Total No. of Questions—**8**] [Total No. of Printed Pages—**2**

Seat No.	

[5559]-138

S.E. (E&TC/Elect.) (Second Semester) EXAMINATION, 2019

INTEGRATED CIRCUITS

(2015 PATTERN)

Time : 2 Hours **Maximum Marks : 50**

N.B. :— (i) Answer Q. 1 or Q. 2, Q. 3 or Q. 4, Q. 5 or Q. 6 and Q. 7 or Q. 8.

(ii) Neat diagrams must be drawn wherever necessary.

(iii) Figures to the right side indicate full marks.

(iv) Use of calculator is allowed.

(v) Assume suitable data if necessary.

1. (a) Explain following OP-AMP parameters and state their ideal value [6]

i. Slew Rate. ii. Input offset current. iii. Supply voltage rejection ratio.

(b) Draw the circuit diagram of practical integrator and draw its frequency response. Write equation for output voltage Vo. [6]

Or

2. (a) Draw Block diagram of OP-AMP and explain in brief. [6]

(b) Design a practical differentiator to differentiate the input sine wave signal. Assume Fa=1KHz, C1=0.1uf and R1=82 Ohms. [6]

3. (a) Draw circuit diagram and input-output waveform of precision half wave and full wave rectifier. [6]

(b) Explain with a neat circuit diagram working of V to I converter with grounded load and derive the equation for load current IL. [6]

P.T.O.

Or

4. (a) Explain with a neat circuit diagram working of inverting Schmitt trigger with its input-output waveform and hysteresis plot. [6]

(b) Draw circuit diagram of R-2R ladder DAC and write its output voltage equation. [6]

5. (a) Explain PLL operation in detail with neat block diagram. [6]

(b) Design Wein bridge oscillator for Fo=1KHZ and draw its circuit diagram. Assume suitable data [7]

Or

6. (a) Draw and explain Frequency Shift Keying (FSK) demodulator using IC565. [6]

(b) . Explain with neat circuit diagram RC phase shift oscillator and write equation for frequency of oscillations Fo. [7]

7. (a)Draw circuit diagram of first order low pass butterworth filter and derive gain (Vo/Vin) of filter as function of frequency. [7]

(b) Draw circuit diagram of Second order high pass butterworth filter and write its gain (Vo/Vin) equation. [6]

Or

8. (a)Draw circuit diagram of first order high pass butterworth filter and derive gain (Vo/Vin) of filter as function of frequency. [7]

(b) Draw circuit diagram of Second order low pass butterworth filter and write its gain (Vo/Vin) equation. [6]