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P.E.S. College of Engineering, Mandya - 571 401

(An Autonomous Institution affiliated to VTU, Belagavi)

Eighth Semester, B.E. - Mechanical Engineering

Semester End Examination; June - 2017

Power Plant Engineering

Time: 3 hrs *Max. Marks: 100*

***Note**: Answer **FIVE** full questions, selecting **ONE** full question from each unit.*

UNIT - I

1 a. Sketch and explain harnessing of tidal energy. 8

b. The peak load on a power station is 40 MW. The loads having maximum demands of 18 MW, 12 MW, 8 MW and 9 MW are connected to the power station the capacity of the power station is 50 MW, annual load factor is 62%. Find, 12

(i) Average load on the power station (ii) Energy supplied per year

(iii) Demand factor (iv) Diversity factor.

2 a. With a neat sketch, explain geothermal energy conversion process and list the advantages and disadvantages. 12

b. With neat sketch, Explain thermo electric power generation. 8

UNIT - II

3 a. Sketch and explain general arrangement of hydroelectric power plant. 10

b. The average monthly discharge for 12 months at a site of river is given below:

Month	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept.	Oct.	Nov.	Dec.
Discharge m^3/s	100	250	350	600	700	800	1000	1200	900	600	400	200

10

Draw, i) Hydrograph ii) Flow duration curve.

4 a. Sketch and explain the working of spreader stoker and list the advantages and disadvantages. 10

b. Explain the BIN system handling pulverized coal with a neat sketch and state the limitations. 10

UNIT - III

5 a. Sketch and explain the working of Velox boiler. 10

b. Classify the ash handling system? Explain with sketch the working principle of pneumatic ash handling system. 10

6 a. With neat sketch explain hyperbolic cooling tower and list merits and demerits. 10

b. Sketch and explain forced draught and induced draught system. 10

UNIT - IV

7 a. Explain with neat sketch cooling system in diesel power plant. 10

b. Sketch and explain direct open cycle and indiect open cycle gas turbines. 10

Contd….2

8	a.	Draw a general layout of diesel power plant.	12
	b.	What are the advantages, disadvantages and applications of gas turbine power plants?	8

UNIT - V

9	a.	Explain with examples nuclear fusion and nuclear fission reactions.	8
	b.	with a neat sketch, explain pressurized water reactor (PWR) and list the advantages and disadvantages.	12
10	a.	With sketch, Explain the components of a nuclear reactor.	12
	b.	Explain briefly radiation hazardous and its control.	8

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