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B. Tech. 6th Semester (Mechanical Engineering)

Examination, May-2013

HEAT TRANSFER

Paper-ME-306-F

Time allowed : 3 hours]

[Maximum marks : 100

Note : Attempt any five questions out of eight.

1. Derive conduction equation of polar and spherical coordinate system and its applications. 20
2. (a) Describe thermal and hydro dynamic boundry layers. 10
(b) Write a short note on steady state conduction. 10
3. Describe and derive momentum and energy equations and also describe its applications with suitable examples. 20
4. (a) Describe free convection from a vertical flat plate with suitable example. 10
(b) Explain types of convection. 10
5. (a) What are thermal radiations ? Describe its applications with suitable examples. 10

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- (b) Describe Hydrodynamic boundry layers. 10
6. (a) Explain types of heat exchangers with suitable diagram. 10
- (b) Write a short note on Heat exchange between non black bodies. 10
7. (a) Describe laminar and turbulent flow with suitable example. 10
- (b) Describe parallel and counter flow with diagram. 10
8. (a) Describe law of energy conservation. 10
- (b) Write a short note on Transient heat conduction in plane walls. 10