

**18AA1602**

**M. Tech. EXAMINATION, 2021**

(First Semester)

(C-Scheme) (Main & Re-appear)

ENERGY AND ENVIRONMENTAL MANAGEMENT

EEM503C

Physio-Chemical and Ecological Processes in Environment

*Time : 2½ Hours]*

*[Maximum Marks : 75*

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Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

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**Note :** Attempt *Four* questions in all. All questions carry equal marks. Draw neat diagrams wherever applicable.

1. (a) What are Geochemical cycles ? Discuss Nitrogen cycle with suitable diagram.  
(b) Write short notes on the following :
  - (i) Trophic levels
  - (ii) Types of Ecosystem.
2. (a) Discuss the general process of Ecological Succession.  
(b) Discuss the characteristics of population and different types of food chain.
3. (a) What are different in-situ conservation methods of biodiversity ?  
(b) Discuss hot spots of biodiversity. Also discuss the IUCN category of threatened species.

4. (a) Explain measurement and threats of biodiversity. Why species are extricated day by day ?  
(b) How does you maintain Red Data Book ? Also discuss the process of Biological invasion.
5. (a) Differentiate between the following :
  - (i) Cation exchange capacity and Ion exchange
  - (ii) Chelation and Complexation.  
(b) What do you mean by Changing global atmosphere ?
6. (a) Discuss chemical composition of atmosphere and explain the precipitation and dissolution.  
(b) What are the significance of C : N ration in soil ?
7. What are the physico-chemical properties of soil ? How mobility of nutrients and trace elements takes place during soil genesis ?
8. What is the process of soil formation and distribution ? Also write the process of decomposition of organic matter in soil.
9. (a) Define soil erosion and soil organic matter.  
(b) Why lapse rate of the atmosphere changes with height ?  
(c) Define and differentiate between threatened species and endangered species.
  - (i) Define food web.
  - (ii) What is Hydrosere ?
  - (iii) Define biological invasion.
  - (iv) Role of NPK in soil.