

**DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY,
LONERE - RAIGAD - 402 103
Winter Semester Examination - December - 2017**

Branch: M.Tech. Electrical (Electrical Power System) Semester: I

Subject with Subject Code: Advanced Power Electronics Marks: 60
(MTEE102 / MTEPS103)

Date: 14 / 12 / 2017 Time: 3 Hrs.

Instructions to the Students

1. Each question carries 12 marks.
2. Attempt any five questions of the following.
3. Illustrate your answers with neat sketches, diagram etc., wherever necessary.
4. If some part or parameter is noticed to be missing, you may appropriately assume it and should mention it clearly.

- (Marks)
- Q.1. Attempt any one of the following. (12)**
- a) Explain switching characteristics of IGBT with voltage and current waveform.
 - b) Explain the basic structure of MOSFET in detail with neat diagram.
- Q.2. Explain the continuous and discontinuous current conduction of single phase full converter with neat circuit diagram and waveform. (12)**
- Q.3. Describe Buck converter under continuous and discontinuous conduction mode operation. (12)**
- Q.4. a) Explain Operation of 3Φ VSI for 120° mode of conduction. Also draw its phase & line voltage. (08)**
- b) Write short notes on space vector modulation. (04)
- Q.5. Attempt any one of the following.**
- a) Describe the series resonant inverters with bidirectional switches in briefly. (12)
 - b)
 - i.) What are the features of multilevel converter? (04)
 - ii.) Write comparisons between ZCS and ZVS resonant converter. (04)
 - iii.) Draw the circuit diagram of diode clamped five level single phase bridge multilevel inverter. (04)

Q.6.

a) How the energy is saving in AC and DC drives by using power electronics converter control? **(06)**

b) What is the maximum power point tracking? Explain it with block diagram. **(06)**

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