

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-III • EXAMINATION – WINTER • 2014****Subject Code: 2130902****Date: 20-12-2014****Subject Name: Analog Electronics****Time: 02.30 pm - 05.00 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) Classify the types of negative feedback & explain each in brief. **07**
 (b) Draw the equivalent circuit of an opamp & explain the significance of each component. **07**
- Q.2** (a) Draw the circuit diagram of class B push-pull amplifier & explain its working. **07**
 (b) 1. What are the merits & demerits of hybrid parameters? **03**
 2. Write a short note on cross over distortion. **04**
- OR**
- (b) 1. Draw a neat diagram of window detector. **03**
 2. Compare different types of power transistors. **04**
- Q.3** (a) Explain the working of IC555 as astable multivibrator. **07**
 (b) a) Explain the ideal voltage transfer characteristics of opamp. **03**
 b) What is the effect of negative feedback on gain & bandwidth? **04**
- OR**
- Q.3** (a) Derive the expression for voltage gain of differential amplifier with two opamps. **07**
 (b) 1. What are the requirements of an instrumentation amplifier? **03**
 2. Explain the procedure of offset voltage compensation in an opamp. **04**
- Q.4** (a) Define the following **07**
 a) Pass band b) Stop band c) Attenuation d) Cut off frequency.
 (b) 1. Write a short note on Schmitt trigger circuit. **03**
 2. What are the merits & demerits of active filters? **04**
- OR**
- Q.4** (a) With the help of neat diagram explain the circuit of voltage to current converter. Also state its applications. **07**
 (b) 1. Write a short note on integrator. **03**
 2. Explain the operation of zero crossing detector. **04**
- Q.5** (a) Draw the block diagram of PLL system & explain the function of each block. **07**
 (b) Discuss the applications of IC555. **07**
- OR**
- Q.5** (a) Discuss the operation of LM317 voltage regulator. **07**
 (b) Compare inverting amplifier & non-inverting amplifier. **07**
