AD-3282
Third Year B. Sc. (Sem. VI) Examination
March/April - 2015
Electronics Paper - VI
(Linear Integrated Systems)

Time : 2 Hours] [Total Marks : 50
Instructions :
(1)

(2) Figure on the right indicates full marks.
(3) All symbols and abbreviations have their usual meaning.
(4) Non-programmable calculators are allowed.
(5) Q.I is compulsory.
(6) Assume data if necessary.

1 Answer in brief: 14

(1) What are the advantages of higher order active filters?
(2) Define frequency response and Bode plots.
(3) Design a Wein bridge oscillator using IC741 of 1 kHz.
(4) What do you mean by all pass filters?
(5) What are the steps to find out the circuit stability?
(6) Explain a positive small -signal half- wave rectifier circuit using op-amp
(7) What is Chebyshev response?
2 (A) Discuss in detail first order Butter worth band pass filter and its design principles.
(B) Design a wide band pass filter with \( f_L = 200\text{Hz} \), \( f_H = 1\text{kHz} \) and a passband gain of 4.

OR

2 (A) Explain different types of comparators.
(B) Write short note on Schmitt trigger.

3 (A) Explain the working of successive-approximation ADC with an example.
(B) Explain a peak detector and its applications.

OR

3 (A) Explain D/A converter with binary weighted resistors? What are the disadvantages of it?
(B) Determine the size of each step if \( R_F = 10k\Omega \) 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? \( R = 20k\Omega \)

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

OR

4 (A) Explain a triangular wave generator using 741. How will you modify it to make a saw tooth wave generator?
(B) Give details of sample and hold circuit