



SF-7785

B. E. - IV (Instrumentation & Control) (Sem. - VIII)

Examination

May/June - 2011

Project Planning Estimation & Quality Systems

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

नीचे दृशावेक निशानीवाणी विगतो उत्तरवही पर अवश्य लपवी. Fillup strictly the details of signs on your answer book.	Seat No. :
Name of the Examination :	<input type="text"/>
<input type="text" value="B. E. - 4 (INSTRUMENTATION & CONTROL) (SEM. - 8)"/>	<input type="text"/>
Name of the Subject :	<input type="text"/>
<input type="text" value="PROJECT PLANNING ESTIMATION & QUALITY SYSTEMS"/>	<input type="text"/>
Subject Code No. : <input type="text" value="7"/> <input type="text" value="7"/> <input type="text" value="8"/> <input type="text" value="5"/>	Section No. (1, 2,.....): <input type="text" value="1&2"/>
Student's Signature	

- (2) Answer to each section must be written in separate answer books.
- (3) Figures to the right indicate maximum marks.
- (4) Draw neat figure wherever required.

SECTION - I

- 1 Answer the short questions :
 - (i) What type of mechanical data will be useful to instrumentation and control engineer ? 2
 - (ii) State the limitations of magnetic flow meters. 2
 - (iii) Brief about chemical seals. 2
 - (iv) Draw sample loop wiring diagram. 3
 - (v) Brief about instrument index sheet. 3
 - (vi) Draw any close loop using standard symbol. 2
- 2 Attempt any two : 18
 - (a) List out the factors required to be taken care at the time of instrument design. Give some design guide lines for 'Control Centre'.

- (b) Discuss about hazardous area classification and protection techniques used for instrumentation systems.
- (c) Explain about :
 - (i) Project procedure
 - (ii) Instrument schedule
 - (iii) Manpower allocation and
 - (iv) Progress report in context of work coordination required during project execution.

- 3** Attempt any **three** : **18**
- (a) Write short note on instrument specification sheet.
 - (b) Give design guideline for pressure measuring device.
 - (c) Give comparison between at least three temperature measurement methods.
 - (d) Discuss about location of tap and sealing of instruments from process.

SECTION - II

- 4** Answer the short questions :
- (i) State the importance of History card for ISO procedure. **2**
 - (ii) What are 'Dummy Activities' ? **2**
 - (iii) State the expected error limits for following commercial available instruments. **2**
 - (a) Magnetic Flow meter
 - (b) Rotameter
 - (c) Thermocouple
 - (d) Bourdon tube
 - (iv) A pressure gauge of range 0-20 bar is stated to have 2 an error of ± 0.25 bar when calibrated by the manufacturer. Calculate the percentage error on the basis of maximum scale value. What would be the possible error as a percentage of the indicated value when a reading of 5 bar obtained in a test ?

- (v) Calculate level transmitter range for pressurized blanketed vessel with following detail : 3
 Vessel : Vertical cylindrical
 Dimensions : 40ft. floor-to-seam,
 Lower level connection 1'-6" above bottom, Upper
 level connection in roof
 Fluid specific gravity : 0.87
 Nitrogen blanket : 1" W. C. pressure
 Transmitter : Diaphragm type with dry equalizer lag.
- (vi) Explain Slack and its all types. 3
- 5** Attempt any **two** : **20**
- (a) Define following terms : Accuracy, Precision, Drift and Overshoot.
 How measurement error caused by poor design can be minimized ?
- (b) Discuss the problems might be faced during start up. What remedial action should be taken to avoid such problems.
- (c) Explain typical check out procedure for
 (i) Flow transmitter
 (ii) Temperature transmitter.
- 6** Attempt any **three** : **15**
- (a) State the importance of Q.W.I. and SOP. Brief about history card and Calibration schedule in context of ISO procedure.
- (b) How traceability to international standard is achieved for any measuring instrument ? State the importance of Q.W.I and SOP.
- (c) Explain Procedural Steps of CPA techniques.
- (d) Draw a network diagram for construction of single storey house. Also calculate Earliest Expected time, Latest allowable time for each activity and find critical path.

Activity	Pre-Event	Suc.event	a	m	b
A. Acquiring Land	1	2	5	10	15
B. Drawing and design	1	3	2	3	4
C. Estimates	3	4	2	4	6
D. Procure Building material	4	5	8	10	18
E. Procure electric material	4	6	3	4	5
F. Foundation	5	7	7	8	12
G. Super structure	7	8	18	22	29
H. Electrification	6	9	6	8	10
I. Doors and windows	5	10	8	9	16
J. Roofing	8	11	20	25	30
K. Plaster work	10,11	12	12	16	20
L. Painting and white wash	9,12	13	8	14	20
M. Cleaning	13	14	3	4	8
N. Furniture work	14	15	5	7	12
