**SPH 316: ADVANCED ELECTRONICS ASSIGNMENT**

**Attempt ALL the following questions. (50 MARKS IN TOTAL)**

Q1. Briefly describe the difference between the classes A, class B and class C amplifiers. (3mks)

Q2. In a transistor amplifier, when the signal changes by 0.02V, the base current changes by 10µA and

collector current by 1mA. If collectors load Rc = 5kΩ and RL =10KΩ, find: (i) Current gain (ii) input

impendance (iii) a.c. load (iv) voltage gain (v) power gain. (10 mks)

Q3. Derive the expression for AM wave and briefly describe limitations of such modulation. (15 mks)

Q4. Explain the concepts of FM modulation, essentials of demodulation and stages of superheterodyne

radio receiver. (15 mks)

Q5. Explain the digital FIR and IIR filters and provide their mathematical expressions. (3mks)

Q6. The peak passband ripple and the minimum stopband attenuation of a digital filter are 0.1dB and

35dB respectively. Determine their corresponding peak ripple values. (4mks)