



SE-6823

B. E. III (Sem. V) (Instrumentation & Control) Examination
April / May - 2011
Instrumentation Systems

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

नीचे दशांशिक निशानीवाणी विगतो उत्तरवही पर अवश्य लक्षणी. Fillup strictly the details of signs on your answer book.		Seat No. :	
Name of the Examination :		<input type="text"/>	
B. E. III (SEM. V) (INSTRUMENTATION & CONTROL)		<input type="text"/>	
Name of the Subject :		<input type="text"/>	
Instrumentation Systems		<input type="text"/>	
Subject Code No. :		Section No. (1, 2,.....) :	
6 8 2 3		Nil	
		Student's Signature	

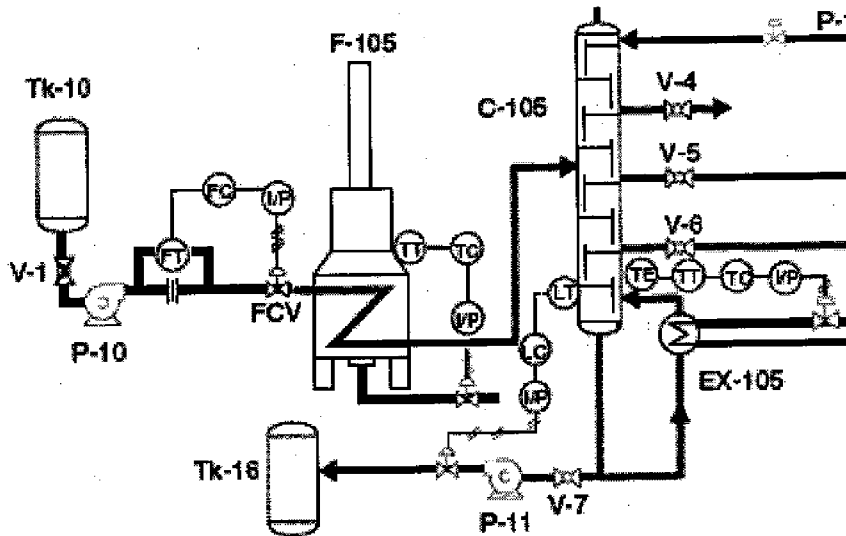
- (2) Figure to the right indicate maximum marks.
(3) Draw neat figure wherever required.

1 Answer the short questions :

- (i) Draw a loop diagram (loop instruments-electronics) for any process parameter. **2**
- (ii) What do you mean by casual inspection of control panel ? In what situation it is carried out ? **3**
- (iii) Draw symbol of **2**
- (a) Control valve with positioner
- (b) Transmitter
- (c) Capillary type temperature indicator
- (d) Safety valve.
- (iv) What is hygroscopic material ? When these materials get saturated ? **2**
- (v) What is Console ? **3**

- 2 (a) Explain standard rules related with functional identification and loop identification of tag numbering system. 8

Provide tag number to the instruments shown in following P and I diagram.



- (b) Brief about different types of dryers. Explain few selection criteria for dryers. 8

OR

- (b) Give brief idea about take offs and valving of instrument air system. 8
- (c) Define dew point. How it plays important role in selection of dryers ? 4

OR

- (c) Explain significance of following term in instrument air system : 4

Desiccants and it's type.

- 3 (a) Why control panel is required ? Explain different types of control panel in detail. 8

OR

- (a) Why control panel is required ? Explain different types of control panel in detail. 8
- (b) Brief about the panel inspection. 6

OR

- (b) Discuss various instrument functions carried out by instrument people in small/medium scale plant. 6
- (c) Brief about power supply for control panel. 4

4 Answer the short questions :

- (i) What is THD and Crest factor ratio ? How they are important in selection of UPS. 2
- (ii) Write positive and negative points of strip chart recorder and circular chart recorder. 3
- (iii) Give short introduction of NEC, NEMA and AWG. 2
- (iv) State personnel safety and energy levels for electrical hazardous. 3
- (v) Decode the following marking for explosion protected apparatus : 2

E Ex ib IIC T6

5 (a) Explain following protection methods with their application in detail : 8

- (i) Purging, Pressurization of Ventilation.
- (ii) Enclosures.

(b) Explain different NEMA enclosures for protection of instruments. 8

OR

(b) Explain intrinsic safety in detail. 8

6 (a) Explain necessity of UPS, its types and selection criteria for it. **8**

(b) Explain X-Y recorders with neat diagram in detail. **8**

OR

(b) Give the comparison of protection methods used for instrumentation systems. **8**

(c) State control room layout in detail. **6**

OR

(c) Discuss various grounding techniques for PCBs in detail. **6**
