



Name :

Roll No. :

Invigilator's Signature :

CS/B.Tech (CT)/SEM-8/HU (CT)-803/2011

2011

ENERGY AND ENVIRONMENT MANAGEMENT

Time Allotted : 3 Hours

Full Marks : 70

The figures in the margin indicate full marks.

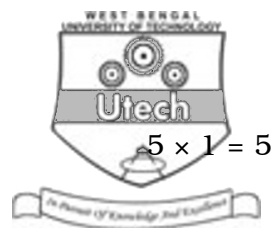
*Candidates are required to give their answers in their own words
as far as practicable.*

GROUP – A

(Objective Type Questions)

1. A) Answer the following : 5 × 1 = 5

- i) Give an example of Renewable Source of Energy.
- ii) Give an example of Alternative Source of Energy.
- iii) “Bio-Mass” and “Nuclear Energy” falls under which category of energy ?
- iv) What is 60% R.H. Moisture in coal ?
- v) What is meant by ‘dmf’ and ‘daf’ basis of analysis of coal ?



B) Choose the correct option :

- i) Biological oxygen demand is
 - a) Greater than
 - b) Lesser than
 - c) Equal to chemical oxygen demand
 - d) None of these.
- ii) Electrostatic precipitation requires
 - a) Low voltage DC b) High voltage AC
 - c) Low voltage AC d) High voltage DC.
- iii) “Photochemical Smog” formation is favoured by
 - a) low concentration of hydrocarbon
 - b) high concentration of hydrocarbon
 - c) high air flow.
- iv) “Pathological waste” contains
 - a) Sand
 - b) Metal
 - c) Chemical/Paints
 - d) Dead animal, Human waste.
- v) “Respiratory particulate matter” lies in the size range
 - a) $< 10 \mu\text{m}$
 - b) $> 10 \mu\text{m}$



GROUP – B
(Short Answer Type Questions)

Answer any *three* of the following.

3 × 5 = 15

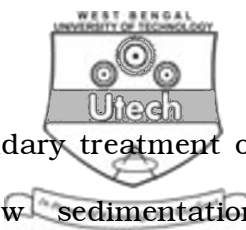
2. Give examples of some sources for the generation of particulate matters in the environment. How can the particulate matters be classified ? 2 + 3
3. Give examples of some of the gaseous pollutant in the atmospheres and their associated health hazards.
4. What is the Rand of coal ? How important is the Proximate Analysis of a coal in the thermal power stations ? 2 + 3
5. What are the types of moisture available in coal ? Discuss their importance in industry. 2 + 3
6. Discuss the advantages and disadvantages of solar based energy system.

GROUP – C
(Long Answer Type Questions)

Answer any *three* of the following.

3 × 15 = 45

7. Discuss how the waste generated from paper, glass, metal and plastic industries can be reutilized. What is composting ? Discuss its advantages. 10 + 2 + 3



8. What do you mean by primary and secondary treatment of wastewater ? Describe the detail how sedimentation operation is carried out in rectangular horizontal flow basin. Enumerate the sequence of operation for sludge treatment. 5 + 5 + 5
9. Write short notes on any *one* of the following topics :
- a) Fuel cell for energy generation
 - b) Nuclear energy and its challenges
 - c) Clean coal technology.
10. What is the contribution of oil in the energy scenario of India ? How is it contributing to the Greenhouse gas emission ? What measures should be taken to minimize its adverse effect ? Discuss the advantages of Natural Gas as a source of energy. 2 + 4 + 5 + 4
11. How much coal in India is used for the generation of power ? How much ash is generated from the TPPs in India per annum ? Discuss different methods for the disposal of ash. 2 + 2 + 11
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