GROUP – A (10 marks)
Answer the following questions. Each question is of 2 marks   **5 x 2 = 10**

1. i)   Define Operational Amplifier.

    ii) Mention few applications of Operational Amplifier

    iii) State the Characteristics of ideal Operational Amplifier

    iv) Define Q Point of a Transistor.

    v)   Explain the parameter h_{12} of hybrid parameters.

GROUP – B (10 marks)

Answer the following questions. Each question is of 5 marks   **2 x 5 = 10**

2. Draw the circuit diagram of an Op-amp of an inverting amplifier and derive the expression of the voltage gain.

3. Explain the CE mode operation of a Transistor and find out the equation for gain and current in a NPN Transistor.

GROUP - C (10 Marks)

Answer the following question. The question is of 10 marks   **1 x 10 = 10**

4. A) Draw the circuit diagram of Op-amp integrator and derive the expression of its output voltage.

   B) Calculate output voltage of an Op-Amp for input voltage $Vi1=150\mu V$, $Vi2=140\,\mu V$, differential gain $Ad=4000$ and $CMRR=100$.

                                                                            (5+5)

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