[This question paper contains 2 printed pages.]

Sr. No. of Question Paper : 1808 **C** **Roll No.....**

Unique Paper Code : 251404

Name of the Course : B.Sc. (Hons.) Electronics

Name of the Paper : Electronics Practical – VIII (ELHP-406)

Semester : IV

Duration : 1 Hour Maximum Marks : 25

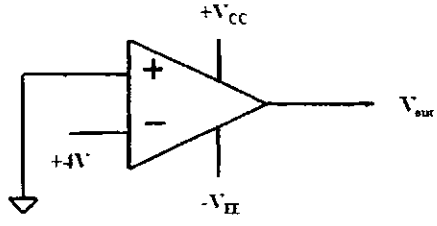
Instructions for Candidates

1. Write your Roll No. on the top immediately on receipt of this question paper.
2. Attempt any **five** questions from **Section A** and any **ten** questions from **Section B.**
3. Use of Scientific non-programming calculators is allowed.

SECTION – A

(Attempt any **five** questions.) (5×1)

1. Give two reasons why an open loop opamp is unsuitable for linear applications.
2. Which circuit produces an output that approximates the area under the curve of an input function ?
3. In what way is the voltage follower a special case of the non-inverting amplifier ?
4. Determine the output voltage in the circuit given below :



5. How fast can the output of an opamp change by 10V, if its slew rate is 1V/μs ?
6. Write the expression for 3-dB frequency of a first order high pass Butterworth filter.
7. Why are compensating networks used ?

P.T.O.

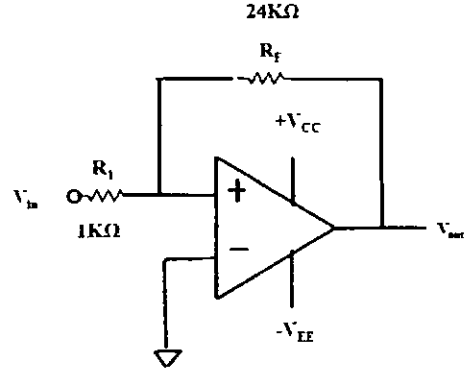
SECTION – B

(Attempt any **ten** questions.) (10×2)

1. Define Break frequency and Bandwidth.

2. Design an inverting amplifier with a gain of-5 and an input resistance of 10 kΩ.

3. Find the bandwidth of the given circuit if the UGB of an opamp is 1 MHz.



4. What is CMRR ? For an opamp of CMRR = 10^5 and the differential gain $A_d = 10^5$, Calculate the common mode gain A_c of the opamp.

5. How the main drawback of an ideal differentiator is overcome in a practical differentiator ? Draw the circuits.

6. How can one convert a low pass filter into a high pass filter ?

7. Draw the frequency response of an ideal band pass filter. Compare it with practical band pass filter.

8. Using a 741 opamp, design a first order high pass filter to have a cut-off frequency of 1 kHz.

9. Draw the general circuit along with equations for a 50% duty cycle 555 astable multivibrator.

10. State Barkhausen conditions for oscillation.

11. Design a phase shift oscillator for a frequency of 100 Hz.

12. What is the roll-off rate of (a) first order filter, (b) second order filter.

13. Predict the output waveform of the Schimtt trigger if the input is : (a) triangular wave, (b) sawtooth wave.