**MUFFAKHAM JAH COLLEGE OF ENGINEERING AND TECHNOLOGY**

**BANJARA HILLS, ROAD NO.3**

**ELECTRONICS AND COMMUNICATION ENGINEERING DEPARTMENT**

**Subject Name: Analog Electronics Subject code: PC223EC**

**CLASS TEST-2 EEE and EIE**

**(2021-22)**

**NOTE:**

1. **ANSWER ALL QUESTIONS FROM PART-A**
2. **ANSWER ANY TWO QUESTIONS FROM PART-B**
3. **ANY MISSED DATA CAN BE ASSUMED APPROPRIATELY**

**PART A (3x2=6)**

1. Draw the circuit diagram of the Hartley oscillator. [CO3] **[2M]**
2. Draw the circuit diagram of an OP-AMP in an inverting and non-inverting configuration. [CO5] **[2M]**
3. Differentiate between the power amplifiers and the voltage amplifiers. [CO4] **[2M]**

**PART B (2x7=14)**

1. Draw the circuit of the double-ended differential amplifier and explain its working. [CO5] **[7M]**
2. Explain what is the Barkhausen criterion? Draw the circuit diagram of the RC phase shift oscillator.   
    [CO3] **[2M+5M]**
3. Explain how an OP-AMP works as a summer with a neat circuit diagram. [CO5] **[7M]**

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