

C 4312

B.Sc. (Three Year) DEGREE EXAMINATION, MARCH/APRIL 2017.

End Semester Examination

Fourth Semester

Part II — Electronics

Paper IV : ANALOG AND DIGITAL IC APPLICATIONS

Time : 3 Hours

Max. Marks : 70

PART — A

Answer any FIVE of the following questions. **(5 × 4 = 20 Marks)**

1. Draw the block diagram of Op-Amp and explain the function of each block.
2. Explain the working of Op-Amp series voltage regulator.
3. Design a mod-5 synchronous counter using T flip-flops.
4. Explain the operation of dual slope A/D converter.
5. Explain the operation of 4-bit serial in parallel out shift register with neat circuit diagram.
6. Explain the concept of virtual ground in Op-Amp.
7. Explain the operation of monostable multivibrator using Op-Amp.
8. Define and explain CMRR and offset voltage.

PART — B

Answer ALL the following questions. **(5 × 10 = 50 Marks)**

9. (a) Draw the circuit diagrams of inverting and non-inverting Op-Amps and explain their operations. Derive expressions for voltage gains.

Or

- (b) Give relevant diagrams and explain the operation of Op-Amp summing amplifier and logarithmic amplifier.

Turn Over

10. (a) Draw the circuit diagram for a square wave generator using Op-Amp and explain its operation. Draw the timing waveforms.

Or

(b) Draw the functional block diagram of IC555 and explain its operation.

11. (a) Design Gray to binary code converter.

Or

(b) Design 3 – bit binary UP/DOWN counter using JK flip-flops.

12. (a) Explain the principle of A/D converter. Describe the operation of successive approximation ADC.

Or

(b) What is D/A converter? Explain D/A conversion using R-2R ladder network.

13. (a) What is LED? Explain the interfacing of LED's.

Or

(b) Explain the operation of 4-bit parallel in serial out shift register with neat circuit diagram.
