Program: BE Electrical Engineering

Curriculum Scheme: Revised 2016

Examination: Final Year Semester VII

Course Code: EEC702 and Course Name: Drives and Control

Time: 1 hour Max. Marks: 50

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

Q1.	Fans have load torque proportional to
Option A:	Inverse of square of speed
Option B:	Square of speed
Option C:	Inverse of speed
Option D:	Speed
Q2.	Equilibrium point is when
Option A:	Load torque ≠ Motor torque
Option B:	Load torque < Motor torque
Option C:	Load torque = Motor torque
Option D:	Load torque > Motor torque
Q3.	A drive has an inertia of 10 kg-m^2, the developed torque of the motor is 100-0.1N Nm, the load torque is -20 Nm. N is the speed in rpm. What is the speed of the drive in steady state?
Option A:	900 rpm
Option B:	1200 rpm
Option C:	-1200 rpm
Option D:	800 rpm
Q4.	When electric braking last for long periods, generally the maximum current is limited to _____
Option A:	Double the rated value
Option B:	The rated value
Option C:	Thrice the rated value
Option D:	Half the rated value
Q5.	An operating point will be having steady state stability when
Option A:	For a decrease in speed the load torue < Motor developed torque
Option B:	For a decrease in speed the load torue > Motor developed torque
Option C:	For a decrease in speed the load torue = Motor developed torque
Option D:	For an increase in speed the load torue < Motor developed torque

Q6.	In case of flux control
Option A:	Speed is controlled above rated value
Option B:	Speed is controlled below rated value
Option C:	Torque remains unchanged
Option D:	Characteristic becomes linear
Q7.	Find the power rating of the motor for the load rising from 0 to 600 kW in 5 min
Option A:	120 kW
Option B:	268.33 kW
Option C:	346.41 kW
Option D:	600 kW
Q8.	CCM means
Option A:	Current continuous mode
Option B:	Continuous conduction mode
Option C:	Complete conduction mode
Option D:	Current conduction mode
Q9.	In dynamic braking of a DC separately excited motor, the time to stop is_____ the braking resistor
Option A:	Independent of
Option B:	Increasing with
Option C:	Decreasing with
Option D:	Is twice the value of
Q10.	In static Scherbius drive, maximum value of firing angle is restricted to ___ degree for the safe commutation of inverter thyristor
Option A:	90
Option B:	145
Option C:	165
Option D:	180
Q11.	In a vector control, while transforming parameters on synchronously rotating reference frame, the sequence of transformation is _____. ‘s’ represents stationary and ‘e’ synchronously rotating reference frame respectively.
Option A:	ds-qs to abc to de-qe
Option B:	abc to ds-qs to de-qe
Option C:	abc to de-qe to ds-qs
Option D:	de-qe to abc to ds-qs
Q12.	No-load speed of which of the following motor will be highest?
Option A:	Shunt motor
Option B:	Differentially compound motor
Option C:	Cumulative compound motor
Option D:	Series motor

Q13.	Select the wrong option with reference to the Torque Slip Characteristics of Three Phase I.M
Option A:	s >1, Braking Mode
Option B:	s < 0, Generating mode
Option C:	$0 \leq s \leq 1$, Motoring mode
Option D:	s is negative, Reverse Braking mode
Q14.	Stator voltage control for speed control of induction motors is suitable for
Option A:	Fan and pump drives
Option B:	Drive of a crane
Option C:	Drive of a low speed hoist
Option D:	Constant torque drive.
Q15.	For regenerative braking, the motor which is not suitable is
Option A:	DC shunt motor
Option B:	DC compound motor
Option C:	DC series motor
Option D:	DC separately excited motor
Q16.	The speed of an induction motor with a constant torque load is controlled by stator voltage control. For lower speed, the input current is_____
Option A:	Lower than the rated value
Option B:	Higher than the rated value
Option C:	Equal to the rated value
Option D:	Cannot determine
Q17.	In regenerative braking of a three phase induction motor, the phase angle of the stator voltage is
Option A:	Less than 90 and greater than 45 degrees
Option B:	Equal to 90 degree
Option C:	Greater than 90 degree
Option D:	Less than 45 degree
Q18.	Compared to DOL starter, with STAR-DELTA starter the induction motor has _____ starting torque
Option A:	High
Option B:	Equal
Option C:	Low
Option D:	Cannot compare
Q19.	In V/f control, reduction in the supply frequency without a change in the terminal voltage, causes
Option A:	Increase in the air gap flux
Option B:	Decrease in the air-gap flux
Option C:	No change in the air-gap flux
Option D:	First increase and then decrease in the air-gap flux

Q20.	The quadrature axis component of stator current contributes _____power where the direct axis component contributes _____power across the air gap
Option A:	Real, Real
Option B:	Real, Reactive
Option C:	Reactive, Real
Option D:	Reactive, Reactive
Q21.	Coulomb friction, viscous friction and static friction are high for a particular application. However, _____ is/are not considered during the dynamic analysis.
Option A:	Coulomb friction
Option B:	Static friction
Option C:	Viscous friction
Option D:	Static friction and viscous friction
Q22.	For the closed loop speed control of a DC motor with an inner current control loop, the inner loop should be _____ that of the outer loop.
Option A:	Faster than
Option B:	Lightly slower than
Option C:	Of same speed as
Option D:	Much slower than
Q23.	The carrier waveform of a sine PWM inverter is of 15 kHz frequency. When the fundamental output frequency of the inverter is 50 Hz, the inverter switches need to be turned-on and turned-off at a rate of
Option A:	1000 times per second
Option B:	10000 times per second
Option C:	50000 times per second
Option D:	15000 times per second
Q24.	30 minutes rating of a motor is 50 kW. Determine the continuous rating of the motor if heating time constant is 90 min. Assume loss to be proportional to square of the power.
Option A:	50 kW
Option B:	26.62 kW
Option C:	93.95 kW
Option D:	85.45 kW
Q25.	During light load of an intermittent duty cycle, an induction motor experiences
Option A:	Acceleration
Option B:	Deceleration
Option C:	Reversal of the speed
Option D:	Zero speed

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

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