



قائمة الاسئلة

اختبار النهائي للعام الجامعي 2025/2024-كلية الهندسة :: محركات كهربائية- كلية الهندسة - قسم الكهرباء- المستوى الرابع - قوى والات- ثلاث د. رضوان البيجي

1) To save energy during braking-----braking is used?

- a. dynamic
- b. plugging
- c. regenerative
- d. all of the above

- 1) - a
- 2) - b
- 3) + c
- 4) - d

2) Which of the following are electrical braking methods?

- a. plugging
- b. dynamic
- c. regenerative
- d. all of the these

- 1) - a
- 2) - b
- 3) - c
- 4) + d

3) Polarity of supply voltage is reversed in which type of braking?

- a. Regenerative braking.
- b. Dynamic braking.
- c. Plugging.
- d. None of these.

- 1) - a
- 2) - b
- 3) + c
- 4) - d

4) In industries which electrical braking is preferred?

- a. Regenerative braking.
- b. Plugging.
- c. Dynamic braking.
- d. None of the these.

- 1) + a
- 2) - b
- 3) - c
- 4) - d





5) The basic elements of a electric drive are

- a. Electric motor.
- b. Control system.
- c. Electrical motor and control system.
- d. None of these.

- 1) - a
- 2) - b
- 3) + c
- 4) - d

6) Speed control by variation of field flux results in

- a. Constant power drive.
- b. Constant torque drive.
- c. Variable power drive.
- d. None of the these.

- 1) - a
- 2) - b
- 3) - c
- 4) + d

7) For a speed up for dc motor the armature voltage is varied and the torque is

- a. Maintained constant
- b. Increase
- c. Decrease
- d. Not of these

- 1) + a
- 2) - b
- 3) - c
- 4) - d

8) Which speed control method preferred for constant torque drive?

- a. Field control.
- b. Armature voltage control.
- c. Mechanical loading system.
- d. None of these.

- 1) - a
- 2) + b
- 3) - c
- 4) - d

9)





While operating on variable frequency supplies, the AC motor requires variable voltage in order to

- a. Protect the insulation.
- b. Avoid effect of saturation.
- c. Improve the capabilities of the inverter.
- d. Protect thyristor from dV / dt .

- 1) - a
- 2) + b
- 3) - c
- 4) - d

10) The characteristics of induction motor be made to behave like dc motor at frequency control?

- a. Series motor
- b. Shunt motor
- c. Separately motor
- d. Compound motor

- 1) + a
- 2) - b
- 3) - c
- 4) - d

11) The slip at which rotor current maximum is at Voltage.

- a. $1/3$, high
- b. $1/2$, low
- c. $1/3$, low
- d. $1/2$, high

- 1) - a
- 2) - b
- 3) + c
- 4) - d

12) A 50 kw, 240 V and 1700 rpm separately excited dc motor controlled by a converter with closed loop. The field current is kept constant at 1.4 A and the back emf constant is 0.91 V/a-rad/s. The armature resistance is 0.1 ohm and the viscous friction constant is 0.3 N.m/rad/s. the gain of speed sensor is 0.095 V/rad/s and the gain of power controller is 100 The reference voltage to drive the motor at the rated speed is

- a. 19.222V
- b. 18.222V
- c. 20.222V
- d. 17.222V

- 1) + a
- 2) - b
- 3) - c
- 4) - d

13) A DC series motor operates in regenerative braking through a chopper connecting between the motor and the supply. The dc supply voltage is 600V. The armature resistance $R_a = 0.03\Omega$ and the field resistance $R_f = 0.05\Omega$. The back emf constant of the motor $k_v = 15.27\text{mV/A-rad/sec}$. The average armature current is maintained constant at $I_a = 250\text{A}$. The armature current may be assumed continuous and ripple free. If the duty cycle of the chopper is 60%, the minimum and maximum permissible braking speed are

- a. 4.274 rad/s, 160.445rad/s
- b. 3.724 rad/s, 106.445rad/s
- c. 3.724 rad/s, 160.445rad/s
- d. 4.274 rad/s, 106.445rad/s





- 1) - a
- 2) - b
- 3) + c
- 4) - d

- 14) If the supply is partly regenerative, the control mode used
- a. Dynamic brake
 - b. Regenerative brake
 - c. Two quadrants brake
 - d. Combined regenerative and dynamic braking

- 1) - a
- 2) - b
- 3) - c
- 4) + d

- 15)To avoid the problem of unbalancing there phase resistance in three phase induction motor
- a. Ac/AC converter
 - b. Static Kramer drive
 - c. Slip control by chopper
 - d. Static scherbius drive

- 1) - a
- 2) - b
- 3) + c
- 4) - d

- 16) A 6 pulse converter connected to 415 V ac supply is controlling a 440 V dc motor. Find the angle at which the converter must be triggered so that the voltage drop in the circuit is 10% of the motor rated voltage.
- a. 27.30°
 - b. 30.27°
 - c. 73.20°
 - d. 70.30°

- 1) - a
- 2) + b
- 3) - c
- 4) - d

- 17) A three – phase 11.2 Kw 1750rpm 460 V 60 Hz 4 pole delta connected induction motor has the following parameters $R_s = 0$, $R_r = 0.38$ ohm, $X_s = 1.14$ ohm, $X_r = 1.71$ ohm and $X_m = 33.2$ ohm. The motor controlled by varying the supply frequency. If break down torque requirement 35 N.m. find the speed ω_m at the maximum torque.
- a. 447.711rad/s
 - b. 677.711rad/s
 - c. 747.711rad/s
 - d. 547.711rad/

- 1) + a
- 2) - b
- 3) - c
- 4) - d

- 18)





A three phase 15hp, 1750rpm,60Hz four- pole wye-connected induction motor has the following parameters: $R_s=0.66\Omega$, $X_s=1.14\Omega$, $R_r=0.38\Omega$, $X_r=1.71\Omega$, and $X_m=33.2\Omega$. The no load losses are ignored. The motor is controlled by a current- source inverter and the input current is maintained constant at 20 A. If the frequency is 40Hz and the developed torque is 55N.m, determine: the slip

- a. 0.00499
- b. 0.0501
- c. 0.00599
- d. 0.0158

- 1) - a
- 2) + b
- 3) - c
- 4) - d

19) A 30hp 440 V 2000 rpm separately excited motor DC controls a load requiring a torque of $T_L = 85 \text{ N.m}$ at 1200 rpm. The field circuit resistance is $R_f = 294\Omega$, the armature circuit resistance is $R_a = 0.12\Omega$ and the motor voltage constant is $k_v = 0.7032 \text{ V/A- rad/s}$. The field voltage is $V_f = 440 \text{ V}$. The losses are negligible. The armature current may be assumed continuous and ripple free.

Determine:- The speed regulation at full load

- a. 8.66%
- b. 7.33%
- c. 6.66%
- d. 5.33%

- 1) - a
- 2) + b
- 3) - c
- 4) - d

20) When the $S > S_m$, for induction motor the torquedespite an increase.....and operation in.....

- a. Decrease, stator current, unstable
- b. Decrease, rotor current, unstable
- c. increase, stator current, unstable
- d. increase, rotor current, stable

- 1) - a
- 2) + b
- 3) - c
- 4) - d

21) For $\beta < 1$, the motor normally operated at a constant

- a. load
- b. speed
- c. flux
- d. power

- 1) - a
- 2) - b
- 3) + c
- 4) - d

22) The static and scherbius drives are used in

- a. small power pump, blower application where limited range of torque control is required
- b. Large power pump, blower application where limited range of speed control is required
- c. small power pump, blower application where limited range of speed control is required
- d. Large power pump, blower application where limited range of torque control is required





- 1) - a
- 2) + b
- 3) - c
- 4) - d

23) One of these converter drives can't return electrical energy to source

- a. three phase full converter drive
- b. three phase half converter drive
- c. three phase semi - converter drive
- d. Single phase full converter drive

- 1) - a
- 2) - b
- 3) + c
- 4) - d

24) One of these converter drives not used to control field circuit dc motor

- a. Single phase half wave converter drives
- b. Single phase semi converter drives
- c. Single phase full converter drives
- d. Single phase dual converter drives

- 1) + a
- 2) - b
- 3) - c
- 4) - d

25) This method increase the starting torque while limiting the starting current

- a. Stator voltage control
- b. Frequency control
- c. Static Kramer control
- d. Current control

- 1) - a
- 2) - b
- 3) + c
- 4) - d

