

2 (A) Discuss in detail first order Butter worth band pass filter and its design principles. 8

(B) Design a wide band pass filter with $f_L = 200\text{Hz}$, $f_H = 1\text{kHz}$ and a passband gain of 4. 4

OR

2 (A) Explain different types of comparators. 6

(B) Write short note on Schmitt trigger. 6

3 (A) Explain the working of successive-approximation ADC with an example. 7

(B) Explain a peak detector and its applications. 5

OR

3 (A) Explain D/A converter with binary weighted resistors? What are the disadvantages of it? 8

(B) Determine the size of each step if $R_F = 10\text{k}\Omega$ in a D/A converter (4-bit) with binary – weighted resistors. What is the output voltage when inputs b_n through b_3 are at 5v? $R = 20\text{k}\Omega$ 4

4 (A) Using the internal block diagram of timer IC (555) explain its action as an astable multivibrator and give its applications. How will you generate a square wave output from it? 8

(B) Design an astable multivibrator using IC555 having an output frequency of 2kHz with a duty cycle of 65%. 4

OR

4 (A) Explain a triangular wave generator using 741. How will you modify it to make a saw tooth wave generator? 7

(B) Give details of sample and hold circuit 5