Enrolment No.

Subject code: 1724502

GUJARAT TECHNOLOGICAL UNIVERSITY

M. E. - SEMESTER - II • EXAMINATION - WINTER 2012

Date: 31-12-2012

 waveform. (b) Draw & explain the power schematic of a seven level inverter formed by cascading two conventional H bridge inverters having unequal DC bus voltage. Q.2 (a) What is the necessity of multi level inverter? What are the advantages of multi level inverter over two level inverter? (b) Briefly explain the operation of resonant DC link inverter with circuit diagram and waveform. OR (b) Design a class E resonance inverter for optimum values with following specifications: DC voltage E_{dc} = 24 V Load resistance R = 12 Ω Switching frequency f_s = 20 kHz Quality Factor Q = 7 Q.3 (a) What are the types of active power filters? Explain any one in detail. COR Q.3 (a) What are the types of active power factor correction circuit with diagram. OR Q.3 (a) 1) Give the comparison between ZCS and ZVS converter Explain overlapping and non overlapping mode of operation in the case of full bridge series resonant inverter with bidirectional switches. (b) What are the applications of unity power factor rectifier? Explain any one in details. Q.4 (a) Explain 3 Φ input to 3 Φ output matrix converter. (b) Draw and explain 12 pulse converter with circuit diagram. OR Q.4 (a) Compare all the three topologies of multi level inverter. (b) Explain 5 level NPC multi level inverter and indicate voltage blocking capacity on each of the device. Q.5 (a) Explain the steps to design the inductor used in de-dc converter. (b) Discuss the steps to design EMI filter. OR Q.5 (a) 1) What are the applications of multi pulse converter? 2) Explain 5th and 7th harmonics elimination in 12 pulse converter? 2) Explain 5th and 7th harmonics elimination in 12 pulse converter? 2) Explain 7th harmonics elimination in 12 pulse converter? 2) Explain 7th harmonics elimination in 12 pulse converter? OR OR OR OR OR OR OR OR OR O	Time	e: 10. ructi 1	Vame: Power Electronics - II 30 am – 01.00 pm Total Marks: 70 ons: Attempt all questions. Make suitable assumptions wherever necessary.)
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