

Total No. of Questions : 12]

SEAT No. :

P3575

[Total No. of Pages : 2

[4959] - 1184

B.E. (Chemical) (Semester - II)

**Energy Conservation in Chemical Process Industries
(2012 Pattern) (Elective - III (a))**

Time : $2\frac{1}{2}$ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) *Answer any six questions.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Use of logarithmic tables, slide rule, Mollier charts, electronic pocket calculator and steam tables is allowed.*
- 4) *Assume suitable data, if necessary.*

Q1) Explain the different conventional and non conventional sources of energy and give their advantages and disadvantages. [8]

OR

Q2) Explain the scope of energy conservation and its importance in process industries. [8]

Q3) Discuss the importance of Insulation in details. [6]

OR

Q4) Discuss the importance of nuclear option for power generation in India. [6]

Q5) Draw the sketch of heat pump and explain its principle and working. [6]

OR

Q6) Enlist the ideas for improvement of a Boiler Efficiency. [6]

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- Q7)** a) Enlist the checklist for the energy conservation opportunities in Furnaces and Boilers. [9]
- b) Explain the concept of process synthesis. What are the guidelines and recommendations for the improving the process conditions? [9]

OR

- Q8)** a) Enlist the checklist for energy conservation in lighting system. [9]
- b) Explain the advantages of Pinch Technology in a Chemical Process Industries. [9]

- Q9)** a) Distinguish between batch and continuous process with suitable example. [8]
- b) Write Short note on Waste heat utilisation for energy conservation in process industries. [8]

OR

- Q10)** a) Explain the importance of automation in process industries. Explain how it plays a important role in energy conservation. [8]
- b) Write short notes on: [8]
- i) Thermodynamic aspects of separation process.
 - ii) Energy Savings in good house keeping.

- Q11)** Enlist the energy consuming units in Sugar Industry and discuss how energy can be conserved? [16]

OR

- Q12)** What are the energy consuming units in Petro chemical Industries and give the important conservation steps? [16]

