B.Tech. / B.E. Electrical (Electronics & Power) Engineering (Model Curriculum) Semester-III

103 / 003 - Analog Electronics Circuits

P. Pages : 2 **GUG/W/23/13854**

Time : Three Hours * 7 4 4 1 * Max. Marks : 80

Notes : 1. All questions carry marks as indicated.
2. Assume suitable data wherever necessary.
3. Illustrate your answers wherever necessary with the help of neat sketches.

1. a) Draw and explain the V-I characteristics of Zener diode. **8**

b) Compare Halfwave, fullwave and Bridge wave rectifier. **8**

OR

2. a) Define : **8**
i) Efficiency. ii) Ripple factor.
iii) PIV. iv) TUF.

b) Draw and explain the operation of single stage common emitter transistor amplifier. **8**

3. a) What MOSFET. Draw and explain drain and transfer characteristics of n-channel depletion type MOSFET. **8**

b) Define: **8**
i) Drain Resistance (rd).
ii) Transconductance (gm)
iii) Amplification factor (μ) .

OR

4. a) Draw and explain fixed bias circuit for MOSFET. **8**

b) Draw and explain common source MOSFET amplifier. **8**

5. a) Draw and explain the operation of Class 'B' push-pull power amplifier. **8**

b) Define: **8**
i) CMRR ii) Slew rate
iii) PSRR iv) Input bias current.

OR

6. a) What is operational amplifier. Explain the ideal characteristics of operational amplifier. **8**

b) What is multistage amplifier. Draw and explain the operation two stage direct coupled amplifier. **8**

7.	a)	Explain the working of op-amp inverting amplifier. Derive the expression for its voltage gain.	**8**
	b)	Explain the working of op-amp active differentiator.	**8**

OR

8.	a)	Draw and explain op-amp PID controller.	**8**
	b)	What is oscillator. Explain the operation or op-amp wein bridge oscillator.	**8**
9.	a)	What is multivibrator. Explain the operation of op-amp monoshot multivibrator.	**8**
	b)	Draw and explain half wave precision rectifier circuit.	**8**

OR

10.	a)	Draw and explain triangular wave generator using op-amp.	**8**
	b)	With help of neat diagram and waveform explain the full wave precision rectifier.	**8**

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