Reg. No.



## Manipal Institute of Technology, Manipal

(A Constituent Institute of Manipal University)



## **IV SEMESTER B.TECH (Open Elective)**

## **END SEMESTER EXAMINATIONS, MAY-2016**

SUBJECT: Energy Engineering (MME 3282) REVISED CREDIT SYSTEM

Time: 3 Hours

MAX. MARKS: 50

## Instructions to Candidates:

- ✤ Answer ALL the questions.
- ✤ Missing data may be suitable assumed.
- 1A) With neat sketch explain the working principle of Schmidt Boiler. (03)
- **1B**) Explain the different methods of engine cooling in the diesel engine power plant. (03)
- 1C) With neat sketch briefly explain the working of steam power plant (04)
- 2A) With neat sketch explain the working of diesel engine power plant. (03)
- **2B**) 200 MW of electrical power is required for a city. If this is to be supplied by a (03) nuclear reactor of efficiency 20 %, using  $U^{235}$  as the nuclear fuel, calculate the amount of fuel required for one day operation.
- With neat sketch explain the working of Boiling Water Reactor (BWR). Mention the (04) advantages and disadvantages of BWR compared to the Pressurized Water Reactor (PWR).
- **3A**) With the neat sketch explain the working of wind electric generation unit. (03)
- **3B**) Calculate the maximum day length at New Delhi  $(28^{\circ} 35^{\circ} N, 77^{\circ} 12^{\circ} E)$  on May 15. (03)
- **3C)** With neat sketch explain the working principle of a suitable instrument for **(04)** measuring global solar radiation.
- **4A**) Write a note on radiation hazards, shielding, and Radioactive waste disposal. (03)
- 4B) With neat sketch explain the working principle of Binary cycle geothermal power (03) plant.

Month	Mean discharge per	Month	Mean discharge
	month (millions of cu		per month
	<b>m</b> )		(millions of cu m)
April	250	October	1000
May	100	November	750
June	750	December	750
July	1250	January	500
August	1500	February	400
September	1200	March	300

(a) Draw Hydrograph and find the average discharge available for the whole period.(b) Draw Flow duration Curve.

5A)	With neat sketch explain the Fixed dome type biogas plant.	(03)
5B)	With neat sketch explain the working of the closed cycle OTEC power plant.	(03)
5C)	Write a note on	(04)
	(a) Pulverized fuel burners (b)Nuclear fusion	