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**Question Paper Code: 31553**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

Fifth Semester

Electronics and Instrumentation Engineering

01UEI503 – INDUSTRIAL ELECTRONICS

(Regulation 2013)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. Draw the symbol of N-channel E-MOSFET and P-Channel E- MOSFET.
2. List the advantages of SCR.
3. Interpret the need of free-wheeling diode.
4. Differentiate between on-off control and phase angle control.
5. Define duty cycle.
6. Classify the inverter circuit based on commutation circuitry.
7. Compare AC drive and DC Drive.
8. Write the expression for average output voltage of full converter fed DC drives.
9. Recommend any four applications of Industrial electronics.
10. What type of UPS is preferred for sensitive loads? Analyze the reason?

PART - B (5 x 16 = 80 Marks)

11. (a) Discuss the construction and working principle of SCR. (16)

Or

(b) Examine about the different commutation techniques in detail. (16)

12. (a) Discuss the operation of 3 phase full bridge rectifier with  $R$  Load. Compare its quadrant of operation with  $R$  and  $RL$  load. (16)

Or

(b) Explain about dual converter with necessary circuit diagram and waveforms. (16)

13. (a) Explain the operation of sinusoidal PWM technique. (16)

Or

(b) Summarize the types of chopper classification in detail. (16)

14. (a) Examine any one slip power recovery scheme. (16)

Or

(b) With a neat diagram explain the operation of self-controlled synchronous motor. (16)

15. (a) Describe about switched mode power supply. (16)

Or

(b) Analyze the operation of online and offline UPS with neat sketch. (16)