



P.E.S. College of Engineering, Mandya - 571 401
(An Autonomous Institution affiliated to VTU, Belgaum)
Fourth Semester, B.E. - Electrical and Electronics Engineering
Semester End Examination; June - 2016
Power Plant Engineering

Time: 3 hrs

Max. Marks: 100

Note: i) Answer **FIVE** full questions, selecting **ONE** full question from each unit.
 ii) Assume suitable missing data if any.

UNIT - I

- 1 a. What are the factors to be considered for selection of site for hydroelectric station? 10
 b. With a neat sketch explain the layout of high head hydroelectric plant. 10
 2 a. With the help of block diagram, explain the main parts and working of thermal power plant. 10
 b. Explain the various methods of coal handling and ash handling with block diagram. 10

UNIT - II

- 3 a. What is a nuclear reactor? Describe the various parts of nuclear reactor. 10
 b. What is meant by chain reaction? How it is controlled? 5
 c. List advantages and disadvantages of nuclear power plant. 5
 4 a. Describe the auxiliary equipment of diesel engine power plant. 10
 b. Explain the operation of a diesel power plant. 10

UNIT - III

- 5 a. Define Non-conventional energy source. Mention the advantages of non-conventional energy sources. 6
 b. With neat block diagram, explain Geo thermal power plant. 8
 c. With a neat sketch describe the working of solar power plant. 6
 6 a. Define co-generation and explain the concept of co-generation. 10
 b. Explain mini, micro and bio fuel generation. 10

UNIT - IV

- 7 a. Define the following terms as applicable to a power plant : 10
 i) Connected load ii) Maximum demand
 iii) Load factor iv) Diversity factor v) Plant capacity factor.
 b. The peak load on a 50 MW power station is 39 MW. It supplies power through four transformers whose connected loads are 17, 12, 9 and 10 MW. The maximum demands as their transformers are 15,10,8 and 9 MW respectively. If the annual load factor is 50% and the plant is operating for 65% of the period in a year, find out the following : 10
 i) Average load on the station ii) Energy supplied per year iii) Demand factor
 iv) Diversity factor v) Power station use factor.

- 8 a. Name the different types of tariff and explain any two types. 10
- b. What are the effects of low power factor? Discuss different methods of improving low power factor. 10

UNIT - V

- 9 a. What is automatic load frequency control (ALFC)? Describe the primary Automatic load frequency control loop. 10
- b. Explain load sharing and transfer of load between stations. 10
- 10 a. Explain the following :
 - i) Solid earthing 10
 - ii) Transformer earthing
- b. Explain the following :
 - i) Resonant grounding 10
 - ii) Reactance grounds.

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