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Roll No

EE/EX-504(A)-CBGS

B.Tech., V Semester

Examination, December 2020

Choice Based Grading System (CBGS)

Industrial Electronics

Time : Three Hours

Maximum Marks : 70

Note: i) Attempt any five questions.

ii) All questions carry equal marks.

iii) In case of any doubt or dispute the English version question should be treated as final.

1. a) What is the difference between power diode and signal diode? What are the advantages of GTO over SCR? 7

b) Define the term pinch off voltage of MOSFET. State the advantages of IGBT over MOSFET. 7

2. a) Explain the different type of over current and over voltage protection in SCR. 7

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PTO

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- b) Explain in detail about Series and parallel operation of SCR. 7
3. a) Explain in detail about harmonic improvement method of controlled rectifier. 7
- b) State and describe power MOSFET on the basis of construction, principles of operation, applications, rating, input and output characteristics. 7
4. a) Derive the output voltage for full wave fully controlled rectifier and find the firing angle for maximum output. 7
- b) Draw the VI characteristics of SCR and mark the holding current and latching current in the characteristic. 7
5. a) Draw and explain the three phase half controlled converter operation with R, RL, RE load and derive the average and rms value of output voltage and power factor. 7

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- b) Discuss the transfer, output and switching characteristics
7
6. a) What is the function of free wheeling diodes in controlled rectifier?
7
- b) Explain the operational amplifier and also explain the ideal and practical characteristics.
7
7. a) Explain the structure, different modes of operation and characteristics of TRIAC.
7
- b) Explain the working of single phase bridge and draw its output voltage waveforms rectifier.
7
8. a) Explain the working of current commutated chopper with aid of circuit diagram and necessary waveforms. Derive an expression for its output voltage.
7
- b) Explain the operation of Zener diode voltage regulator.
7

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