

- (c) What are the various types of viscometer which are frequently used in chemical industries? Describe the principle and working of any one of them.

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ECH504

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 157505

Roll No.

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B. Tech. (V Sem.)

SPL. THEORY EXAMINATION, 2014-15

PROCESS INSTRUMENTATION

Time : 2 Hours]

[Total Marks : 50

Note: Attempt all questions.

1. Answer any four parts : 3.5×4=14
- (a) What are the various basic functional elements of a measuring instrument? Explain with an example.
 - (b) What are transducers? Describe the desirable features of a transducer.
 - (c) Discuss various classification of measuring instruments with suitable examples.

- (d) What are the various static characteristics of an instrument? Explain each of them.
- (e) What are the various errors that may occur in an instrument? Explain them.
- (f) How the instruments are important in process control? Explain with an example.

2. Answer any two parts : 6×2=12

- (a) Discuss the principle and working of radiation pyrometer with a neat sketch. Also discuss its advantages and disadvantages.
- (b) What are the various temperature measuring instruments used in industries? Explain the principle and working of thermocouple in detail. Also enlist few thermocouples which are frequently used in chemical industries.
- (c) Explain the working and principle of bimetallic thermometer giving its advantages and disadvantages. Also discuss how it can be used as thermostat.

3. Answer any two parts : 6×2=12

- (a) How is the pressure measuring instruments classified? Enlist all the instruments that can be used to measure vacuum. Describe the principle and working of Pirani gauge with neat diagram.
- (b) Draw a neat diagram of thermionic type ionization vacuum gauge and explain its working principle and construction.
- (c) Describe the working of McLeod gauge with neat diagram. Also discuss its advantages and disadvantages and how to overcome it?

4. Answer any two parts : 6×2=12

- (a) Describe the various flow measuring instruments used in industries. Explain the principle and working of rotameter with neat diagram and also discuss its advantages and disadvantages.
- (b) Enumerate the various indirect level measuring instruments used in chemical industries and discuss the principle and working of Radiation Level Indicator with neat sketch.