

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION DECEMBER 2018
(Fourth Semester)

Branch - ELECTRONICS

DIGITAL AND LINEAR IC'S

Time : Three Hours

Maximum : 75 Marks

SECTION-A (20 Marks)

Answer ALL questions

ALL questions carry EQUAL marks (10 x 2 = 20)

- 1 List the basic process used in the silicon planar technology.
- 2 Mention the importance of SiO_2 layer.
- 3 Define the term : Logic swing.
- 4 What is meant by power dissipation in logic gates?
- 5 List six characteristics of an ideal op.amp.
- 6 Define : Slew rate of an op.amp.
- 7 What is a comparator?
- 8 State the two conditions of oscillations.
- 9 What are the modes of operation of a timer?
- 10 Define the term: Lock-in range.

SECTION - B (25 Marks)

Answer ALL Questions

ALL Questions Carry EQUAL Marks (5 x 5 = 25)

- 11 a Explain how silicon wafers are prepared.
OR
b Explain the term : Metallization.
- 12 a Describe the operation of RTL gate with a neat diagram.
OR
b Compare TTL.ECL and MOS gates.
- 13 a Explain the working of an adder using op.amp.
OR
b Describe the operation of a differentiator using op.amp.
- 14 a Explain the working of Zero crossing detector circuit.
OR
b Explain the operation of sine wave generator.
- 15 a Explain the functional diagram of a 555 timer.
OR
b Draw the circuit of a PLL AM demodulator and explain its operation.

SECTION - C (30 Marks)

Answer any THREE Questions

ALL Questions Carry EQUAL Marks (3 x 10 = 30)

- 16 Explain the fabrication process of integrated capacitors with suitable sketches.
- 17 Explain the characteristics and working of standard TTL gate.
- 18 Describe the operation of voltage to current converter (V to I) using op.amp with suitable sketches.
- 19 Draw and explain the operation of an astable multi vibrator with suitable sketches.
- 20 Explain the working of a voltage controlled oscillator fVCOI with its