

IV SEMESTER B.TECH (OE I) END SEMESTER EXAMINATIONS,

JUNE 2017

SUBJECT: Energy Engineering (MME 3282) REVISED CREDIT SYSTEM

Time: 3 Hours

MAX. MARKS: 50

(03)

Instructions to Candidates:

✤ Answer ALL the questions.

- ✤ Missing data if any may be suitably assumed.
- 1A) Write a note on fuels used in Steam power plant.
- **1B)** Explain the steps involved in coal and ash handling process in Steam power plant. (03)
- 1C) Explain the different methods of starting the diesel engine in diesel engine power (04) plant.
- 2A) With neat sketch of nuclear reactor explain the different components used in it for (03) power generation application.
- 2B) A nuclear reactor consumes 15 kg of U²³⁵ per day. Calculate its power output if the (03) average energy released per U²³⁵ fission is 200 MeV.
- 2C) With neat sketch of the layout explain the different component of the hydroelectric (04) power plant.
- 3A) With a neat sketch explain the working principle of Solar pond. (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 open cycle OTEC power plant. (03)
 4C) Write a note on (a) Dry steam geothermal power plant. (04)
 - (b) Anaerobic digestion.

- 5A) Derive the equation for estimation of power in a simple single basin tidal system in (03) terms of range of the tides.($P_{av}/A = 0.225R^2$)
- 5B) State and explain the Hour angle and Day length with respect to solar earth system. (03)
- 5C) At particular site the mean monthly average discharge is as mentioned in the below (04) table.

Month	Discharge(m ³ /s)	Month	Discharge (m ³ /s)
January	100	July	1000
February	225	August	1200
March	300	September	900
April	600	October	600
May	750	November	400
June	800	December	200

- Draw the hydrograph and find the average discharge available for the whole period.
- (ii) Draw the flow duration curve.