



XII Std. Open Book Test-4: Operational Amplifiers

Max. Marks: 24

Ques 1: Fill in the blanks: (1+1+1+1+1=5)

- 1) When both input signals of differential amplifier are equal then its gain becomes _____. (**zero, infinite, unity**)
- 2) The pin-4 of IC741 as operational amplifier is known as _____. (**+ve pin, -ve pin, inverting input pin**)
- 3) The differential amplifier has _____ input resistance. (**high, low, zero**)
- 4) In non-inverting zero reference comparator, if $V_{in}=1V$ then its output will be _____. (**1V, -1V, +Vsat**)
- 5) The output equation of buffer circuit is _____. (**$V_o = -V_i$, $V_o = +V_i$, $V_o = V_i/2$**)

Ques 2: Draw all the four circuits of comparator and give their 3 output conditions of each. (1+1+1+1=4)

Ques 3: Draw the circuit of differential amplifier and explain its working with derivation. (1+2=3)

Ques 4: Explain the working of inverting adder circuit by deriving its final output equation. Draw circuit also. (3+1=4)

Ques 5: Define: output offset voltage, input bias current, CMRR and frequency response for an opamp. (1+1+1+1=4)

Ques 6: Draw and explain the circuit of subtractor OR the circuit of differentiator using opamp. (4)



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