SHRI RAMSWAROOP MEMORIAL UNIVERSITY

End Semester Examination (2021-22)-Odd Semester

M. Tech (Power System Engineering) – I Year (I Sem)	
Course Name: Industrial Power Electronics	**Code: MEE1008**
Time: 02 Hours	**Max Marks: 60**

University Roll No.															

(To be filled by the Student)

Note: Please read instructions carefully:

a) The question paper has 03 sections and it is compulsory to attempt all sections.

b) All questions of Section A are compulsory; questions in Section B and C contain choice.

Section A: Very Short Answer type Questions **Attempt all the questions.**		**BL**	**CLO**	**Marks (10)**
1.	Summarize the conditions under which a transistor operates as a switch.	BL2	CLO2	02
2.	List the advantages of GTO over SCR.	BL1	CLO1	02
3.	What are the advantages of six-pulse converter?	BL1	CLO3	02
4.	Define the harmonic factor.	BL1	CLO4	02
5.	List the applications of a resonant converter.	BL1	CLO3	02
Section B: Short Answer Type Questions **Attempt any 03 out of 06 questions.**		**BL**	**CLO**	**Marks (30)**
1.	Describe the working principle and average output voltage of a buck-boost converter with necessary circuit and waveforms.	BL2	CLO2	10
2.	Illustrate the expression for output voltage of single-phase full converter having a resistive load.	BL2	CLO2	10
3.	Describe the principle of working of static frequency converter and their applications with the help of a neat sketch.	BL2	CLO3	10
4.	Explain the principle of working of single phase to single phase step up cycloconverter.	BL2	CLO4	10
5.	A step up dc chopper has an input of 200 V and an output of 250 V. The blocking period in each cycle of operation is 0.6×10^{-3} sec. Find the period of conduction in each cycle.	BL1	CLO 4	10
6.	What is principle of phase control? Derive an expression for rms value of output voltage for single phase full wave controller.	BL1	CLO1	10

Section C: Long Answer Type Questions/Case Study **Attempt any 01 out of 03 questions.**		**BL**	**CLO**	**Marks (20)**
1.	Interpret various methods to control output voltage of inverters. With the help of neat circuit diagrams and waveforms explain the operation and RMS value of load voltage.	BL2	CLO2	20
2.	Explain the purpose of harmonic reduction in inverter output voltage. Compare different techniques used for harmonic reduction. Explain any one with the control waveforms.	BL5	CLO4	20
3.	Explain the operating principle of SCR. With the help of circuit diagrams, explain the protection circuit of SCR.	BL5	CLO3	20
