

( 3 Hours )

[ Total Marks : 100

- N.B. :** (1) Question No. 1 is **compulsory**.  
 (2) Attempt any **four** questions out of remaining **six** questions.  
 (3) Assume **suitable** data if **required**.  
 (4) **Figures** to the **right** indicate **full** marks.

1. (a) Calculate following for given project schedule. –

- (i) Expected time                      (iii) Critical path  
 (ii) Variance                              (v) Draw Network Diagram.

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Activity	$t_o$	$t_l$	$t_p$
1 – 2	5	12	17
1 – 3	14	18	22
2 – 3	08	10	13
2 – 4	09	11	12
3 – 4	0	0	0
3 – 5	9	11	13
4 – 6	5	8	09
5 – 7	8	12	18
6 – 7	6	07	08
7 – 8	8	13	19

- (b) Compare CPM and PERT. 4
2. (a) What is P and I diagram ? Explain typical contents of the same with suitable sketch. List USER's of P and I drawing. 12  
 (b) Explain role of consultant in instrumentation and control project. 8
3. (a) State Need for Inspection. 2  
 (b) List various documents required and procedure for inspecting diff. pressure transmitter assuming suitable process data. 8  
 (c) Explain in detail purchase procedure of an engineering organization. 10
4. (a) What is a significance of specification sheet of an instrument ? 4  
 (b) Draft technical specifications of magnetic flow transmitter assuming suitable process data. 8  
 (c) Compare between SAT and FAT. 8
5. (a) Explain in detail installation consideration for pressure transmitters. 12  
 (b) Draw typical loop wiring diagram for temperature control system using 3 wire sensor; and steam regulation. 8
6. Write short notes on (any four) :- 20
- (a) Factory Inspection of Control Valve                      (d) Plant Layout  
 (b) Junction Box Schedule                                      (e) Steps in Project Planning.  
 (c) Control Room Layout
7. (a) Explain various pre-commissioning activities. 10  
 (b) Develop I and C scheme for tube and shell heat exchanger and prepare instrument index assuming suitable data. 10