

GANPAT UNIVERSITY

B.Tech. Semester V (EC) Examination (Regular) November-December 2012

2EC 503: POWER ELECTRONICS & APPLICATIONS

MAX Time: 3 Hours

MAX Marks: 70

Instructions:

1. Attempt all questions.
2. Answer **each** section in **separate** answer books.
3. Figures to the right indicate **full** marks.
4. Standard terms and notations are used. **Assume** data, if necessary.

SECTION-I

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|-----------|---|---|---|
| 1 | A | Give comparison between transistor and Thyristor. | 6 |
| | B | Briefly explain the block diagram of generalized power electronics with feedback. | 4 |
| | C | Briefly explain Natural Commutation? | 2 |
| OR | | | |
| 1 | A | Write short note on Turn on characteristic of SCR. | 6 |
| | B | Briefly explain the Class B and Class D commutation techniques of Thyristor. | 6 |
| 2 | A | Using suitable circuit diagram explain the single phase half wave controlled rectifier with resistive load. | 5 |
| | B | State and explain the importance of free wheeling diode. | 4 |
| | C | Draw the circuit diagram of step up chopper. | 2 |
| OR | | | |
| 2 | A | Write short note on:
IGBT, SIT and PMOSFET. | 6 |
| | B | What do you mean by Chopper? Explain basic chopper configuration. | 5 |
| 3 | A | Draw and explain the waveforms of three phase full wave controlled rectifier with resistive load. | 6 |
| | B | Write short note on TRIAC. | 6 |

SECTION-II

- 4 A Explain dual mode dual converter with its block diagram and related waveforms. 6
- B Derive the equations of half-Bridge PWM inverter. 6
- OR**
- 4 A Write short note on ideal dual converter. 6
- B Explain the three phase inverters in 180 degree conduction mode with resistive load. 6
- 5 Write short note on three phase separately excited drives. 11
- OR**
- 5 A Give the design details of Snubber network for d. c. circuit. 6
- B Briefly explain two types of UPS. 5
- 6 A Write short note on Induction motor drives 6
- B Briefly explain any two types of SMPS. 6
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END OF PAPER