

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 2925

Roll No.

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**B.Tech.**

(SEM. VII) ODD SEMESTER THEORY

EXAMINATION 2012-13

**POWER PLANT INSTRUMENTATION**

Time : 3 Hours

Total Marks : 100

**Note** :- Attempt **all** questions. All questions carry equal marks.

1. Attempt any **two** parts of the following : **(2×10=20)**
  - (a) How are Power plants classified ? Explain in detail giving reasons and applications of each type of Power plant.
  - (b) What do you understand by 'Boilers' ? List various types. Discuss about the Instrumentation for proper and safe operation of thermal power plant.
  - (c) Write notes on the following :
    - (i) Three element Drum Level control
    - (ii) Boiler Interlocks.
2. Attempt any **two** parts of the following : **(2×10=20)**
  - (a) Draw a neat sketch (line diagram) showing various components / loops of a thermal power plant giving the type of Instrumentation needed in each component/loops.
  - (b) List various types of steam turbines. What is the basis of their selection ? Discuss about the instrumentation generally provided/essentially needed for steam turbines.

- (c) What do you understand by Draught System ? Why is it needed ? What instrumentation would you suggest for this system ?

3. Attempt any **two** parts of the following : **(2×10=20)**

- (a) What are the factors which are taken into account for finalising the site for establishing a Hydro-electric power plant ? Explain in detail.
- (b) List various types of turbines used in Hydro-electric power plants. What is the basis of selection of turbines for a particular site ? Explain in detail.
- (c) Write short notes on the following :
- (i) Hydrology.
  - (ii) Instrumentation in Hydro-electric power plants.

4. Attempt any **two** parts of the following : **(2×10=20)**

- (a) List various types of wind turbines used for power generation. Discuss about the instrumentation and control needs of such systems.
- (b) List various types of Solar Energy System. Explain in detail the working of solar photo voltaic sytem. Compare solar thermal with solar photo voltaic system.
- (c) Write short notes on the following :
- (i) Betz limit
  - (ii) Solar concentrators.

5. Attempt any **two** parts of the following : (2×10=20)

(a) Write notes on the following

- (i) Electrostatic Precipitators
- (ii) Pollution by thermal Power plants and its control.

(b) Explain the working of Nuclear power plant. Compare Nuclear power plants with conventional power plants.

(c) Write notes on any **two** of the following :

- (i) Components of Nuclear reactors.
- (ii) Safety measures in Nuclear power plants.
- (iii) Nuclear fuels.
- (iv) Use of PLC in Power Plants.