

**COLLEGE OF ENGINEERING, PUNE-5**  
(An Autonomous Institute of Govt. of Maharashtra)  
**End Semester Exam**  
**(IE 9002) Process Plant Operations**

Programme: Third year Instrumentation & Control  
Year: 2013-14  
Duration: 3 Hr.

Semesters V  
Max. Marks: 60

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Instructions:

1. Figures to right indicate full marks
2. All questions are compulsory
3. Assume suitable data and draw suitable diagram wherever required.

**Q.1      Answer the following questions.      20**

1. How will you protect the material from corrosion using non metallic coating?
2. What are the different materials used in nuclear plant? Also comment on the material selection criteria.
3. What are the different types of machinery used for compressing and moving gases related to transportation of fluids?
4. Write a note on joints and fittings. How will you select appropriate pipe size for a specific situation?
5. What are types of reciprocating pump? Comment on Volumetric efficiency.

**Q.2      Answer the following questions.**

1. Explain shell and Tube type condenser. Comment on the provisions made for the thermal expansion of the same condenser.      4
2. What are the accessories of evaporator? Comment on material of construction.      4
3. A 50mm i. d. iron pipe at 423 K (150°C) passes through a room in which the surrounding are at temperature of 300 K (27°C). If the emissivity of the pipe metal is 0.8, what is the net interchange of radiation energy per meter length of pipe? The outside diameter of pipe is 60 mm.      2

**Q.3      Answer the following questions.**

1. Derive the expression for time of drying under constant drying condition.      5
  - a) Constant rate period

b) Falling rate period

2. What are the types of Filter? Explain any one type in detail. 5

**Q.4** Answer the following questions.

1. What are types of size reduction equipments? List the applications of each 5  
equipment.
2. For the economical operation of size reduction machinery what are the different 5  
point you will consider? Explain in brief.

**Q.5** 6 Answer the following questions.

1. What are the different unit operations involved in pharmaceutical industry. 5  
Comment on material selection.
2. Differentiate between dry processes and wet processes related with cement 5  
industry.

**\*\*Best of Luck\*\***