Reg. No.



MANIPAL INSTITUTE OF TECHNOLOGY MANIPAL

(A constituent institution of MAHE, Manipal)

II SEMESTER M.TECH. (CIVIL ENGINEERING) END SEMESTER EXAMINATIONS, APRIL\MAY 2018 SUBJECT: ENERGY AND ENVIRONMENT [CIE 5283] REVISED CREDIT SYSTEM (30/ 04/ 2018)

Time: 3 Hours

MAX. MARKS: 50

Instructions to Candidates:

- ✤ Answer ALL the questions.
- Missing data may be suitably assumed
- Draw figures wherever necessary

1A.	Write a note on global energy scenario	5
1 B .	How 'Kyoto protocol' and 'Cap and trade' policy plays an important role in environmental conservation?	5
2A.	Find the Local Apparent Time corresponding to 14:30 1ST on March 29 th 2018 at Mumbai (19°07'N, 72°51'E).The 'equation of time correction' is -4 minutes. The standard time is based on 82°30'E in India. Also find the declination angle for the same.	4
2B.	List the various applications of solar energy. Explain any two in detail	3
2C.	Write a note on:i. Parabolic dish reflectorii. Heliostat field collector.	3
3A.	Describe the major components required for the high/medium head small hydro-power projects.	4
3B.	Define specific speed. Find the specific speed when 16000kW power is to be generated under a head of 100m at 300rpm. Also, suggest the type of turbine to be used based on specific speed	3
3C.	Write a short note elaborating the environmental impact of wind energy	3
4A.	Explain the working of closed cycle ocean thermal energy conversion, systems	5
4B.	What are the sources of biomass? Discuss the process of production of ethanol from biomass	5
5A.	How natural gas is formed? How the wet natural gas is treated in Glycol-dehydration and Solid-desiccant dehydration units in order to remove moisture content in it?	4
5B.	List and explain the factors that governs the site selection of thermal power plants.	3
5C.	How Global warming has become serious threat for human existence?	3