

GUJARAT TECHNOLOGICAL UNIVERSITY**PDDC SEM-III Examination-Dec-2011****Subject code: X31101****Date: 13/12/2011****Subject Name: Advance Electronics****Time: 2.30 pm -5.00 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 single-stage CE transistor amplifier response with neat circuit diagram. **07**
- (b) Explain the function of differential amplifier. Define CMRR and prove output of differential amplifier is $V_o = A_d v_d(1 + v_c / \rho v_d)$. **07**

- Q.2** (a) Explain R-2R ladder type DAC with circuit diagram. **07**
- (b) For the following feedback topologies obtain expression for input and output resistance R_{if} and R_{of} **07**
- 1) Current Series Feedback
Current Shunt Feedback

OR

- (b) Explain difference of sinusoidal oscillators, phase shift oscillator and resonant circuit oscillators. **07**

- Q.3** (a) State the condition for an amplifier to work as an oscillator. How these conditions are fulfilled in a transistorized RC phase shift oscillator? Draw equivalent circuit diagram and derive frequency of oscillation. **07**
- (b) Explain different measurement of operational amplifier parameters. **07**

OR

- Q.3** (a) Draw the circuit diagram of Wien bridge oscillator and explain its working. Find the condition for oscillation. **07**
- (b) Explain feedback concept, transfer gain with Feedback and General Characteristics of Negative Feedback Amplifiers **07**

- Q.4** (a) Explain transistor transistor logic with circuit diagram. **07**
- (b) Explain Counter type A/D converter with circuit diagram. **07**

OR

- Q.4** (a) What is distortion in amplifier? Explain all types of distortion. **07**
- (b) Explain the diode transistor logic with circuit diagram. **07**
- Q.5** (a) Explain Flash-type A/D converter with circuit diagram. **07**
- (b) Explain Crystal oscillator with circuit diagram, derive the condition for oscillation and explain frequency stability. **07**

OR

- Q.5** (a) Explain the difference of Dominant pole compensation, Pole zero compensation and Lead compensation. **07**
- (b) Explain Weighted resistor type DAC with circuit diagram. **07**
