

**Total number of printed pages – 4**      **B. Pharm**  
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**Fourth Semester Examination – 2008**

**BASIC ENGINEERING – II**  
**(Unit Operations – II)**

**Full Marks – 70**

**Time : 3 Hours**



*Answer Question No. 1 which is compulsory and any **five** from the rest.*

*The figures in the right-hand margin indicate marks.*

1. Answer the following questions :      2 × 10
- (a) Differentiate between humidity and relative humidity.
  - (b) Define humid heat with mathematical expression.

- (c) Define dry bulb and wet bulb temperature.
  - (d) How are losses of energy due to contraction in cross section is measured ? Explain with relevant equation.
  - (e) What is a pressure head ? How is it calculated ?
  - (f) What is water hammer ?
  - (g) Define Nucleation.
  - (h) Define crystal lattice and crystal habit.
  - (i) Differentiate between sedimentation and filtration centrifuge.
  - (j) Differentiate between venturimeter and orifice meter.
2. (a) What are the properties of glass ? What are its applications as material of construction ?      5

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**Contd.**

- (b) What are the possible industrial hazards ?  
How can they be controlled ? 5
3. Explain the theory and nature of discharge of reciprocating pumps. Describe the construction and working of a double action reciprocating pump. 2+2+6
4. Differentiate between fluid statics and fluid dynamics. Derive the Bernoulli's equation stating the assumption. 2+8
5. (a) Describe the principle, construction, working and uses of Krystal Crystallizer. 6
- (b) What is caking of crystals ? Explain the factors affecting and preventive measures of caking. 4
6. Explain the theory of Centrifugation. Describe the principle, construction, working and uses of a supercentrifuge. 5+5
7. (a) Describe the important features of humidity chart. 5
- (b) Explain the principle of dehumidification. Write a note on application of dehumidification. 5
8. Name the devices used for transportation of solids. Describe the principle, construction, working and applications of Pneumatic conveyer. 2+8

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