

Total No. of Questions : 8]

SEAT No. :

P3934

[Total No. of Pages : 2

[4760] - 93

M.E. (Civil) (Water Resources and Environmental Engineering)

Energy and Environment

(2008 Pattern) (Elective - IV)

Time : 3 Hours]

[Max. Marks :100

Instructions to the candidates:

- 1) Answer any 3 questions from each section.*
- 2) Figures to the right indicate full marks.*
- 3) Assume suitable data if necessary clearly mentioning the same.*
- 4) Use of non-programmable scientific calculator is allowed.*

SECTION - I

- Q1)** a) Discuss the pollution potential of construction projects with suitable examples. With suitable reasons justify whether infrastructure projects or real estate projects pollute more. **[8]**
- b) Explain in detail, the need for harnessing energy sources. Explain the importance of use of non conventional energy sources in civil engineering field. **[8]**
- Q2)** a) Explain in detail nuclear power as a sustainable energy source. Comment on atomic power projects in India. **[8]**
- b) Enlist various non conventional energy sources. Explain their advantages and disadvantages in detail. **[8]**
- Q3)** a) Explain the concept of green procurement and green contracts. How different is a green contract from conventional civil engineering contract? Explain the differences with suitable clauses and examples. **[8]**
- b) Explain in detail various mechanisms of harnessing solar energy. Also explain the importance of R&D in solar energy sector in India. **[8]**
- Q4)** a) Explain in detail energy requirement of India and need of finding alternative sustainable energy sources. **[9]**
- b) Explain what you understand by socio-environmental impact assessment with an example of hill road construction in tribal areas. **[9]**

P.T.O.

SECTION - II

- Q5)** a) Biogas has huge potential in India. Explain this statement in detail. **[8]**
b) Explain in detail : environmental impacts of biomass. What are the challenges in the same? **[8]**
- Q6)** a) Enlist and explain the roles and responsibilities of different organizations in India related to environment and pollution control. Discuss their jurisdiction details and the procedures involved for getting clearances from these organizations. **[8]**
b) Enlist various environment protection acts in force in India. Explain the salient features and penalty clauses involved in any two of these acts. **[8]**
- Q7)** a) Explain in detail use of participatory approach for efficient use of energy in India. Also explain the role played by industries in energy sector through PPP. **[8]**
b) Explain importance of cogeneration plants in sugar industry. How industries can get benefitted from such co-gen plants? Explain with a suitable example. **[8]**
- Q8)** a) Write notes on (Any Two) : **[10]**
a) Sustainable construction.
b) Smart materials in Civil Engineering.
c) Participatory approach in Environmental field.
b) Explain in detail role played by industries through CSR for betterment of environment. **[8]**

