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BIEL-002

B.Tech. – VIEP – ELECTRONICS AND COMMUNICATION ENGINEERING (BTECVI)

Term-End Examination

June, 2019

00525

BIEL-002 : ANALOG AND INTEGRATED CIRCUITS DESIGN

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt any **seven** questions. All questions carry equal marks. Missing data may be suitably assumed and mentioned.*

1. Draw and explain the circuit diagram of an instrumentation amplifier with its advantages in detail. *4+4+2=10*

2. Explain the importance of DC level shifter stage used in Op-Amp. Draw and discuss the working principle of voltage to frequency (V to F) converter with neat circuit diagram. *4+6=10*

3. Explain the significance of filter order in filter design. Draw the circuit diagram of Sallen-Key VCVS second order low pass filter with its specifications. Derive an expression for its transfer function. *2+4+4=10*

4. What are the ideal characteristics of an Op-Amp ? Draw and explain the circuit diagram of a Schmitt trigger with its waveforms. *4+6=10*

5. Draw and explain the circuit diagram of a monostable multivibrator. Derive an expression for the time-period of the output waveform. *6+4=10*

6. Explain the concept of virtual ground in Op-Amp. Draw and explain the circuit diagram of a Precision rectifier with its waveforms. *4+6=10*

7. Explain the application of Phase Locked Loop (PLL) in AM demodulator with a labelled block diagram in detail. *10*

8. Analyse the operation of a differential amplifier with active load. What is the effect of parameter mismatch on the gain of differential amplifier ? *6+4=10*

9. Draw voltage current feedback amplifier. Draw the basic amplifier without feedback and derive open loop transfer gain and from this find the closed loop transfer gain. *10*

10. Write short notes on any ***two*** of the following : *2×5=10*

(a) Log Amplifier

(b) Current to Voltage (I-to-V) Converter

(c) Current Mirror Circuit