B.E sem viii _ Ex/sru _ 24/05/16
(CBSCS) PPI

(3 Hours) [Total Marks: 80]

N.B: (1) Question No. **1** is compulsory.
(2) Attempt any **Three** questions from remaining.
(3) Figures to the right indicate full marks.

1. Answer the following:- [20]
   (a) What are the various devices connected to penstock for protection? How do they protect?
   (b) Brief about the sources/origin of wind.
   (c) How three element drum level control is superior to both two element and single element controls.
   (d) Discuss why?
      i) Nuclear power plants are used only as base load plants.
      ii) The overall efficiency of a steam power station is very low.

2. (a) The load on plant with respect to time are given below :- [05]

Time(Hrs)	0-6	6-8	8-12	12-14	14-18	18-22	22-24
Load(MW)	40	50	60	50	70	80	40

   Draw the load curve and find the load factor of the power station.

   (b) What is the role of control and instrumentation in power plants? [05]

   (c) Explain the fire tube and water tube boilers in detail. [10]

3. (a) Derive the expression for energy extraction from the wind using Betz Model. [10]
   (b) Give the classification of water turbines and explain Pelton turbine in detail. [10]

4. (a) Draw the schematic of a Nuclear power station and explain. [10]
   (b) Explain the performance indices of solar collector. [05]
   (c) Write a short note on MPPT. [05]

5. (a) Explain steam power plant with neat diagram. [10]
   (b) Explain any one application of solar thermal energy. [10]

6. Write Short note on:- (Any Two) [20]
   (a) Compare Thermal, Nuclear and Hydroelectric power plant.
   (b) Horizontal Axis Wind Turbine.
   (c) Gas turbine power plant.
   (d) Role of DCS in thermal power plant.

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