**Karunya University**

**(Karunya Institute of Technology and Sciences)**

(Declared as Deemed to be University under Sec.3 of the UGC Act, 1956)

**Supplementary Examinations – June 2016**

**Subject Title: ANALOG VLSI DESIGN Time : 3 hours**

**Subject Code: 14EC3056 Maximum Marks: 100**

**Answer ALL questions (5 x 20 = 100 Marks)**

1. a. Explain the MOS characteristics in all the regions of the device. (10)

b. Determine the high cut off frequency of BJT device model with neat diagrams. (10)

**(OR)**

2. a. Determine the IV characteristics of MOSFET device. (10)

b. Explain the operation of MOSFET device in detail. (10)

3. How will you estimate the total charging and discharging time in dual slope ADC with neat diagrams and relevant expressions?

**(OR)**

4. a. Discuss the current scaling technique in D/A convertors with neat diagrams. (10)

b. How will you detect a digital word ‘101’ when Vmax is ‘1V’ and the input voltage is 0.7V using a high performance ADC. Explain. (10)

5. How will you design a low pass filter in various modes? Explain.

**(OR)**

6. a. How will you replace a resistor using a switch capacitor circuit? Justify with relevant expressions. (12)

b. Design a current amplifier with suitable expressions. (8)

7. Design a cascade amplifier how you will keep all the transistors in saturation. Explain with suitable expressions.

**(OR)**

8. a. Design an integrator using Switched Capacitor Circuit. (15)

b. Design a LPF for the given transfer function Z(s) = 2s3 + 2s2 + 2s +1/2s2 + 2s + 1. (5)

9. **Compulsory:**

Determine two stage open loop comparator with relevant expressions.