

B. TECH.**THEORY EXAMINATION (SEM–VI) 2016-17****PROCESS INSTRUMENTATION****Time : 3 Hours****Max. Marks : 100****Note : Be precise in your answer. In case of numerical problem assume data wherever not provided.****SECTION – A****1. Attempt all of the following questions:****10 x 2 = 20**

- (a) Transducers.
- (b) Control system.
- (c) Static error.
- (d) Accuracy.
- (e) Humidity.
- (f) Hall Effect.
- (g) Absolute pressure.
- (h) Electrical insulator.
- (i) Scale Span.
- (j) Motorized valve.

SECTION – B**2. Attempt any five of the following questions:****5 x 10 = 50**

- (a) What do you mean by process variables? Explain all process variables.
- (b) Explain the elements of the measuring system in a process plant
- (c) What are the various instruments used for measurement of vacuum. Discuss the working of any one of them in detail with neat diagram.
- (d) What are the important limitations of pneumatic controller? Give a brief description of such a controller.
- (e) Enlist the various type of flow measurement meter. Explain any one of them with a neat diagram.
- (f) Explain about cup and cone type of viscometer.
- (g) What is an ON-OFF controller? Explain its working with a suitable example.
- (h) What is the necessity of the signal conditioning in an instrumentation system? Name the various signal conditioning aspects.

SECTION – C**Attempt any two of the following questions:****2 x 15 = 30**

- 3. What is liquid level measurement? Write the name of all liquid level measurement devices? Explain any two with neat diagrams.
- 4. What is a Data Acquisition system (DAS)? Draw the block diagram of a general data acquisition system (DAS) and discuss its various components. Also give any other two configurations of DAS.
- 5. What are the various temperature measuring devices used in chemical industries? Draw a neat diagram of radiation pyrometer & explain its working principle. Also discuss advantages over optical pyrometer.