

**INDIAN MARITIME UNIVERSITY**  
**(A Central University, Govt. of India)**

B.Tech. (Marine Engineering) - Semester VIII  
December 2015 End Semester Examinations

**Renewable Energy Sources and Applications**  
Subject Code: UG11E1804

Time: 3 hrs  
Date: 16.1.2016

Max Marks: 100  
Pass Marks: 50

**Part -A (3x10 = 30)**

**Compulsory Question –**

**Each Question carries equal marks (10 x 3 = 30 Marks)**

1. a) What are the disadvantages of conventional sources of energy?
- b) Write a short note on solar photovoltaic cell.
- c) Write short note on different types of solar radiations.
- d) Distinguish between fossil diesel and biodiesel?
- e) Give various names of geothermal energy sources?
- f) What is nuclear fission?
- g) Write short note on thin film PV cell.
- h) Write a short note on power cell.
- i) Give the details of biomass classification.
- j) Write a short note on aerodynamic sources.

**Part - B (5 x14 = 70 Marks)**

**Answer Any Five of the following Questions**

2. (a) Draw and explain one of the low temperature solar energy generation. 7
- (b) What a short note on renewable energy and sustainable future? 7
3. (a) Describe on concentrating solar collector. 7
- (b) What are passive solar heating, gross heating demand and solar cooker? 7
4. (a) What are the economical and environmental prospects of renewable energy sources in India ? 7
- (b) Briefly describe on Geothermal Energy sources. 7
5. (a) How can we power can be generate tidal barrages ? 7
- (b) Describe wind turbine types. 7

6. (a) What is short note on wave energy for large electricity grids. 7  
(b) What is carbon index and what are the disadvantages of fossil fuels? 7
7. (a) Write a short note on Nuclear Fusion Power Plant. 7  
(b) Write a short note on Green energy sources and green house effects. 7
8. (a) Write a short note on Hydrogen Fuel Cell. 7  
(b) Calculate the output power for a solar car with a total roof area for solar cells of  $6.4\text{m}^2$ . Calculate the electrical power available, assuming total cell efficiency of 17% and a constant light intensity of  $980\text{ Wm}^{-2}$ . 7

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