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INSTITUTE OF AERONAUTICAL ENGINEERING (Autonomous)

B.Tech III Semester End Examinations (Regular) - December, 2017

Regulation: IARE – R16

POWER GENERATION SYSTEMS (Electrical and Electronics Engineering)

Time: 3 Hours

Max Marks: 70

Answer ONE Question from each Unit

All Questions Carry Equal Marks

All parts of the question must be answered in one place only

UNIT – I

- Explain the factors to be considered for locating a site for thermal power plant. [7M]
 - With a block diagram, discuss feed water steam flow circuit used in thermal power plant. [7M]
- Draw the general layout of a thermal power plant and explain the working of different parts. [7M]
 - Describe clearly the operation of [7M]
 - Jet type condenser and
 - Surface type condenser

UNIT – II

- Describe the functions of the various components in a hydroelectric generation system. [10M]
 - List the advantages of pumped storage hydro plant. [4M]
- With the help of a neat sketch, classify the Hydro Electric plants based on the available head. [7M]
 - Find the available continuous power of a hydro-electric station from the following data [7M]
Catchment area = 200 sq.km
Annual rainfall = 1000mm
Effective head = 200m
Efficiency of plant = 80%
Yield factor to allow runoff and loss by evaporation = 50%

UNIT – III

- Describe with a neat diagram, the construction and principle of operation of a flat plate solar energy collector. [7M]
 - Describe the principle of solar PV power generation. What are the main elements of PV system? [7M]
- What are solar concentrators? Describe various components of a solar concentrator and discuss its advantages. [7M]
 - Explain the current – voltage characteristics of a solar cell. Also define the fill factor. [7M]

UNIT – IV

7. (a) With the help of a neat diagram, explain the working of wind energy conversion system for generation of electricity. [7M]
- (b) What are the different environmental aspects taken into consideration while erecting wind turbines? Explain briefly. [7M]
8. (a) What are the advantages of Vertical axis machines over horizontal axis machines? [7M]
- (b) Explain the main consideration in selecting a site for wind energy systems. [7M]

UNIT – V

9. (a) With a neat sketch, describe the working of BWR, and PWR in nuclear power plant. [7M]
- (b) List the advantages and disadvantages of nuclear power plant. [7M]
10. (a) Write short notes on [7M]
- i. Coolants
 - ii. Moderators
 - iii. Control rods
- (b) With the help of a neat sketch, explain the working of a nuclear power station. [7M]

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