

CH 390 N - PROCESS UTILITIES

(Answer all questions)

Time: 1 hrs

[List any assumptions made]

1. What is the use of expansion joint in steam pipe line? Name the different of types of expansion joints and compare?
2. A 6" I.D. Steel Pipe of thickness 3 mm of length 50 m, is carrying saturated steam at 200 Psig. and is insulated with 50 mm thick 85% magnesia. What is the capacity of steam trap to be installed?

Warming up period is 5 min.; Room Temp = 35 °C and

Heat loss through 2 " of 85% of magnesia = 0.286 Btu./sq.ft./°F/hr

3. What is steam trap and give its functions. What are the advantages of the Steam Trap? What will happen if it is not installed in steam pipe line
4. A steam tarp of 100 cc capacity is flushing 20 times in one hour. Estimate the amount of heat loss. Estimate loss of coal if the calorific value of coal is 5000k.cl/kg

Latent heat of condensation 2260 K.j/kg

5. Write note on information collected on long problem.

6. Write briefly information collected about insulator

7. Write short notes

a) Water hammer

b) Water treatment for boiler

c) Pressure drop for pipes of different diameter and length connected in parallel