January 2023

M.Tech.- I SEMESTER

Energy, Ecology and Environment (MTEVE-102A)

Time: 3 Hours   Max. Marks:75

Instructions: 1. It is compulsory to answer all the questions (1.5 marks each) of Part -A in short.
2. Answer any four questions from Part -B in detail.
3. Different sub-parts of a question are to be attempted adjacent to each other.

PART -A

Q1 (a) What do you mean by ecosystem?   (1.5)

(b) "Solar energy is the energy for future in India." Elucidate.   (1.5)

(c) Give examples of renewable and non-renewable energy sources.   (1.5)

(d) What are the products of combustion of coal. Discuss their damaging effects on   (1.5)
the environment.

(e) What are the causes of deforestation?   (1.5)

(f) What are ecological pyramids?   (1.5)

(g) Distinguish between Food chain and Food web.   (1.5)

(h) What do you mean by environmental degradation.   (1.5)

(i) What causes noise pollution? How can noise pollution be prevented or (1.5)
reduced?

(j) What is radioactivity? What are the sources of radioactivity?   (1.5)

PART -B

Q2 (a) Name and describe the four major layer of atmosphere. What are the   (10)
important chemical species in each layer?

(b) Describe the benefits of deriving electric energy from sunlight in contrast to   (5)
conventional energy generation.

Q3 (a) Write a note on fossil fuel resources.   (5)

(b) What are solar cells? Draw a diagram and enumerate its applications.   (10)

Q4   What is the significance of forest resources. Discuss the major uses of forests.   (15)
How would you justify that ecological uses of forests surpass commercial uses?

Q5 (a) Discuss about the energy flow in an ecosystem.   (5)

(b) Discuss the significance of sustainable development. Describe the steps for   (10)
sustainable development.

Q6   Discuss in detail the (i) Water Cycle; (ii) Carbon cycle; (iii) Nitrogen Cycle, and (15)
their importance.

Q7 (a) Discuss the causes of environmental degradation and effective solutions for its   (10)
restoration.

(b) Discuss various effects and control measures of thermal pollution.   (5)

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