TDC Even Semester Exam., 2019

ECOLOGY AND ENVIRONMENTAL SCIENCE

(Honours)

(4th Semester)

Course No. : EESH–402

(Systematics and Biogeography)

Full Marks : 35
Pass Marks : 12

Time : 2 hours

The figures in the margin indicate full marks for the questions

Answer **five** questions, taking **one** from each Unit

UNIT—I

1. *(a)* Define systematics. How does it differ from taxonomy? 1+2=3

(b) What are meant by alpha, beta and gamma taxonomies? 2

(c) What are meant by taxonomic keys? Explain briefly. 2

2. *(a)* Define palynology. How is palynology important in taxonomy of plant kingdom? Explain briefly. 1+3=4

(b) Give a note on taxonomic databases. 3

UNIT—II

3. *(a)* What is meant by operational taxonomic unit? Elucidate. 3

(b) What are phenetic and cladistic classifications? Compare phenograms with cladograms. 2+2=4

4. *(a)* Define phylogenetic tree. Differentiate between rooted and unrooted phylogenetic trees. 2+2=4

(b) Describe briefly the DNA bar coding as a new tool for identifying biological specimens. 3

UNIT—III

5. *(a)* What is Biogeography? 1

(b) State the Bergmann's rule. How was the rule invalidated by Valerius Geist? 2+2=4

(c) What is meant by endemism? 2

6. *(a)* What is Gloger's rule? Cite example. 2

(b) Discuss briefly the geographical limits, overall climatic conditions and principal faunal composition of six zoo-geographical realms of the earth. 5

UNIT—IV

7. *(a)* What are meant by allopatric and sympatric speciations? Elucidate. 3

(b) What is ecotype? Give a note on the phenomenon of ecological diversification. 1+3=4

8. Give short notes on the following : 3½×2=7

(a) Adaptive radiation

(b) Convergent evolution

UNIT—V

9. *(a)* What are the principles of remote sensing? Elucidate. 3

(b) Discuss the applications of remote sensing in conservational planning. 4

10. *(a)* What are meant by GIS and GPS? 2

(b) Discuss the approaches to landscape conservation and role of GIS in the process. 5

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