Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY
MANIPAL
(A constituent unit of MAHE, Manipal)

IV SEMESTER B.TECH (Open Elective)

END SEMESTER MAKE UP EXAMINATIONS, JUNE- 2018

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) Explain the steps involved in coal and ash handling process in steam power plant. **(03)**

1B) Explain the need of cooling in the diesel engine power plant. **(03)**

1C) With neat sketch explain the working of Trombe wall for winter and summer session. **(04)**

2A) With neat sketch of the nuclear reactor explain the different components used in it for power generation application. **(03)**

2B) A nuclear reactor consumes 15 kg of U^{235} per day. Calculate its power output if the average energy released per U^{235} fission is 200 MeV. **(03)**

2C) With neat sketch of the layout explain the different component of the hydroelectric power plant. **(04)**

3A) With a neat sketch explain the working principle of Scheffler solar cooker. **(03)**

3B) With the neat sketch explain the working of Wind electric generation unit. **(03)**

3C) With a neat sketch explain the working principle of Solar flat plate collector. **(04)**

4A) Write a note on (a)Super charging (b)Turbo charging **(03)**

4B) With neat sketch explain the working of the closed cycle OTEC power plant. **(03)**

4C) Write a note on (a) Dry steam geothermal power plant. **(04)**

(b) Thermochemical conversion of biomass.

5A) Derive the equation for estimation of power in a simple single basin tidal system in terms of range of the tides.($P_{av}/A = 0.225R^2$) **(03)**

5B) With the neat sketch explain the working of Dolphin type wave energy conversion device. **(03)**

5C) At particular site the mean monthly average discharge is as mentioned in the below table. **(04)**

Month	**Discharge(m^3/s)**		**Month**	**Discharge (m^3/s)**
January	200		July	1100
February	125		August	1200
March	300		September	1000
April	600		October	700
May	750		November	400
June	900		December	300

(i) Draw the hydrograph and find the average discharge available for the whole period.

(ii) Draw the flow duration curve.