Program: BE Electrical Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester V

Course Code: EEC503 and Course Name: Control System I

Time: 1 hour Max. Marks: 50

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

Q1.	Transfer function of a system is defined as the ratio of output to input in
Option A:	Z-transform
Option B:	Fourier transform
Option C:	Laplace transform
Option D:	Time function
Q2.	The principle of homogeneity and superposition are applied to
Option A:	Linear time invariant systems
Option B:	Nonlinear time invariant systems
Option C:	Linear time variant systems
Option D:	Nonlinear time invariant systems
Q3.	Electrical analogous of mass in force voltage analogy is
Option A:	Voltage
Option B:	Current
Option C:	Resistance
Option D:	Inductance
Q4.	Electrical analogous of torsional spring in force current analogy is
Option A:	Inductance
Option B:	Capacitance
Option C:	Reciprocal of inductance
Option D:	Magnetic flux
Q5.	The system having transfer function G1, G2, G3 are connected in cascade and the combination is parallel with system G4 will have the overall transfer function as
Option A:	(G1*G2*G3)+G4
Option B:	G1+G2+G3+G4
Option C:	G1*G2*G3*G4
Option D:	G1*G2*G3/G4
Q6.	To obtain mathematical modelling of electrical system _____ are used
Option A:	Newton's laws
Option B:	Coulomb’s laws

Option C:	Kirchoff's laws
Option D:	Fourier transform
Q7.	If there are three mass blocks connected with various spring and damper elements in a mechanical system, the number of differential equations governing the motion will be
Option A:	Three
Option B:	Four
Option C:	Depends on the number of dampers
Option D:	Depends on the number of spring elements
Q8.	Routh Hurwitz criterion gives
Option A:	Number of roots in the right half of the s-plane
Option B:	Value of roots
Option C:	Number of roots in the left half of the s-plane
Option D:	Coordinates of the poles
Q9.	The order of the auxiliary polynomial is always
Option A:	Even
Option B:	Odd
Option C:	Even and Odd
Option D:	Natural
Q10.	If a system is subjected to step input, which type of static error coefficient performs the function of controlling steady state error
Option A:	Position
Option B:	Velocity
Option C:	Acceleration
Option D:	Retardation
Q11.	Which of the following techniques is utilized to determine the point at which the root locus crosses the imaginary axis
Option A:	Nyquist
Option B:	Routh Hurwitz
Option C:	Nichol's
Option D:	Bode
Q12.	Laplace transform of unit step signal is
Option A:	1/s
Option B:	1
Option C:	2/s
Option D:	2
Q13.	In the chemical systems which should not be chosen as state variable
Option A:	Rate of change of reaction
Option B:	Rate of change of pressure

Option C:	Rate of change of flow
Option D:	Rate of change of temperature
Q14.	Zero initial condition for a system states that
Option A:	Input reference signal is zero
Option B:	Zero stored energy
Option C:	Initial movement of moving parts
Option D:	System is at rest and no energy is stored in any of its components
Q15.	State space approach gives more detailed and complete description of
Option A:	Only input
Option B:	Only output
Option C:	Complete behavior
Option D:	Only Transient behavior
Q16.	Which among the following is not the advantage of state variable analysis?
Option A:	It is applicable for linear and non-linear system
Option B:	Can be used in the analysis of MIMO system
Option C:	Initial conditions are not taken into consideration
Option D:	It takes initial conditions of the system into account
Q17.	Consider the function F (s)= 5/s(3s+2), the initial value of f(t) is:
Option A:	5
Option B:	5/2s
Option C:	5/3s
Option D:	0
Q18.	For root locus which of the following are the starting points?
Option A:	Open loop zeros
Option B:	Closed loop zeros
Option C:	Closed loop poles
Option D:	Open loop poles
Q19.	At which of the following root loci will end?
Option A:	Open loop zeros
Option B:	Closed loop zeros
Option C:	Closed loop poles
Option D:	Open loop poles
Q20.	The root locus of a system has three asymptotes. The system can have
Option A:	Five poles and two zeros
Option B:	Three pole and one zero
Option C:	Five poles
Option D:	Three zeros

Q21.	Polar plots for +ve and –ve frequencies
Option A:	Are always symmetrical
Option B:	Can never be symmetrical
Option C:	May be symmetrical
Option D:	Exponential
Q22.	Scientist Bode have contribution in :
Option A:	Asymptotic plots
Option B:	Polar plots
Option C:	Root locus technique
Option D:	Constant M and N circle
Q23.	Transfer function, when the bode diagram is plotted should be of the form
Option A:	(1+T)
Option B:	(1+s)
Option C:	(Ts)
Option D:	(1+Ts)
Q24.	In Nyquist criterion roots of the characteristic equation are given by
Option A:	Zeros of open loop transfer function
Option B:	Zeros of closed loop transfer function
Option C:	Poles of closed loop transfer function
Option D:	Poles of open loop transfer function
Q25.	For a stable closed loop system, the gain at phase crossover frequency should always be:
Option A:	< 20 dB
Option B:	< 6 dB
Option C:	> 6 dB
Option D:	> 0 dB

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

Q16.	C
Q17.	D
Q18.	D
Q19.	A
Q20.	A
Q21.	A
Q22.	A
Q23.	D
Q24.	C
Q25.	D