



**2019/TDC/ODD/SEM/EESSEC-301T/
I/II/195**

TDC (CBCS) Odd Semester Exam., 2019

**ECOLOGY AND ENVIRONMENTAL SCIENCE
(3rd Semester)**

Course No. : EESSEC-301T

Full Marks : 50

Pass Marks : 20

Time : 3 hours

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

Option—I for Honours Students and Option—II for
Pass Students

OPTION—I

(For Honours Students)

Course No. : EESSEC-301T

**(Remote Sensing, Geographic Information
System Modelling)**

Answer questions according to the instructions
provided alongside. All Units are to be attempted.

UNIT—I

1. Answer any *three* of the following in (Very short type) : $1 \times 3 = 3$
(a) Give one example of a satellite used in remote sensing.

(2)



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(3)

- (b) Give one example of a sensor.
(c) Name the visible part of the electromagnetic spectrum.
(d) Which of the two has longer wavelength—infrared or ultraviolet ray?

2. Answer any one of the following (Short type) : 2

- (a) Define remote sensing.
(b) Define aerial photography.

3. Answer any one of the following (Broad type/Essay type) : 5

- (a) Describe spectral signature and its use in remote sensing.
(b) What do you understand by image interpretation? Describe briefly the basic techniques of image interpretation.

UNIT—II

4. Answer any three of the following as directed (Very short type) : $1 \times 3 = 3$

- (a) Give one example of raster data.
(b) Address of a person is an example of raster data/vector data.

(Choose one of two)

- (c) Name one hardware used for GIS.
(d) Name two functions of GIS.

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(Continued)

5. Answer any one of the following (Short type) : 2

- (a) Define geographical information system.
(b) Name the various components of geographical information system.

6. Answer any one of the following (Broad type/Essay type) : 5

- (a) Distinguish between aspatial and spatial data giving examples of each type. Describe the uses of these types of data.
(b) Distinguish between raster and vector data. Give examples and uses of both raster and vector data.

UNIT—III

7. Answer any three of the following as directed (Very short type) : $1 \times 3 = 3$

- (a) What is the full form of GPS?
(b) Name two softwares used for GIS.
(c) Name the instrument used to import maps into the GIS.
(d) Agricultural land is an example of landuse/land cover.

(Choose one of two)

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(Turn Over)



(4)

(5)

8. Answer any one of the following (Short type) : 2

- (a) What is ground truthing?
- (b) Define landuse and land cover with examples.

9. Answer any one of the following (Broad type/Essay type) : 5

- (a) Describe briefly the data processing in GIS.
- (b) What is the importance of data base management? How is GIS an efficient database management system?

UNIT—IV

10. Answer any three of the following as directed (Very short type) : 1×3=3

- (a) Name two fields of natural resource management where remote sensing and GIS may be applied.
- (b) Name one application of remote sensing and GIS in the field of agriculture.
- (c) What type of sensor may be used for atmospheric studies?
- (d) Microwave sensors/optical sensors are useful for geological studies.

(Choose any one)

11. Answer any one of the following (Short type) : 2

- (a) Explain two applications of remote sensing in forestry.
- (b) Explain two applications of remote sensing in marine studies.

12. Answer any one of the following (Broad type/Essay type) : 5

- (a) Briefly describe application of remote sensory and GIS in land-use planning.
- (b) Describe application of remote sensing and GIS in water resource management.

UNIT—V

13. Answer any three of the following as directed (Very short type) : 1×3=3

- (a) Name two types of distribution of data.
- (b) Name two types of sampling techniques.
- (c) Name two types of measurement of variation in Statistics.
- (d) When data is normally distributed, we conduct parameter/non-parametric tests. (Choose any one)



14. Answer any *one* of the following (Short type) : 2

- (a) Define skewness and its significance.
 (b) When do we conduct correlation tests? Give examples.

15. Answer any *one* of the following (Broad type/Essay type) : 5

- (a) What is hypothesis testing? Explain its significance.
 (b) What is a sample? Describe the various types of sampling with the help of diagrams.

OPTION—II

(For Pass Course Students)

Course No. : EESSEC-301T

(Bamboo Cultivation, Utilization and Management)

PART—A

Answer any 15 questions, taking any *three* from each Unit : 1×15=15

UNIT—I

1. (a) What is bamboo?
 (b) What is the origin of word 'bamboo'?
 (c) What is mortality?
 (d) What are the different rhizome types of bamboo?

UNIT—II

2. (a) Which bamboo part has highest commercial value?
 (b) Name an economically important bamboo.
 (c) Name two traditionally important bamboo.
 (d) Name two bamboo-based fishing crafts.

(8)



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(9)

UNIT—III

3. (a) What is bamboo propagation?
(b) Name two types of bamboo propagation.
(c) What is branch cutting?
(d) The solid joint of each bamboo segment that produces roots is called _____.

UNIT—IV

4. (a) The edible part of bamboo is _____.
(b) Name two edible bamboo species of North-East India.
(c) What is the storage period for fresh bamboo shoots?
(d) Name two indigenous communities who traditionally ferment bamboo shoots for food.

UNIT—V

5. (a) Name two forest bamboo species.
(b) What is the general bamboo flowering intervals?
(c) Define the term 'gregarious flowering'.
(d) Name two important pests of Bamboo in South-East Asia.

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(Continued)

PART—B

Answer any *five* questions, taking one from each Unit : 2×5=10

UNIT—I

6. (a) What are the culm characteristics of bamboo?
(b) Distinguish between monopodial and sympodial bamboos with examples.

UNIT—II

7. (a) What are the most important traditional uses of bamboo?
(b) Name some bamboo species that are widely used in paper industry.

UNIT—III

8. (a) What are the infrastructure facilities required for tissue culture?
(b) Give a detailed account on polyhouse.

UNIT—IV

9. (a) Give some health benefits of bamboo shoots.
(b) Write some traditional recipes of bamboo shoots.

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(Turn Over)

(10)



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UNIT—V

10. (a) What are the nutrient and fertilizers requirements in bamboo plantation management?
- (b) Explain harvesting strategies of forest bamboos.

PART—C

Answer any five questions, taking one from each Unit : $5 \times 5 = 25$

UNIT—I

11. (a) Briefly explain the distribution of bamboo in North-East India.
- (b) Explain culm sheath, culm emergence, culm elongation and culm production.

UNIT—II

12. (a) Give a note on bamboo utilization in incense and paper industry.
- (b) Give a detailed explanation on commercial utility of bamboo.

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(Continued)

(11)

UNIT—III

13. (a) Explain the concept of tissue culture in bamboo.
- (b) Briefly explain the techniques of nursery management.

UNIT—IV

14. (a) Explain in detail about processing techniques of bamboo shoots.
- (b) Explain the preservation techniques of bamboo shoots.

UNIT—V

15. (a) Give a detailed account on control mechanism of bamboo diseases.
- (b) What are the management strategies adopted before and after gregarious flowering of bamboo?

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