



**2022/TDC/ODD/SEM/  
EESSEC-301T (A/B)/395**

**TDC (CBCS) Odd Semester Exam., 2022**

**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*

Candidates have to answer  
either from Option—A or Option—B

**OPTION—A**

Course No. : EESSEC-301T (A)

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

**UNIT—I**

1. Answer any *three* from the following  
questions : 1×3=3

(a) Define remote sensing.



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- (b) Name two manmade satellites.  
(c) Define sensor.  
(d) Define aerial photography.
2. Answer any *one* from the following questions : 2
- (a) What is digital image interpretation?  
(b) What is the use of active remote sensing?
3. Answer any *one* from the following questions : 5
- (a) Describe the interaction of electromagnetic radiation with the earth's surface using a labelled diagram.  
(b) What is spectral signature? Draw the spectral signatures of water, soil and vegetation.

UNIT—II

4. Answer any *three* from the following questions : 1×3=3
- (a) Define geographic information system.  
(b) What is overlaying?

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- (c) Give one example of spatial data.  
(d) Give one example of vector data.
5. Answer any *one* from the following questions : 2
- (a) Give two differences between spatial and non-spatial data.  
(b) Give two differences between raster and vector data.
6. Answer any *one* from the following questions : 5
- (a) Describe a GIS and its various components.  
(b) Describe with examples the various types of data used in GIS.

UNIT—III

7. Answer any *three* from the following questions : 1×3=3
- (a) What is the use of GPS?  
(b) Define data import.  
(c) Name one GIS software package.  
(d) Define landuse.

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( Turn Over )



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8. Answer any *one* from the following questions : 2
- (a) Distinguish between landuse and landcover. Give examples of each.
  - (b) Describe any GIS software package briefly.
9. Answer any *one* from the following questions : 5
- (a) Discuss the process of landuse/land-cover mapping in detail.
  - (b) Discuss the utilities of GPS survey in GIS.

UNIT—IV

10. Answer any *three* from the following questions : 1×3=3
- (a) Define geosciences.
  - (b) Name the forest resources that can be studied through remote sensing.
  - (c) Give one use of remote sensing in agriculture.
  - (d) What is water resource management?

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11. Answer any *one* from the following questions : 2
- (a) Give two applications of remote sensing in landuse planning.
  - (b) Give two applications of remote sensing in geosciences.
12. Answer any *one* from the following questions : 5
- (a) Discuss the applications of remote sensing in forest studies.
  - (b) Discuss the applications of remote sensing in water resource management.

UNIT—V

13. Answer any *three* from the following questions : 1×3=3
- (a) Define normal distribution.
  - (b) Define central tendency.
  - (c) Name two parametric tests.
  - (d) Give two benefits of non-parametric test.



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14. Answer any one from the following questions : 2

- (a) What is regression? Give one application.
- (b) What is dispersion of the central tendency? Give two examples.

15. Answer any one from the following questions : 5

- (a) What is null hypothesis? Discuss the testing of hypothesis and its relevance.
- (b) In an experiment to measure length of seedling, the following readings were obtained :

# Seedling	Length (cm)
1	10
2	8
3	3
4	12

Calculate the mean length and the standard deviation. What is the use of calculating standard deviation?

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OPTION—B

Course No. : EESSEC-301T (B)

( Bamboo Cultivation, Utilization and Management )

UNIT—I

1. Answer any three from the following questions : 1×3=3

- (a) Name the family that bamboo belongs to.
- (b) What is culm?
- (c) Define culm sheath.
- (d) What do you mean by sympodial bamboo?

2. Answer any one from the following questions : 2

- (a) Write about the distribution of bamboos in North-East India.
- (b) Write about the branching habit of bamboo.



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3. Answer any *one* from the following questions : 5
- (a) Give a detailed account of rhizome types in bamboos. 5
- (b) Describe culm elongation and shoot mortality of bamboo.  $2\frac{1}{2}+2\frac{1}{2}=5$

UNIT—II

4. Answer any *three* from the following questions :  $1\times 3=3$
- (a) What is the major chemical component of paper?
- (b) What is incense stick?
- (c) What is paper pulp?
- (d) Name two traditional uses of bamboo resources.
5. Answer any *one* from the following questions : 2
- (a) Mention the role of bamboos in rural socio-economy.
- (b) Define value-added craft.

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6. Answer any *one* from the following questions : 5
- (a) Give an account of commercial utilization of bamboos.
- (b) Describe the role of bamboo resources in paper industry.

UNIT—III

7. Answer any *three* from the following questions :  $1\times 3=3$
- (a) What is net house?
- (b) Define totipotency.
- (c) What is seedling nursing?
- (d) What is rhizome?
8. Answer any *one* from the following questions : 2
- (a) Write a note on polyhouse.
- (b) Briefly explain the vegetative propagation of bamboo.



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9. Answer any *one* from the following questions : 5

(a) Write notes on the following :  $2\frac{1}{2}+2\frac{1}{2}=5$

(i) Nursery bed preparation

(ii) Greenhouse

(b) Write about culm cutting and layering. Add a note on the concept of tissue culture.  $3+2=5$

UNIT—IV

10. Answer any *three* from the following questions :  $1\times 3=3$

(a) What do you mean by traditional fermentation of bamboo?

(b) What is bamboo shoot?

(c) Name two oriental bamboo recipes.

(d) What is preservation technique?

11. Answer any *one* from the following questions : 2

(a) Write about a few indigenous recipes from bamboo shoot.

(b) Write a note on nutritional properties of bamboo shoot.

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12. Answer any *one* from the following questions : 5

(a) Give an illustrated account of bamboo shoot and human health.

(b) Describe the processing technology for storage of fresh bamboo shoots.

UNIT—V

13. Answer any *three* from the following questions :  $1\times 3=3$

(a) Define silvicultural management.

(b) What is mass flowering?

(c) What do you mean by village bamboos?

(d) Name two insect pests of bamboo.

14. Answer any *one* from the following questions : 2

(a) Describe the flowering periodicity in bamboo.

(b) Write a note on plantation raising of bamboo.



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15. Answer any one from the following questions :

5

(a) Give a detailed account of nutrient and fertilizer management in bamboos.

(b) Give an illustrated account of bamboo diseases and their control.

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