Total No. of Questions : 10]

SEAT No. :

PF-12744

[Total No. of Pages : 2

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S.E. (Mechanical Engineering)

VEC-285-MEC : Environmental Science and Sustainable Development

(2024 Pattern) (Semester - IV)

Time : 2 Hours] *[Max. Marks : 35*

Instructions to the candidates :

1) ***Solve Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8, Q.9 or Q.10.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***

Q1) a) Mention any three effects of air pollution on human health. **[3]**

b) Explain how over-exploitation of natural resources affects long-term industrial development. **[4]**

OR

Q2) a) Define Ecology and explain the term ecosystem. **[3]**

b) Describe the concept of ecological footprint with reference to an urban household. **[4]**

Q3) a) Explain nutrient depletion and its effects on soil fertility. **[3]**

b) Discuss fertilizers and fertilizer management practices for sustainable agriculture. **[4]**

OR

Q4) a) Describe the losses of soil moisture and explain their causes **[3]**

b) Explain the nitrogen cycle with a neat diagram. **[4]**

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Q5) a) Explain the importance of recycling and reusing water in urban areas. **[3]**

b) Explain the need for Integrated Water Resources Management (IWRM). **[4]**

OR

Q6) a) Describe different types of water resources with examples. **[3]**

b) Explain the stages of the hydrological cycle with neat diagram. **[4]**

Q7) a) Define the following terms : **[3]**

i) Life Cycle Assessment (LCA).

ii) Climate Change

iii) Sustainability

b) Explain the zero-waste concept with examples. **[4]**

OR

Q8) a) Discuss the importance of considering end-of-life disposal during product development. **[3]**

b) Explain Material Life Cycle Assessment (LCA) and its application in sustainable engineering. **[4]**

Q9) a) What is meant by a green building? List any two features of green buildings. **[3]**

b) Explain the role of renewable energy in sustainable development. **[4]**

OR

Q10) a) Explain the importance of green materials in construction. **[3]**

b) Explain carbon emission and sequestration. **[4]**

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