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10ME833

Eighth Semester B.E. Degree Examination, June/July 2018
Power Plant Engineering

Time: 3 hrs. Max. Marks:100

Note: ***Answer FIVE full questions, selecting at least TWO questions from each part.***

PART – A

1 a. Draw a general layout of a steam power plant, showing the different system and explain them. **(12 Marks)**

b. Explain with a neat sketch of multi-retort stoker. **(08 Marks)**

2 a. What are the advantages and disadvantages of pulverized coal? **(06 Marks)**

b. With a neat sketch, explain the Ball Mill Pulverized system. **(07 Marks)**

c. Explain with neat sketch of Benson Boiler. **(07 Marks)**

3 a. With neat sketch, explain the Velox steam generation mention its advantages. **(06 Marks)**

b. With a neat sketch, explain the forced Draught and induced draught system. **(10 Marks)**

c. Explain with sketch
   i) Air preheater
   ii) Super heater. **(04 Marks)**

4 a. Name the Different methods used for starting Diesel engine plant and explain briefly. **(08 Marks)**

b. Explain the important functions of Lubrication system. **(03 Marks)**

c. Sketch and explain the layout of a Diesel engine power plant. **(09 Marks)**

PART – B

5 a. With a neat sketch, explain the flow Duration and mass curves. **(05 Marks)**

b. Explain the following :
   i) Water hammer
   ii) Surge tanks. **(05 Marks)**

c. The runoff data of a river at a particular site is tabulated below:

Month	Mean Discharge per month (Millions of cum)	Month	Mean Discharge per month (Millions of cum)
January	40	July	75
February	25	August	100
March	20	September	110
April	10	October	60
May	0	November	50
June	50	December	40

   i) Draw a hydrograph and find the mean flow.
   ii) Draw the flow duration curve
   iii) Find the power in MW available at mean flow if the head available is 80m and overall efficiency of generation is 85%.

   Take each month of 30 days. **(10 Marks)**

6 a. Explain the functions of the following elements in the Nuclear Reactor.
   i) Reactor core
   ii) Reflector
   iii) Moderator
   iv) Coolants. **(06 Marks)**

   b. With a neat sketch, explain the pressurized water reactor and mention its advantages. **(08 Marks)**

   c. Write a note on Radioactive waste Disposal system. **(06 Marks)**

7 a. Enumerate the various factors to be considered while selecting a site for hydro electri power plant. **(04 Marks)**

   b. Define :
   i) Demand factor
   ii) Load factor
   iii) Diversity factor
   iv) Utilization factor
   v) Capacity factor. **(10 Marks)**

   c. The following data relates to a steam power plant

Maximum demand	=	30000kW
Load factor	=	0.42
Coal consumption	=	1.1kg/kwh
Boiler efficienty	=	84%
Turbine efficiency	=	88%
Price of coal	=	Rs. 70 per tonne

   Determine the following :
   i) Thermal efficiency of the plant
   ii) Coal bill of the plant for one year. **(06 Marks)**

8 a. What are the objectives and requirements of Tariff? **(06 Marks)**

   b. What are Different types of tariffs? Explain any two of them. **(08 Marks)**

   c. Explain the performance and operating characteristics of power plant. **(06 Marks)**

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