Reg. No. : | | | | | | | | | | |

Question Paper Code: 56301

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Sixth Semester

Electrical and Electronics Engineering

15UEE601- ADAVANCED ELECTRICAL AND CONTROL

(Regulation 2015)

Duration: 1.15 hrs Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. In electrical drives the component which is used to modulate power from source to motor is CO1- R

   (a) Control unit (b) Control command (c) Power modulator (d) Sensing unit

2. The power modulator which is used to convert fixed DC voltage to variable DC voltage. CO1- R

   (a) Controlled rectifier (b) Un-controlled rectifier

   (c) Chopper (d) AC voltage controller

3. _____ drive is also called as Line shaft drive CO1- R

   (a) Individual drive (b) Group drive (c) Single drive (d)Multi motor drive

4. Full form of VVVF control CO2- R

   (a) Variable voltage VAR frequency. (b) Variable voltage variable frequency

   (c)Variable VAR voltage frequency. (d)VAR variable voltage frequency

5. The slip of an induction motor during DC rheostatic braking is CO2- R

   (a) 2-S (b) S (c) S-2 (d) 1-S

6. For an IM to operate in braking region slip should be always CO2- R

   (a) Less than zero (b) Greater than 1 (c) is equal to 1 (d) None of these

7. Speed control by variation of field flux results in CO2- R

(a) Constant power drive (b) Constant torque drive.

(c) Variable power drive (d) None of the above

8. Which type of Motor is best suited for the excavator? CO3- R

(a) DC Shunt Motor (b) Differential Motor (c) DC series Motor (d) Synchronous Motor

9. Switchable Speed drive, Open Loop speed drive, closed loop speed drives are the example of CO3- R

(a) Fixed speed Drive (b) Variable Speed drive (c) Servo Drive (d) Any of the above

10. _____is the simulation language. CO3- R

(a) GPSS (b) JAVA (c) Java script (d) None

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Derive the fundamental torque equations governing DC Motor load dynamics. CO1- U (8)
12. Analyze the operation of 3φ fully controlled converter fed dc drive with neat waveforms for $\alpha=30^{o}$ and $\alpha=120^{o}$ and give the justification about the waveforms. CO1- App (8)
13. Explain the reason behind operating an induction motor with constant voltage and variable frequency. Draw the appropriate speed-torque characteristics. CO2- Ana (8)
14. Design a circuit and explain the concept of closed loop control of 3-phase VSI fed induction motor. CO2- U (8)
15. Drive the transfer functions of DC motor drive and explain DC motor drive in detail. CO3- U (8)