

Indian Maritime University

(A Central University, Govt of India)

May-June 2018 End Semester Examinations

B. Tech (Marine Engineering)

Semester-VII/VIII

RENEWABLE ENERGY SOURCES AND APPLICATIONS (UG11E2704/ UG11E1804)

Date: 21.06.2018

Max Marks:100 Marks

Time: 3 Hrs

Pass Marks:50 Marks

PART-A

Marks: 10×3 = 30

(All questions are Compulsory)

1. a) Explain the principle of operation of acid fuel cell.
- b) What is work function in photo voltaic effect?
- c) What do you mean by solar array?
- d) Give the unit of the overall coefficient of heat transfer?
- e) List out all known sources of renewable energy.
- f) What are the components of solar air conditioner?
- g) Why tidal energy is a limited source of renewable energy?
- h) What do you mean by Bio-diesel?
- i) What is Wave energy conversion & generation?
- j) Write two on each, advantage and disadvantage of Biomass Energy conservation.

PART – B

Marks: 5×14 = 70

(Answer any 5 of the following 7 Questions)

2. a) Explain fuel cell energy storage. (7)
- b) What are the main conditions of designing a barrage for generating hydropower? (7)
3. a) Draw and explain solar energy generation. (7)
- b) What is geothermal energy? How can geothermal energy are utilized for electric Power generation? (7)

4. a) What are the factors affecting biogas generation? (7)
b) State and explain the various forms of Biomass conversion technologies. (7)
5. a) What is the principle of wave energy plant? (7)
b) Explain wave energy conversion system. (7)
6. a) Explain in detail the flat plate collector. Mention the advantages of flat plate collector. (7)
b) Draw a schematic diagram of Solar Pond operated electric power plant and explain the principle of operation of a Solar pond. (7)
7. a) Write about the Advantages and disadvantages of using Solar Power in practical Applications. (7)
b) Write about Tidal power sources globally, advantages, disadvantages (7)
8. Discuss the environmental aspect of energy utilization. (14)