

Ref No. Ex/PE/T/413/2019

BACHELOR OF POWER ENGINEERING EXAMINATION, 2019**(4TH YEAR - 1ST SEMESTER)****ENERGY & ENVIRONMENT MANAGEMENT****Time : Three (3) Hours****Full Marks : 100**

For Neatness & Cleanliness : 4 marks

Answer any **Six (6)** Questions. All questions carry equal marks :

1. a) Define the following terms : (2 x 3)
 - TOE (tonnes of oil equivalent)
 - GWP
 - Energy Intensity
- b) What is Acid Rain? (4)
- c) What are the implications of Global Warming? (6)
2. a) What is significance of Electricity Act, 2003? (4)
- b) Name a few salient features of Electricity Act, 2003? (6)
- c) Who are referred as "Designated Consumers" as per EC Act, 2001? (6)
What are the obligations of a 'Designated Consumer'?
3. a) What is Energy Security? (4)
- b) Indicate the strategies to meet future challenges to Energy Security. (8)
- c) What are the benefits of energy efficiency? (4)
4. Write Short Notes on : (4 x 4)
 - a) Conference of Parties (COP)
 - b) Kyoto Protocol
 - c) Prototype Carbon Fund
 - d) Sustainable Development

5. a) Define "Energy Management" (4)
b) What is the necessity of Energy Audit? (4)
c) What are the methodologies for carrying out 'Detail Energy Audit'? (4)
d) Name a few key instruments required for Energy Audit. (4)
6. a) What are energy efficient motors? What are the constructional specialities of an energy efficient motor? (8)
b) Write Short Notes on :
• Maximum Demand Controller (2 x 4)
• Automatic Power Factor Controller
7. a) What are the possible waste heat sources and their quality? (4)
b) Write Short Notes on :
• Recuperators (3 x 4)
• Regenerators
• Heat Wheels
• Heat Pipes
8. a) What are the functions of Central Pollution Control Board and State Pollution Control Board? (2 x 4)
b) Write Short Notes on :
• The Biomedical Wastes (Management and Handling) Rules, 1998 (2 x 4)
• The Recycled Plastic Manufacture and Usage Rules, 1999
9. a) What are the emissions from a Coal-fired Thermal Power Plant? (6)
b) Name the different types of water pollution discharged from a power plant? (6)
What are the effects of such pollutants?
c) What are the key elements of Intended Nationally Determined Contribution (INDC) submitted by Govt. of India to United Nations Framework of Climate Change? (4)