

II B.Tech II Semester Supplementary Examinations, January 2005
FUELS TECHNOLOGY AND REFRACTORIES
(Metallurgy & Material Technology)

Time: 3 hours

Max Marks: 70

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain classification of fuels.
(b) Describe proximate analysis of coal.
2. (a) Describe testing of Metallurgical coke.
(b) Explain modern trends in coke making.
3. (a) Describe production of petroleum.
(b) Compare catalytic cracking with thermal cracking.
4. (a) Describe manufacture of producer gas and explain its properties and uses.
(b) Explain properties and uses of coke-oven gas.
5. (a) Explain complete combustion of fuels.
(b) Determine the flue gas analysis and air to fuel ratio by weight when a medium fuel oil with 84.9%C, 11.4%H₂, 3.2%S, 0.4%O₂ and 0.1% ash by weight is burnt with 20% excess air. Assume complete combustion.
6. Describe manufacture and explain properties and uses of either fire clay OR magnesite refractories.
7. (a) Explain application of refractories in Non-ferrous industries.
(b) Describe modes of failure of refractories during service and explain its prevention.
8. Explain testing of any THREE of the following properties of the refractories:
 - (a) Refractoriness
 - (b) Bulk density
 - (c) Thermal conductivity
 - (d) Permeability
