# Nepal college of information technology

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| Level: Bachelor | | Semester – Spring | Year : 2013 | |
| Programme: BE | | | Full Marks : 70 | |
| Pass Mark : 35 | |
| Course: Industrial Electronics and Drives | | | Time : 2 hrs | |
| *Candidates are required to give their answers in their own words as far as practicable.* | | | |
| *The figures in the margin indicate full marks.* | | | |
| Attempt all the questions. | | | |
| 1. | | 1. Discuss the static I-V curve of thyristor with different operating mode and also derive the expression for anode current in a thyristor. 2. Discuss the workng principle of Triac with various mode of operation and also draw the firing circuit for Triac using Diac . | | | | | 8  7 |
| 2. | | 1. Explain in brief the UJT relaxation oscillator with its suitable diagrams and waveforms and derive the expression for time period **“T”**. 2. What is freewheeling diode and why it is necessary? Explain the operation of single phase semi-converter with waveforms. | | | | | 8  7 |
| 3. | | 1. Explain with appropriate waveforms, the principle of operation of working of step-up chopper. 2. Describe the operation of single phase full wave bridge inverter with its relevant waveforms. | | | | | 7  8 |
| 4. | | 1. Prove that the frequency of astable mode of 555 timers is where every notation has its usual meaning. 2. Derive the equations of single phase half wave rectifiers with resistive load, to find Id.c,Vd.c, Irms, Vrms, TUF and PF along with the output waveform. | | | | | 8  7 |
| 7. | | Write short notes on **any two:**   1. IGBT 2. Cycloconvertor 3. PWM Technique | | | | | 2.5x2 |

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