

These are sample MCQs to indicate pattern, may or may not appear in examination

University of Mumbai  
Online Examination 2020

Program: BE Automobile Engineering

Curriculum Scheme: Revised 2016

Examination: Third Year Semester VI

Course Code:AEDLO6021 and Course Name: MECHATRONICS

Time: 1hour

Max. Marks: 50

Q NO	QUESTION	A	B	C	D
1	The overall transfer function from block diagram reduction for cascaded blocks is :	Sum of individual gain	Product of individual gain	Difference of individual gain	Division of individual gain
2	For the elimination of feedback loops, the derivation based on transfer function of _____ loop is used.	Open	Closed	Both A and B	neither closed nor open
3	Feedback can cause a system that is originally stable to become _____	Stable	Unstable	Conditionally stable	Either more stable or unstable
4	A linear system at rest is subject to an input signal $r(t)=1-e^{-t}$ . The response of the system for $t>0$ is given by $c(t)=1-e^{-2t}$ . The transfer function of the system is:	$(s+2)/(s+1)$	$(s+1)/(s+2)$	$2(s+1)/(s+2)$	$(s+1)/2(s+2)$

5	Which of the following is the ability of sensor to show same output for a constant input over a period of time	Stability	Resolution	Error	Impedance
6	Change in resistance by change in temperature. This is working principle of:	Thermopile	Thermistor	Piezoelectric sensor	load cell
7	The maximum permissible error in the measurement is called as:	Threshold	Drift	Stability	Tolerance
8	If a stepper motor has 4 phase and 6 poles then step angle will be:	15°	30°	45°	90°
9	Check valve is a type of	pressure reducing valve	pressure relief valve	direction control valve	pressure valve
10	Which motor has similar construction to BLDC motor	Conventional DC motor	Induction motor	Permanent magnet synchronous motor	Totally different construction
11	The quality of output signal from A/D converter is measured in terms of _____	Quantization error	Quantization to signal noise ratio	Signal to quantization noise ratio	Conversion constant
12	What is the main function of (A/D) or ADC converter?	Converts Digital to Analog Signal	Converts Analog to Digital signal	convert digital to digital	Convert analog to analog
13	The time required to complete the conversion of Analog to Digital is _____ the duration of the hold mode of S/H.	Greater than	Equals to	Less than	Greater than or Equals to

14	In the practical A/D converters, what are the distortions and time-related degradations occur during the conversion process?	Jitter errors	Droops	Nonlinear variations in the duration of the sampling aperture	All of the mentioned
15	Which of the following is the right way to reduce distortion in the DM?	By setting up an integrator in front of DM	By setting up an integrator behind the DM	By setting up an integrator in the middle of DM	without setting up integrator
16	Which of the following is an element of time delay valve?	flow control valve	direction control valve	both A & B	pressure valve
17	Which valve gets activated only in one direction that is forward or backward movement of the piston rod?	roller lever valve	idle roller lever valve	pressure valve	flow control valve
18	Which valve is also known as memory valve?	Single pilot signal valve	double pilot signal valve	Roller lever valve	logic valve
19	Which of the following pumps saves more power?	Single pump	double pump	single & double pump uses same amount of power	simple pump
20	What is the function of pressure switch?	to increase pressure	to decrease pressure	to stabilize circuit	use to de-energized a solenoid
21	System having open loop transfer function as $1/s(1+s)$ is	Type 0 and order 1	Type 2 and order 1	Type 1 and order 1	Type 1 and order 2
22	Transferfunction is defined as:	laplace transform of output	laplace transform of input	laplace transform of output to laplace transform of input	laplace transform of input to laplace transform of output

23	A system having Type 2 and order 3 will have OLTF as	$1/s(1+s)$	$1/(1+s)$	$1/s^2(1+s)$	$1/s^2(1+s^2)$
24	Routh Hurwitz criterion gives:	Number of roots in the right half of the s-plane	Value of the roots	Number of roots in the left half of the s-plane	Number of roots in the top half of the s-plane
25	PID controller uses-----mechanism to control process variables	open loop sytem	control feed back	unity feed back	feed back system