

I N D E X

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S. No.	Date	Title	Page No.	Teacher's Sign./Remarks
1]	19-4-22	Tutorial - I	1-6	10/10/19/15
2]	26-4-22	Tutorial - II		10/10/20/15
3]	10-5-22	Tutorial - III		10/10/21/15
4]	17-5-22	Tutorial - IV		10/10/23/15
5]	18-5-22	Tutorial - IV		10/10/24/15
6]	31-5-22	Tutorial - VI		10/10/26/15
7]	7-6-22	Tutorial - VII		10/10/28/15
8]	14-6-22	Tutorial - VIII		10/10/30/15
9]	21-6-22	Tutorial - IX		10/10/31/15
10]	28-6-22	Tutorial - X		10/10/32/15

Tutorial No.-1

Page: 1

Date: / /

- que-1] A Furnace wall made of brick work 15 cm thick & thermal conductivity $4 \text{ W/m}^\circ\text{C}$ is lined on inside with silica bricks 25 cm thick and thermal conductivity $1.2 \text{ W/m}^\circ\text{C}$ & the next layer of magnesite brick 25 cm thick & thermal conductivity $1.8 \text{ W/m}^\circ\text{C}$. inner side temp. of the wall (silica brick side) is 260°C & outside temp. is 30°C . Calculate
- Rate of heat flow through the wall.
 - Interface temperatures T_2 & T_3 .

- que-2] A Furnace wall made up of steel plate having 7 cm thickness & $40 \text{ W/m}^\circ\text{C}$ thermal conductivity is lined on inside with fire clay bricks having thickness 25 cm & thermal conductivity $0.27 \text{ W/m}^\circ\text{C}$ & lined on outside with magnesite bricks having 35 cm thickness and thermal conductivity $2.6 \text{ W/m}^\circ\text{C}$. The inner side temp. of the wall is 750°C & outside temp. is 40°C . Calculate
- Rate of heat flow through the wall at steady state temp.
 - Interface temperatures
 - If the heat flow is to be reduced to 60% by means of an air gap betⁿ the steel plate & magnesite brick. Calculate width of air gap required.