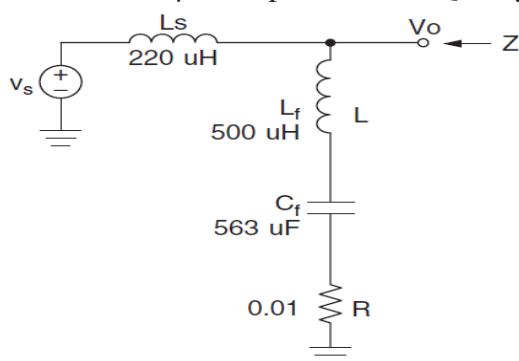


GUJARAT TECHNOLOGICAL UNIVERSITY**M.E –IIst SEMESTER–EXAMINATION – JULY- 2012****Subject code: 1724505****Date: 12/07/2012****Subject Name: Power Quality****Time: 10:30 am – 13:00 pm****Total Marks: 70****Instructions:**

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

- Q.1** (a) Briefly discuss How harmonics will be produced by power electronics devices **07**
 (b) Explain Transformer magnetization nonlinearities **07**
Q.2 (a) A series resonant filter used on an AC line is shown in Figure, find **07**



- a. resonant frequency of filter, Impedance Z offered by system, and Quality factor
 b. If same filter is used to filter out 5th order harmonics. find filter capacitor if $L_f = 600 \mu\text{H}$, Impedance and Quality factor (System Freq = 50 Hz)
- (b) Explain various effects of harmonics **07**

OR

- (b) Explain series and parallel active filter **07**
Q.3 (a) Explain Impact of reactive power management **07**
 (b) Enlist and Explain various devices used for voltage regulation **07**

OR

- Q.3** (a) Discuss various causes of voltage flicker and their effects also suggest various means to reduce flickers **07**
 (b) Explain Basic power flow and voltage drop in transmission line **07**
Q.4 (a) Enlist Utility System Fault-Clearing Issues and Explain any Four **07**
 (b) Explain Area of vulnerability **07**

OR

- Q.4** (a) Briefly Explain Transmission and Distribution system sag performance evaluation **07**
Q.4 (b) Explain UPS and SMEs Device **07**
Q.5 (a) Enlist and Explain different type of current transformer used as a transducer in power quality monitoring **07**
 (b) Explain following terminology **07**

1. Sag
2. Swell
3. Flickers
4. Interruption
5. Impulsive Transient
6. Oscillatory Transient
7. Inter harmonics

OR

- Q.5** (a) Explain different type of Potential transformer used as a transducer in power quality monitoring **07**
 (b) Briefly explain purpose of grounding and problem due to grounding **07**
