Total number of printed pages – 4   B. Pharm

PH. 4.3

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

P.T.O.

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(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 conveyor.   2+8

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