Roll No. ..... Total Pages : 2

BT-4/M-21 **44158**

ANALOG CIRCUITS

Paper–EC-206A

Time : Three Hours] [Maximum Marks : 75

Note : Attempt any *five* questions selecting, at least *one* question from each unit.

UNIT–I

1. Derive the equation for voltage gain and current gain for a BJT in CE configuration. Draw its input-output characteristics with a suitable block diagram. 15

2. State the name of four h-parameters for transistor in CE configuration. Define and derive typical values for these parameters. 15

UNIT–II

3. (a) For a class B power amplifier using a supply of $V_{cc} = 12$ V and driving a load of 8Ω, determine maximum load power. DC input power and collector efficiency. 7

(b) Explain the following terms :

(i) Cut off frequencies and Bandwidth of an amplifier.

(ii) Voltage gain of an amplifier. 8

4. Explain the advantages of providing negative feedback to amplifiers. 15

UNIT–III

5. (a) State the Barkhausen criterion for sinusoidal oscillation to sustain in oscillator. 5

(b) Design a wein bridge oscillator circuit to produce a 100 kHz, ± 9V output. Design amplifier to have closed loop gain of 3. 10

6. Draw the diagram showing pin description of 555 timer IC. Draw the circuit diagram of monostable multivibrator using 555 timer. 15

UNIT–IV

7. Draw the inverting and non inverting amplifier circuits of an Op-Amp in closed loop configuration. Obtain the expressions for closed loop gain in these circuits. 15

8. (a) Design a phase shift oscillator with a frequency of 100 Hz using Op-Amp. 7

(b) Distinguish between triangular wave and ramp generator using Op-amp. 8