## University of Mumbai Examination 2020- Inter Cluster

### Program: BE Instrumentation Engineering

Curriculum Scheme: Revised 2016

#### Examination: Third Year Semester VI

#### Course Code: ISC601 and Course Name: Process Instrumentation System

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Time: 1hour

Max. Marks: 50

Note to the students:- All Questions are compulsory and carry equal marks .

Q1.	The variable which is adjusted for making process variable equal to the desired
	value is-
Option A:	Set point
Option B:	Measured variable
Option C:	Controlled variable
Option D:	Manipulated variable
Q2.	The time for the process-control loop to make necessary adjustments to the final
	control element
Option A:	Dead time
Option B:	Control lag
Option C:	Process lag
Option D:	Settling time
Q3.	If a controller outputs a 4- to 20-mA current signal to the final control element
	and has a $p=25\%$ , then what is the corresponding current?
Option A:	19 mA
Option B:	10 mA
Option C:	8 mA
Option D:	6 mA
Q4.	The optimum process performance can be judged by criteria
Option A:	Decay ratio
Option B:	Subsidence ration
Option C:	Integral absolute error
Option D:	Any one of the above
Q5.	The proportional bias (Po) is added to proportional action for
Option A:	Making error zero
Option B:	To minimize reset windup
Option C:	To handle positive as well as negative errors
Option D:	Making the action proportional
Q6.	If the error is zero, the output stays fixed at a value equal to what it was when the
	error went to zero.

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Option A:	Integral-Control Mode
Option B:	Proportional-Control Mode
Option C:	Derivative-Control Mode
Option D:	On off-Control Mode
Q7.	action is not preferred when noise is present on the process that is to be
	controlled
Option A:	Derivative
Option B:	Integral
Option C:	Proportional
Option D:	On/off
Q8.	Setting the PID controller parameters for optimum process performance is-
Option A:	Tuning
Option B:	Correction
Option C:	Optimizing
Option D:	Performance Setting
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Q9.	It changes from normal control action and attempt to prevent a process variable
	from exceeding an allowable upper or lower limit.
Option A:	Cascade control
Option B:	Ratio control
Option C:	Split range control
Option D:	Override control
•	
Q10.	In which control scheme the secondary loop should be at least 3 times faster than
	the primary loop.
Option A:	Auctioneering Control
Option B:	Feedforward control
Option C:	Cascade control
Option D:	Ratio control
<b>1</b>	
Q11.	If process is not known well, we need to evaluate the objective function online
	using the values of the controlled output.
Option A:	Self-adaptive control
Option B:	Split range control
Option C:	Override control
Option D:	Selective control scheme
option D.	
O12.	A control scheme select among several similar measurements the one with the
	highest value and feed it to the controller.
Option A:	Ratio control
Option B:	Auctioneering Control
Option C:	adaptive control
Option D:	Override control
option D.	
013.	controller is a special type of feedforward controller
x	
Option A	Model Reference Adaptive

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Option B:	Cascade
Option C:	Ratio
Option D:	Split Range
Q14.	Which control scheme involves two controlled variables, but only one valve ?
Option A:	Feedforward control
Option B:	Cascade control
Option C:	Ratio control
Option D:	Feedback control
015.	A discrete-state process is one for which the process variables can take on only
<b>C</b>	
Option A:	Four
Option B:	Two
Option C:	one
Option D:	six
Option D.	
016	It can be used as an energy-level translator
$Q_{10}$	Solenoide
Option B:	Palave
Option C:	limit switches
Option C.	
Option D:	
017	Without the second s
Q17.	when the coll is energized, the contacts are not energized until the time delay has
Outing A.	lapsed.it is-
Option A:	off-delay timer relay
Option B:	on-delay timer relay
Option C:	Control relay
Option D:	Internal relay
Q18.	If there are three input variables and three output variables then there is a total of
	possible states
Option A:	36
Option B:	64
Option C:	06
Option D:	09
Q19.	A schematic way of describing the sequence of events of a discrete state control
	system.
Option A:	event
Option B:	schematic diagram
Option C:	process diagram
Option D:	ladder diagram
Q20.	For two non-interacting first order systems connected in series, the overall
	transfer function is theof the individual transfer function
Option A:	Ratio
Option B:	Product
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Option C:	Sum
Option D:	Difference
Q21.	For MIMO systems
Option A:	Control loops are isolated
Option B:	Each controlled variable is only manipulated by one variable
Option C:	Decoupling the system makes it more complicated
Option D:	Manipulated variables may affect several controlled variables
Q22.	RGA is useful for process engineers because it allows us to determine:
Option A:	Which matrix size to use.
Option B:	What eigenvalues and eigenvectors are paired
Option C:	What input and output pairs to use
Option D:	When feed forward control is preferred over feedback control.
Q23.	Which of the following in not an advantage of cascade control?
Option A:	The system reacts to disturbances more quickly
Option B:	More efficient control of the primary variable
Option C:	It is a cheap control scheme to implement
Option D:	The effects of dead time and phase lag time are reduced in the system
Q24.	The open loop transfer function of control system is KR/(1+TS). This represents-
Option A:	A first order system
Option B:	Dead time system
Option C:	A first order time lag
Option D:	A second order system
Q25.	The number of operational amplifiers require for designing of an electronic PID
	controller is-
Option A:	5
Option B:	6
Option C:	2
Option D:	4