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**Question Paper Code : 57578**

**B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2016**

**Fifth Semester**

**Electrical and Electronics Engineering**

**ME 6701 – POWER PLANT ENGINEERING**

**(Regulations 2013)**

**Time : Three Hours**

**Maximum : 100 Marks**

**Answer ALL questions.**

**PART – A (10 × 2 = 20 Marks)**

1. What are once through boilers ?
2. What are the functions of a draught system ?
3. Name the essential components of a diesel electric plant.
4. Give examples of combined cycle power plant.
5. What are fast nuclear reactors ?
6. What is a CANDU type reactor ?
7. Define the function of surge tank in hydro plants.
8. Why is a tall tower essential for mounting a horizontal axis wind turbine ?
9. Define load factor and capacity factor.
10. What are fixed costs in a power plant ?

**PART – B (5 × 16 = 80 Marks)**

11. (a) (i) Describe the working of FBC boiler with a neat diagram. (8)  
(ii) Explain the arrangement and operation of a surface condenser. (8)

**OR**

- (b) (i) Discuss the functions of air heater types. (8)  
(ii) Describe with a sketch the working of a mercury-water binary cycle. (8)

12. (a) (i) With the help of a diagram, explain the functions of essential components of diesel power plant. (10)  
(ii) What is IGCC system ? Brief. (6)

**OR**

- (b) (i) Bring out the difference between closed cycle and open cycle gas turbine power plants. (8)  
(ii) Discuss why combined cycle power generation is so important in present day energy scenario. (8)

13. (a) (i) Explain the functions of reflectors and cladding. (8)  
(ii) Explain the necessity of pressurizer in a PWR power plant. (8)

**OR**

- (b) (i) List and brief the characteristics features of a BWR. (8)  
(ii) Write a note on India's three stage nuclear power programme. (8)

14. (a) (i) Write on the factors that should be considered while selecting a site for a hydroelectric plant. (8)  
(ii) What is pumped storage plant ? Explain with a sketch. (8)

**OR**

- (b) (i) Describe the functions of a solar PV electric plant. (8)  
(ii) Enumerate the advantages of fuel cell power sources with specific reference to environment. (8)

15. (a) (i) List and discuss any 4 power tariff structure adopted by TANGEDCO ? (8)
- (ii) Name the pollution control technologies adopted in thermal power plants and describe any one. (8)

**OR**

- (b) (i) Name and elaborate on the elements that contribute to the total cost of electricity. (6)
- (ii) Brief : Base Load, Peak Load and average load of a thermal power plant. (6)
- (iii) Indicate the likely % cost of capital and operating cost of a thermal power plant take the life of the power plant as 25 years. (4)
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