

INDIAN MARITIME UNIVERSITY
(A Central University, Government of India)
End Semester Examinations December 2017

B. Tech. (Marine Engineering)

Subject: Renewable Energy Sources & Applications

Code: UG11E2704

Semester: VII

Max. Marks: 100

Date: 15.12.2017

Pass Marks: 50

Duration: 3 hrs

PART-A

10x3 Marks=30 Marks

(All questions are compulsory)

1. a). What is renewable energy?
b). What is the nature of solar radiation?
c). Briefly describe passive solar heating with example.
d). What is solar photovoltaic (PV) cell?
e). What are the forms of silicon used in PV cell?
f). What is biofuel?
g). What are the adverse effect of hydroelectricity project?
h). Briefly describe the reason for tide.
i). Write the impact of wind turbine on wildlife.
j). Name and define three modes of movement regarding wave energy technology.

PART-B

5x14 Marks=70 Marks

(Answer any 5 of the following 7 questions)

2. (a) What are the major sources/feedstock of biofuels? 5
(b) Describe the fuel transformation process from various sources. 9
3. (a) Describe the energy generation process from barrages. 7
(b) What are the environmental considerations for tidal barrages? 7
4. (a) Explain wave energy conservation system. 7
(b) Write a short note on micro-turbine generation system. 7
5. (a) Draw and explain the solar energy water heater. 8
(b) Write a short note on power tower. 6
6. (a) Explain the grid connected PV system and its interfacing with the utility. 7
(b) Explain single crystal Czochralski silicon technology. 7
7. (a) What are the sources of renewable energy? 6

- (b) Explain with schematic diagram that various forms of renewable energy depend primarily on incoming solar radiation. 8
8. (a) Describe the basic components of a wind turbine with diagram. 8
- (b) Write a short note on geothermal energy. 6
