

24/5/17

BE(INSTV) VIII CBSUS (REV) 2012

Q.P. Code :09995

POWER PLANT INSTRUMENTATION

(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]

- What are the most favorable sites for installing of wind turbines?
- Explain depletion region and barrier voltage w.r.t. PV Cell.
- Differentiate between forced and induced draught fans.
- Discuss why?
 - The nuclear reactor has to be of critical size.
 - Kaplan turbines are used for low heads.

2. (a) Explain the following terms:-

1) Shell, 2) Grate, 3) Furnace, 4) Mounting, 5) Accessories.

[10]

- Explain the Water tube and Fire tube boiler with neat sketch and mention the applications.

[10]

3. (a) With help of schematic diagram, explain active and passive solar heating system.

[10]

- With a neat diagram, explain pumped storage and storage reservoir Hydro power plants.

[10]

4. (a) Draw the schematic of a Nuclear power station and explain.

[10]

- Using Betz's model of wind turbine, derive the expression for power extracted from wind. What is the maximum theoretical power that can be extracted and under what condition?

[10]

5. (a) Compare the various power plants on the basis of operating cost, initial cost, efficiency, maintenance cost and availability of source of power.

[10]

- Explain the working of Gas turbine power plant with neat sketch.

[10]

6. Write Short note on:- (Any Four)

[20]

- Geothermal energy.
- Hydrology.
- Energy Scenario in India.
- Importance of Moderator and Control rods in Nuclear reactor.
- Role of DCS in Thermal Power Plant.
