2011

ZOOLOGY

(Major) III yr

Paper : 3.3

Time : 3 hours

The figures in the margin indicate full marks for the questions

Candidates ***eligible*** *for Internal Assessment shall answer from* PART—I *only* (*Marks* : 90)

Candidates ***not eligible*** *for Internal Assessment shall answer both from* PART—I *and* PART—II (*Marks* : 100)

PART—I

(*Marks* : 90)

Unit—I

(Biostatistics)

(*Marks* : 20)

1. What is Chi-square test? State the significance of chi-square test. In *Drosophila* bent wing is recessive to normal wing and purple eye colour is recessive to red eye colour. In an experiment, it was observed

that 315 normal wing–red eye colour, 108 bent wing–red eye colour, 101 normal wing–purple eye colour and 32 bent wing–purple eye colour *Drosophila* individuals were produced in F_2 generation from a parental cross between normal wing–red eye colour and bent wing–purple eye colour individuals. Test the hypothesis that the *Drosophilas* in F_2 generation are in 9 : 3 : 3 : 1 ratio at 1% level of significance ($\chi^2_\alpha = 11 \cdot 345$ at 3-degree of freedom).

3+7+10=20

Or

Write short notes on (any *two*) : 10×2=20

(a) *t*-test

(b) Use of computer in biology

(c) Sampling units and their selection

(d) Regression analysis

Unit—II

(Ecology)

(Marks : 25)

2. How does energy flow in an ecosystem? Describe different models proposed to explain energy flow in various ecosystems.

5+10=15

Or

What are the qualitative and quantitative features of community? Discuss different indices of diversity and dominance. Write a short note on ecological efficiencies. 4+7+4=15

3. Write short notes on (any *two*) : 5×2=10

(a) Man-made ecosystem

(b) Role of hypothalamus in thermo-regulation in homeotherms

(c) Grassland ecosystem

Or

What is toxicity? What are different classes of environmental toxicants? Explain the mechanism of toxicant action. 2+2+6=10

Unit—III

(Animal Behaviour)

(Marks : 25)

4. Define learning. How imprinting differs from other modes of learning? Write briefly on neural mechanism of learning. 3+4+8=15

Or

State, in detail, how motivation in relation to feeding and drinking can be measured. Discuss the Lorenz's model of motivation. 10+5=15

5. Write short notes on (any *two*) : 5×2=10

(a) Aggression

(b) Dance language of bee

(c) Genetic basis of behaviour

Or

What is biological communication? Discuss different modes of communication in animals with example. 2+8=10

Unit—IV

(Wildlife Management and Conservation)

(Marks : 20)

6. What do you understand by endangered species? Give a comprehensive list of endangered mammals of North-East India. Describe the conservation strategies of the endangered species of the region. 4+8+8=20

Or

Write short notes on : 5×4=20

(a) Ethology of rhinoceros

(b) Biosphere reserves

(c) Family ties

(d) Carrying capacity

PART—II

(*Marks* : 10)

(In lieu of Internal Assessment)

7. Write notes on : 5×2=10

(a) Correlation

(b) Significance of ANOVA

Or

"Honeybee maintains social behaviour during its life cycle." Justify. 10

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