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B.E. (FULL TIME) DEGREE END SEMESTER EXAMINATIONS - APRIL / MAY 2014

MATERIALS SCIENCE AND ENGINEERING BRANCH

V SEMESTER - REGULATION 2008

ML 9029 – FUELS, FURNACES AND REFRACTORIES

Time : 3 Hours

Max. Marks : 100

ANSWER ALL QUESTIONS

PART – A (10 X 2 = 20 Marks)

1. What are the different modes of energy transfer?
2. State Peltier effect.
3. Name the different types of coal.
4. What are the advantages of solar energy as compared to other forms of energy?
5. What is the principle of induction heating?
6. What is a PID temperature controller?
7. Name two refractories used in steel making.
8. What are the refractories used in petroleum refinery?
9. Define greenhouse effect.
10. Regarding thermal pollution, define thermal discharge index.

PART – B (5 x 16 = 80 Marks)

11. Explain in detail about energy transfer by conduction and convection.
- 12.a) Explain in detail the different theories of petroleum crude formation.
(OR)
b) Write short notes on nuclear, solar and geothermal energy.
- 13.a) Write briefly on resistance heating, radiation heating and induction heating.
(OR)
b) Write short notes on multi zone furnace and tunnel furnace.
- 14.a) List out the refractories used in steel making and aluminium production.
(OR)
b) Describe the refractories used in steam boiler, petroleum refinery and chemical industry.
- 15.a) Explain in detail about energy and environment.
(OR)
b) Explain in detail about emissions control.