters? 2+3

8. Write notes on ***any four*** of the following : $2\frac{1}{2} \times 4$

(a) Semi-intensive prawn farming

(b) Biofouling organisms of Pearl oysters

(c) Deep litter system

(d) Contingency chi-square

(e) Ecology of ***Bandicota bengalensis***

(f) Normal distribution

(g) Caste system of honey bees.