Program: BE Electrical Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester VI

Course Code: EEC605 and Course Name: Control System II

Time: 1hour | Max. Marks: 50

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

Q1.	An active ideal derivative compensator can be approximated
Option A:	with a passive lead compensator.
Option B:	with a passive lag compensator.
Option C:	with a passive lag-lead compensator.
Option D:	cannot be approximated
Q2.	Compensating additional poles and zeros can be added at the _______________
Option A:	low-power end of the system before the plant
Option B:	High power end of the system after the plant
Option C:	In between the low and high power ends
Option D:	Not possible to connect
Q3.	Lag compensation permits a _____gain at low frequencies.
Option A:	High
Option B:	Low

Option C:	Does not change the gain
Option D:	Medium
Q4.	The characteristic equation is s3+14s2+(45+K)s+K =0, centroid is located at (-x,0) then the value of x is _______
Option A:	1
Option B:	2
Option C:	3
Option D:	4
Q5.	For a unity feedback system with G(s) = 10 / s^2, what would be the value of centroid?
Option A:	0
Option B:	2
Option C:	5
Option D:	10
Q6.	If poles are added to the system, where will the system tend to shift the root locus?
Option A:	To the left of an imaginary axis
Option B:	To the right of an imaginary axis
Option C:	At the center
Option D:	No shifting takes place
Q7.	What should be the nature of root locus about the real axis?

Option A:	Assymetric
Option B:	Symmetric
Option C:	Exponential
Option D:	Decaying
Q8.	Which point on root locus specifies the meeting or collision of two poles?
Option A:	Centroid
Option B:	Break away point
Option C:	Stability point
Option D:	Anti-break point
Q9.	For drawing root locus, the angle of asymptote yields the direction along which _________branches approach to
Option A:	P+Z
Option B:	P-Z
Option C:	P/Z
Option D:	P*Z
Q10.	Compensator designed to yield the proper steady-state error with improved stability
Option A:	lag compensator
Option B:	lead compensator
Option C:	lead lag compensator

Option D:	Integrator
Q11.	If the gain of the open-loop system is doubled, the gain margin
Option A:	Is not affected
Option B:	Gets doubled
Option C:	Becomes half
Option D:	Becomes one-fourth
Q12.	The maximum phase shift of compensator G(s) =5(1+0.3s)/(1+0.1s) is
Option A:	20°
Option B:	30°
Option C:	45°
Option D:	60°
Q13.	Lead compensator and lag compensator are respectively
Option A:	Low pass and high pass filter
Option B:	High pass and low pass filter
Option C:	Both high pass filter
Option D:	Both low pass filters
Q14.	For a stable closed loop system, the gain at phase crossover frequency is

Option A:	< 20 dB
Option B:	< 6 dB
Option C:	> 6 dB
Option D:	> 0 dB
Q15.	In pole placement method of Controller design, at what location do we add the extra pole?
Option A:	a) at origin
Option B:	b) at the location of zero (if available) or very far from poles of the uncompensated system
Option C:	c) arbitrarily anywhere in the s-plane
Option D:	d) Any of the above
Q16.	In transformation method of Controller design, which of the following matrix is used to find the Transformation matrix?
Option A:	System matrix
Option B:	Observability matrix
Option C:	Controllability marix
Option D:	Output matrix
Q17.	In matching coefficient method of Controller design, the uncompensated system is generally of which order.
Option A:	first
Option B:	second

Option C:	third
Option D:	fourth
Q18.	In Pole placement method of Observer design, the system matrix of uncompensated system is converted into wl
Option A:	Phase variable form
Option B:	Controllable canonical form
Option C:	Cascade form
Option D:	Observer canonical form
Q19.	Aliasing is caused when
Option A:	Sampling frequency must be equal to the message signal
Option B:	Sampling frequency must be greater to the message signal
Option C:	Sampling frequency must be less than the message signal
Option D:	Sampling frequency must be greater than or equal to the message signal
Q20.	The use of sampled data control system are
Option A:	For using analog components as the part of the control loop
Option B:	For time division of control components
Option C:	Whenever a transmission channel forms a part of closed loop
Option D:	Whenever a transmission channel forms a part of open loop

Q21.	Inverse z-transform of the system can be calculated using
Option A:	Partial fraction method
Option B:	Long division method
Option C:	Basic formula of Z-transform
Option D:	Synthetic division
Q22.	If all the poles have small magnitudes, then the rate of decay of signal is ___________
Option A:	Slow
Option B:	Constant
Option C:	Rapid
Option D:	Fixed
Q23.	If one or more poles are located near the unit circle, then the rate of decay of signal is __________
Option A:	Slow
Option B:	Constant
Option C:	Rapid
Option D:	Fixed
Q24.	If the ROC of the system function is the exterior of a circle of radius $r < \infty$, including the point $z = \infty$, then the sy to be ____________
Option A:	Stable

Option B:	Causal
Option C:	Anti causal
Option D:	Unstable
Q25.	A linear time invariant system is said to be BIBO stable if and only if the ROC of the system function ________
Option A:	Includes unit circle
Option B:	Excludes unit circle
Option C:	Is an unit circle
Option D:	cannot defined

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Question	Correct Option (Enter either 'A' or 'B' or 'C' or 'D')
Q1.	A
Q2.	A
Q3.	A
Q4	B
Q5	A
Q6	B
Q7	B
Q8.	B
Q9.	B
Q10.	C
Q11.	A
Q12.	B
Q13.	B
Q14.	D
Q15.	B
Q16.	C
Q17.	B
Q18.	D

Q19.	C
Q20.	C
Q21.	A
Q22.	C
Q23.	A
Q24.	B
Q25.	A