

A

Reg. No. :

--	--	--	--	--	--	--	--	--	--

Question Paper Code: 53324

B.E./B.Tech. DEGREE EXAMINATION, MAY 2018

Third Semester

Electrical and Electronics Engineering

15UEE324 - ELECTRICAL DRIVES AND CONTROL

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer All Questions

PART A - (10x 1 = 10 Marks)

1. Power Modulator performs _____ function. CO1- R
 - (a) Modulates flow of power from source to motor
 - (b) Starting, braking and speed reversal
 - (c) Converts electrical energy of source in the form suitable to the motor
 - (d) All the above

2. High braking torque produced in CO1- U
 - (a) plugging.
 - (b) dynamic braking.
 - (c) regenerative braking.
 - (d) none of above.

3. Counter Torque Braking is called as CO2- R
 - (a) Regenerative braking
 - (b) Plugging
 - (c) Dynamic Braking
 - (d) None of these

4. Which speed control method preferred for constant torque drive? CO2- U
- (a) Field control. (b) Armature voltage control.
- (c) Mechanical loading system. (d) None of above.
5. While using stator resistance starter with 3 phase induction motor, the resistances of the starter are kept at CO3- R
- (a) Maximum (b) Minimum
- (c) Half of the maximum value (d) Both a & b
6. If field current is decreased in shunt dc motor, the speed of the motor CO3- R
- (a) remains same. (b) increases. (c) decreases. (d) none of the above.
7. Speed control of DC series and shunt motors CO4- U
- (a) Flux control method (b) Rheostatic control method
- (c) Voltage control method (d) None of these
8. In Ward-Leonard system, the lower limit of the speed imposed by CO4- R
- (a) Field resistance (b) Armature resistance
- (c) Residual magnetism of the generator (d) synchronous motor
9. The selection of an electric motor for any application depends on which of the following factors? CO5- U
- (a) Electrical characteristics (b) Mechanical characteristics
- (c) Size and rating of motors (d) All of the above
10. No load speed of which of the following which motor will be highest? CO5- R
- (a) Shunt Motor (b) Series Motor
- (c) Compound Motor (d) All the above

PART – B (5 x 2= 10Marks)

11. What are the classes of duties? CO1- U
12. What are the different types of electric braking? CO2- U
13. What are the methods of starting three phase squirrel cage induction motor? CO3- U
14. What are the main applications are of ward Leonard system ? CO4- U
15. Draw the neat sketch of torque –Speed characteristics of induction motor with V/F control? CO5- U

PART – C (5 x 16= 80Marks)

16. (a) Derive an expression for a thermal model of motor for heating and cooling. Also draw its characteristic curves CO1-U (16)

Or

- (b) What is an electrical drive system? How are electric drive classified? List its advantage and disadvantages. CO1 -U (16)

17. (a) List out the advantages and disadvantages of electrical braking over mechanical braking. Discuss any one method of electrical braking of DC machines. Braking of D.C. Motors CO2 -App (16)

Or

- (b) With neat diagrams and derivations, construct the speed torque characteristics of Induction Motor. CO2 -App (16)

18. (a) What is the necessity of starter? Explain what are the different types of dc motor starters? With neat diagram, explain the working of a three point starter. CO3-App (16)

Or

- (b) Explain following with neat circuit diagram, the star-delta starter method of starting squirrel cage induction motor. CO3- App (16)

19. (a) Explain with neat sketches about the DC Shunt Motor speed control by using single phase fully controlled bridge converter. CO4-U (16)

Or

- (b) Discuss the Ward-Leonard speed control system with a neat circuit diagram. Also mention its advantages and disadvantages. CO4 -U (16)
20. (a) Describe in detail about the different methods of speed control used in three phase induction motors. CO5- U (16)
- Or
- (b) Explain the static Kramer method and static scherbius method of speed control of three phase induction motor. CO5- U (16)