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

Seat No.	

[5668]-138

S.E. (E&TC/Electronics) (Sem. II) EXAMINATION, 2019

INTEGRATED CIRCUITS

(2015 PATTERN)

Time : Two 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*) Figures to the right indicate full marks.

1. (*a*) Explain following op-amp parameters and give its ideal value : [6]

(*i*) Input offset voltage

(*ii*) Input bias current

(*iii*) Gain bandwidth product.

(*b*) Draw neat circuit diagram and explain voltage follower. [6]

Or

2. (*a*) Draw circuit diagram of current mirror circuit and explain in detail. [6]

(*b*) Draw circuit diagram of practical differentiator and its frequency response. Explain it over ideal differentiator. [6]

3. (*a*) Explain in detail with neat circuit diagram sample and hold circuit, also draw its input and output waveform. [7]

(*b*) Draw circuit diagram and explain D/A converter with binary weighted resistors and give output voltage equation V_0 = ? [6]

P.T.O.

Or

4. (*a*) Explain in detail working of square wave generator with neat circuit diagram. Draw waveform of output voltage and capacitor voltage. Give equation of output frequency f_o. [7]

(*b*) Draw and explain successive approximation A/D converter. [6]

5. (*a*) For PLL IC 565 give expression of free running frequency, lock range and capture range. [6]

(*b*) Draw and explain Wein bridge oscillator. Also give frequency of oscillator f_o = ? [6]

Or

6. (*a*) Draw block diagram and explain any *one* application of IC PLL 565 in detail. [6]

(*b*) Draw and explain quadrature oscillator. Also give frequency of oscillation f_o = ? [6]

7. (*a*) Draw circuit diagram of 2nd order HPF and explain in detail. [6]

(*b*) Draw circuit diagram of 1st order wide band stop filter with its frequency response. [7]

Or

8. (*a*) Design 1st order LPF with F_H = 1 kHz having passband gain = 2, assume C = 0.1 µf. [6]

(*b*) Draw neat circuit diagram of 1st order LPF with its frequency response. [7]