Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

IV SEMESTER B. TECH END SEMESTER EXAMINATIONS, JUNE 2019

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 suitably assumed.

1A.	Explain air and gas circuit in the modern steam power plant	**3**
1B.	Explain the steps involved in coal and ash handling process in the steam power plant.	**3**
1C.	Derive the equation for estimation of power in a single basin tidal system in terms of range of the tides $(P_{av}/A = 0.225\ R^2)$	**4**
2A.	Explain different methods of starting the diesel engine in diesel engine power plant.	**3**
2B.	A nuclear reactor consumes 12 kg of U^{235} per day. Calculate its power output if the average energy released per U^{235} fission is 200 MeV.	**3**
2C.	With neat sketch differentiate the working of the closed cycle and open cycle OTEC power plant.	**4**
3A.	Calculate the maximum day length at Udupi (13.3409° N, 74.7421° E) on June 30.	**3**
3B.	With neat sketch explain the working of Pressurised Water Reactor (PWR).	**3**
3C.	With neat sketch explain the working of 'Dolphin' type wave power machine.	**4**
4A.	With neat sketch explain the working principle of Binary cycle geothermal power plant.	**3**
4B.	With neat sketch explain Wind –electric generating power plant.	**3**
4C.	With neat sketch explain the working principle of a suitable instrument for measuring diffuse solar radiation.	**4**
5A.	With neat sketch explain the 'Floating drum' type biogas plant.	**3**
5B.	With neat sketch explain the geothermal energy conversion in vapour dominated reservoir.	**3**

5C. At particular site the mean monthly average discharge is as follows:

Month	Discharge in millions of cubic meter / month		Month	Discharge in millions of cubic meter / month
January	40		July	80
February	30		August	120
March	20		September	110
April	0		October	80
May	10		November	45
June	50		December	30

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(a) Draw Hydrograph and find the average discharge available for the whole period.

(b) Draw Flow duration Curve.