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Roll No

MECM-302(B)**M.E./M.Tech., III Semester****Examination, November 2018****Energy Management****Time : Three Hours****Maximum Marks : 70**

- Note :** i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Explain the operation wind energy system with a neat sketch. 7
b) Derive the expression for total radiation on an inclined surface. Show that horizontal surface receives no ground reflected radiation. 7
2. a) Write short notes on Bio Mass and ocean energy. 5
b) Discuss briefly about the limitation of renewable energy sources. 5
c) What are the main applications of geothermal energy? 4
3. a) Draw a neat sketch of solar flat plate collector and explain its working principle. 7
b) Enumerate the different types of concentrating types of concentrating type collectors. 7

4. a) Explain the construction and function of the lead acid cell. 7
b) Explain energy management in chemical process plants. 7
5. a) Describe the working of methanol fuel cell. 7
b) Explain the principle of operation of hydrogen-oxygen fuel cell. 7
6. a) Explain polarization in fuel cell. 7
b) Explain factors affecting bio digestion for biomass. 7
7. a) Explain reversible cell and irreversible cells. 7
b) Distinguish between fuel cells and a battery. 7
8. a) List out some of the advantages of solar thermal energy. 7
b) Explain gaseous bio fuels conversion techniques. 7
