Code No: RR310806 **Set No.1**

**III B.Tech. I Semester Supplementary Examinations, May -2005**
**ENERGY ENGINEERING**
**(Chemical Engineering)**

**Time: 3 hours** **Max Marks: 80**

**Answer any FIVE Questions**
**All Questions carry equal marks**

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1. (a) Explain in detail high temperature carbonization.
   (b) Enlist the product obtained in high temperature carbonization.
2. (a) Why classification of petroleum is necessary?
   (b) Define the base of a crude.
   (c) Where are the petroleum fields in India.
   (d) Expand
      i. ONGC
      ii. IOC
      iii. OIL
3. Describe with a neat flow sheet any sweetening process of gasoline
4. Describe a typical solar air heater with a neat schematic. Explain the principle and working. Give the applications of solar air heaters.
5. (a) What are the types of Geothermal fluids?
   (b) Explain briefly with a neat sketch about Hot dry rock Geothermal source.
6. Write the principle and working of low temperature electrolytic fuel cells.
7. What is phase change material? Explain the various types of phase change material. Explain how phase change materials can store and release energy.
8. Discuss the environmental disasters associated with indiscriminate handling of solid wastes.

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Code No: RR310806 **Set No.2**

**III B.Tech. I Semester Supplementary Examinations, May -2005**
**ENERGY ENGINEERING**
**(Chemical Engineering)**

**Time: 3 hours** **Max Marks: 80**

**Answer any FIVE Questions**
**All Questions carry equal marks**

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1. (a) Write about coal petrography? Discuss the various petrographic constituents of coal.
   (b) Describe the coal carbonization process
2. (a) Give diagrammatic representation of a FCC unit with a regenerator.
   (b) Write about regeneration of cracking catalysts?
3. (a) How do you obtain LPG from a FCC unit?
   (b) Explain the treatments required for commercial utility of LPG.
4. Describe various types of solar collectors and explain their design aspects with neat diagrams.
5. Write short notes on:
   (a) Nuclear fission
   (b) Chain Reaction
   (c) Moderators
   (d) Reactor Control
6. Write briefly about energy from packed bed storage with the help of schematic diagram.
7. Explain the following: -
   (a) Minimum wind velocity for wind energy harnessing.
   (b) Minimum tide height for taping tidal energy.
8. Name the waste materials produced in the following industries:
   (a) Petroleum Refining
   (b) Coal burning
   (c) Blast furnance operations
   (d) Coal washeries.

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Code No: RR310806 **Set No.3**

**III B.Tech. I Semester Supplementary Examinations, May -2005**
**ENERGY ENGINEERING**
**(Chemical Engineering)**

**Time: 3 hours** **Max Marks: 80**

**Answer any FIVE Questions**
**All Questions carry equal marks**

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1. (a) Compare and contrast dry process and wet process for coal washing.
   (b) Differentiate in-situ theory and drift theory supporting origin of coal.
2. (a) What is stabilization of crude?
   (b) Why dehydration and desalting of crude is necessary?
   (c) State the physico-chemical aspects involved in any of these operations
3. (a) What are the important properties of greases that are determined.
   (b) How do you determine the uses of quare?
   (c) How is grease produced in industry?
4. Describe various types of solar collectors and explain their design aspects with neat diagrams.
5. (a) Explain the difference between fixed dome type and floating dome type biogas plant
   (b) Illustrate the dome type biogas plant with a neat sketch.
6. Write briefly about energy from windmill storage.
7. Explain high temperature fuel cells.
8. Discuss important bio-conversion process for eco friendly municipal wastes.

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Code No: RR310806 **Set No.4**

**III B.Tech. I Semester Supplementary Examinations, May -2005**
**ENERGY ENGINEERING**
**(Chemical Engineering)**

**Time: 3 hours** **Max Marks: 80**

**Answer any FIVE Questions**
**All Questions carry equal marks**

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1. (a) Describe a Bee-hive coke oven used for coal carbonization.
   (b) How do the properties of coal change after coking.
2. (a) What are the different catalysts used in petroleum industry and state their purpose.
   (b) What are the different catalysts used in petroleum industry and state their purpose.
3. Describe with a neat flow sheet any sweetening process of gasoline
4. (a) Differentiate beam and diffuse solar radiations. Explain with a neat schematic diagram.
   (b) Write about solar radiation measurement.
5. Write short notes on:
   (a) Nuclear fission
   (b) Chain Reaction
   (c) Moderators
   (d) Reactor Control
6. Write a note on the following fuel cell components.
   (a) Electrodes
   (b) Electrolytes and
   (c) Catalysis.
7. Explain basic components of a wind energy conversion systems with a neat schematic diagram.
8. Discuss the environmental disasters associated with indiscriminate handling of solid wastes.

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