

- N.B. :** (1) Question No. 1 is **compulsory**.  
 (2) Attempt any **four** questions out of the remaining **six** questions.  
 (3) **Figures** to the **right** indicate **full** marks.  
 (4) Assume **suitable** data wherever **necessary** and mention.

1. (a) Draw  $r_e$  model for CE amplifier configuration. 5  
 (b) Sketch the transfer curve for p channel device with  $I_{DSS} = 4 \text{ mA}$ ,  $V_p = 3 \text{ V}$ . 5  
 (c) Draw the trigger input and output waveforms for IC555 monostable multivibrator. 5  
 (d) How to calculate h parameter using graphical method. (only one parameter). 5
2. (a) Consider a simple CE configuration. Draw h parameter equivalent for the same. 15  
 (b) Give a table of typical values of h parameters for CE configuration for a transistor. 5
3. (a) Draw a simple block diagram of feedback amplifier. 10  
 What are the characteristics/improvements of negative feedback ?  
 (b) Explain with the help of block diagram, four different types of feedback amplifier connections. 10
4. (a) Draw common drain (CD) amplifier or source follower configuration. 5  
 Justify the name source follower. 5  
 (b) Draw input and output waveforms for the above. 5  
 (c) Explain a voltage regulator of a particular voltage and current limit of your choice. 10  
 Draw the block diagram.
5. (a) Draw :- 10  
 (i) Open loop configuration  
 (ii) Closed loop configuration.  
 with respect to op amp. Compare the above with respect to -  
 (i) Feedback  
 (ii) Ideal and practical gain.  
 (b) Draw and explain equivalent circuit of an ideal op amp. 10
6. (a) Explain the terms CMRR, PSRR. 5  
 (b) Give typical practical values for IC741C for the above. 5  
 (c) Draw the ideal inverting comparator. What are the practical drawbacks of such a circuit ? 5  
 (d) Explain practical integrator with  $V_i = 5 \sin \omega t$  as input signal. 5
7. (a) Draw comparator and its input and output waveforms. 5  
 (b) Draw Schmitt Trigger circuit and its waveforms. 5  
 (c) Explain astable multivibrator with IC555 to generate output as square wave with 10  
 50% duty cycle.  
 Take frequency = 5 kHz.