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MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL

A Constituent Institution of Manipal University

II SEMESTER M.TECH. (ENVIRONMENTAL ENGINEERING)
END SEMESTER EXAMINATIONS, APRIL/MAY 2017
SUBJECT: ENERGY AND ENVIRONMENT [CIE 5283]

REVISED CREDIT SYSTEM

(/ /2017)

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ❖ Answer **ALL** the questions.
- ❖ Draw figures wherever necessary.

1A.	How energy crisis is linked with economic development?	5
1B.	What is biomass? What are the different resources used to extract biomass energy?	5
2A.	With a neat diagram explain the principle and working of Evacuated tube solar collectors.	5
2B.	Define the following a) Zenith angle b) solar azimuth angle c) altitude angle	5
2C.	Describe the principle of operation on which the solar pond works	2
3A.	Show the classification of hydro turbines. Explain any two type of turbines in detail	5
3B.	How the winds are formed? Explain the principle of wind energy conversion.	5
4A.	Explain the working of open cycle ocean thermal energy conversion systems	5
4B.	A single basin double effect type tidal power plant has a basin area of 25km ² . The tide has a range of 10m. The turbine stops working when the head on it falls below 3.5m. Calculate the average power generated in MW if the turbine-generator efficiency is 75%. specific gravity of sea water = 1.025	3
4C.	Write a note on pressurized water reactor.	2
5A.	Explain briefly about the drilling and extraction process of oil	3
5B.	What do you mean by energy norms?	2
5C.	How Global warming has become serious threat for human existence?	5