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M. Tech. I - Sem. (Main) Exam., Dec. - 2018

Power System

1MPS4.1 Power Generation Sources

Time: 3 Hours **Maximum Marks: 100**

Min. Passing Marks: 33

Instructions to Candidates:

*Attempt any **five questions,** Marks of questions are indicated against each question. Draw neat and comprehensive sketches wherever necessary to clearly illustrate your answer. Assume missing data suitable if any and specify the same. Use of following supporting material is permitted during examination. (Mentioned in form No. 205)*

1. NIL 2. NIL

Q.1 (a) Describe the difference between renewable and non – renewable energy sources. [10]

(b) Describe the important factors on which selection and location of power plants based? [10]

Q.2 (a) What is the importance of sustainable energy sources in power generation sources? [4]

(b) Explain the impact of power plants on environment, air and water pollution. [8]

(c) Describe the methods of efficiency improvement of thermal and gas power plants. [8]

Q.3 (a) Describe non – convective solar ponds for solar energy collection and storage. [10]

(b) Draw labeled schematic block diagram of solar power plant showing all the systems. Also write the applications of solar photovoltaic system. [10]

Q.4 (a) Explain the factors on which the wind current depends. How wind blows in coastal areas? How the wind power is calculated? [10]

(b) Compare the electric generation schemes – constant speed constant frequency, variable speed constant frequency and variable speed variable frequency schemes. [10]

Q.5 (a) What do you understand by geothermal energy? What are geothermal fields? [10]

(b) Describe with neat sketch the working of preheat hybrid geothermal power plant. What are its merits and demerits? [10]

Q.6 (a) Explain in detail the working of a Laser fusion reactor. [6]

(b) What are the critical factors in disposal of nuclear waste? Also describe the various controls of nuclear reactors. [8]

(c) Describe comparatively the plasma confinement, magnetic confinement and inertial confinement. [6]

Q.7 (a) What is the origin of biomass energy? What is the present status of development of biomass energy resources in India? [7]

(b) What do you mean by Pyrolysis? Discuss working of one of the most efficient pyrolysis unit. [7]

(c) Explain the process of ethanol production from Cassava. What are the uses of ethanol in power sectors? [6]
