

Instrument & Control

COLLEGE OF ENGINEERING, PUNE
(An Autonomous Institute of Government of Maharashtra)

End Semester Examination

(IE 402) Project Engineering and Management

Programme: Final B. Tech (Instrumentation and Control)

Year: 2012-13
Duration: 3 hrs

Semester: I
Max. Marks: 50

Instructions:

1. Solve any five questions.
 2. Assume suitable data if necessary.
 3. Each question carries equal marks.
 4. Figures to right indicate full marks.
 5. Draw neat figures wherever required.
 6. Use of non-programmable calculator is allowed.
-

Q.1

- A) What are the inputs required to prepare the Instrument Index / Summary? Name any six important fields to be specified in Instrument Index. What is the importance of Instrument Index document through-out the project engineering? [5]
- B) Draw typical process hook ups for a) Pressure gauge on piping b) Differential pressure type liquid flow transmitter with orifice assembly. [5]

Q.2

- A) Name any four types of Instrument cables? What are the general specifications required to be specified for ordering the instrument cables? [3]
- B) Which are the parameters considered for Junction Box grouping & Segregation? Elaborate. [3]
- C) Explain CPM and PERT method. Brief their advantages in project scheduling. [4]

Q.3

- A) Draw and explain the typical project organization structure for EPC project? [5]

- B) Explain the importance of control room design for plant operation. Which are the important aspects should be considered for control room design? Explain. [5]

Q. 4

- A) Define the purpose and contents of instrument engineering deliverables as given below:
1. Instrument location & tray layout drawing
 2. Instrument Hook up diagrams
 3. Instrument Bulk MTO [3]

- B) Explain with typical format, the information/ fields to be specified in Instrument cable schedule. [4]

- C) What is WBS? Explain in brief its importance in Project Management. [3]

Q. 5

- A) Name and explain in detail any two methods followed for instrument hazardous area protection. [4]

- B) Draw the typical signal loop diagram from pressure transmitter in the field to pressure indicator in SCADA at control room. [3]

- C) Does it required to specify indoor and outdoor site environmental conditions in Instrument Design Basis? Why? Explain in Brief. [3]

Q. 6

- A) What is importance of FAT? When and where this activity is carried out? [2]

- B) How the project cost is estimated and controlled? [2]

C) What are the contents required to be specified for functional design specification (FDS) of control system? [2]

D) What are the steps involved during instrument procurement and project life cycle? Explain. [4]

-----Best of Luck-----