

**IV B.Tech I Semester Supplementary Examinations, November 2005**  
**POWER PLANT ENGINEERING**  
**(Mechanical Engineering)**

**Time: 3 hours****Max Marks: 80**

**Answer any FIVE Questions**  
**All Questions carry equal marks**

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1. (a) Draw a chart showing operations and devices used in coal handling plant. [8+8]  
(b) Describe different types of coal conveyors.
2. (a) Explain the principle and operation of a spreader stoker with the help of a neat Sketch. [8+8]  
(b) What is a stoker? Name the different types of stoker.
3. (a) Explain with the help of a block diagram the fuel storage and supply system of diesel power plant [8+8]  
(b) Explain with the help of a block diagram the water cooling system of diesel power plant
4. Explain cavitations, runaway speed and the overall cost of a hydraulic turbine. [16]
5. (a) What are the advantages of a fuel cell? [8+8]  
(b) Discuss the problems associated with the operation of a fuel cell.
6. (a) With a neat block diagram explain the governing system of a open cycle gas turbine power plant. [8+8]  
(b) Discuss the advantages of gas turbine power plant over diesel power plant.
7. (a) Explain the functions of cladding. [4]  
(b) Explain the characteristic features of Pressurized Water Reactor. [8]  
(c) Give a brief account of nuclear waste disposal. [4]
8. (a) Explain the significance of [8]
  - i. Load factor
  - ii. Diversity factor
  - iii. Plant capacity factor
  - iv. Plant use factor  
(b) A residential consumer has 10 lamps of 40 watts each connected at his residence. His demand is [8]

Midnight to 5 AM -	40 watts
5 AM to 6 PM -	No load
6 PM to 7 PM -	320 watts
7 PM to 9 PM -	360 watts
9 PM to 12 Midnight -	160 watts

- i. Plot the load curve
- ii. Find average load
- iii. max. Load
- iv. Load factor
- v. Energy consumption during one day.

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