

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-VII • EXAMINATION – WINTER 2013**

**Subject Code: 172403****Date: 07-12-2013****Subject Name: Power Processing Circuits-II****Time: 10:30 TO 01:00****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Describe the operation of a three phase bridge inverter for 180° conduction for star connected resistive load **10**  
 (b) Differentiate: On-line and Off-line UPS. **04**
- Q.2** (a) Why Inverter is used? Give detailed classification of inverter. Enlist its area(s) of application(s) where inverter is suitable. **07**  
 (b) Analyse performance of the circuit shown in Fig.1 **07**

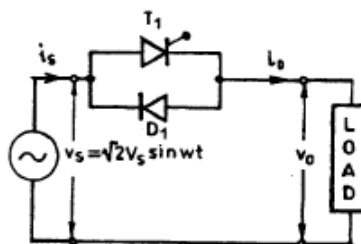


Fig.1

**OR**

- (b) With waveforms, explain the operation of a 1-Ø to 1-Ø cyclo-converter. **07**
- Q.3** (a) Explain working principle of a single – phase series inverter. **07**  
 (b) Why multi-level inverter is required? Discuss one application of the same. **07**
- OR**
- Q.3** (a) Describe operation of a single – phase full bridge inverter. **07**  
 (b) Explain diode clamped multi-level inverter. **07**
- Q.4** (a) Enlist DC input voltage control techniques for inverter. Explain any one of them. **07**  
 (b) Write short note on: McMurray Inverter. **07**
- OR**
- Q.4** (a) State various types of PWM techniques & describe any one of them in detail. **07**  
 (b) Write short note on: SVPWM. **07**
- Q.5** (a) Why battery is required? Explain constant current and trickle charging methods for battery. **04**  
 (b) Write short note on: - Active front-end rectifier. **10**
- OR**
- Q.5** (a) With help of block diagram explain the basic principle of operation of a on-line UPS. **04**  
 (b) State disadvantages of controlled rectifier. Justify the use of Active front-end rectifier. **10**

\*\*\*\*\*