

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- VIth SEMESTER-EXAMINATION – MAY- 2012****Subject code: 160801****Date: 09/05/2012****Subject Name: Integrated Circuits & Application****Time: 10:30 am – 01:00 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) Explain absolute value output circuit. **07**
(b) Design an astable multivibrator which will flash the bulb such a that its ON time will be 3 seconds and OFF time will be 1 second. **07**
- Q.2** (a) What is Op-Amp.? Draw and explain functional block diagram of it. **07**
(b) Explain Phase Locked Loop and define its Lock range, Capture range and Pull-in time. **07**
- OR**
- (b) Explain the application of PLL in FSK demodulation. **07**
- Q.3** (a) Define thermal drift and error voltage. Derive equation of error voltage. **07**
(b) Derive the expression for input resistance with feedback (R_{if}) for voltage series feedback amplifier. **07**
- OR**
- Q.3** (a) Write a short note on Schmitt Trigger. **07**
(b) Derive the mathematical expression for the output voltage of integrator. **07**
- Q.4** (a) What is Slew Rate? Derive the expression of it for Op-Amp. **07**
(b) Explain differential input differential output amplifier. **07**
- OR**
- Q.4** (a) Explain V-I converter with grounded load. **07**
(b) Explain Log amplifier using diode. **07**
- Q.5** (a) Draw non-inverting amplifier using Op-Amp and derive the expression for its output voltage. **07**
(b) Explain one-shot multivibrator using time 555. **07**
- OR**
- Q.5** (a) Write a short note on Sample and Hold circuit. **07**
(b) Explain offset voltage compensation network for IC 741. **07**
