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523

B. Tech. EXAMINATION, 2020

(Fifth Semester)

(Old Scheme) (Re-appear Only)

(ECE)

ECE305

ANALOG ELECTRONIC CIRCUITS

Time : 2½ *Hours*] [*Maximum Marks :* 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. (a) Draw and compare frequency response curve of transformer and direct coupled amplifier.

(b) Discuss low frequency response of RC coupled amplifier.

2. (a) Explain the design considerations of volage shunt feedback amplifier circuit.

(b) Derive expressions for voltage gain, bandwidth, input impedance and output impedance for current series feedback amplifier.

3. (a) What is Barkhausen criterion of oscillation ? Discuss the operation of Wein Bridge oscillator.

(b) A quartz crystal has L = 50 mH, C_1 = 0.02 pF, C_2 = 12 pF, R = 500 Ω. Find the value of series and parallel resonant frequency.

4. (a) Explain harmonic distortion in Class B complementary symmetry amplifier.

(b) Derive expression for input power, ouput power and efficiency of a Class A power amplifier.

5. (a) Draw and explain transfer characteristics of operational amplifier (OP-AMP).

(b) Define the terms Offset error, CMRR. What are ideal and practical values of these parameters for OP-AMP 741 ?

6. (a) A sine-wave is input to an OP-AMP integrator. Draw and discuss the output wave shape and frequency response of integrator.

(b) How can OP-AMP function as a scale changer.

7. (a) Compare 5V *p* to *p* Sine signal with 2V DC using OP-AMP in inverting as well as non-inverting mode. Draw output waveform in each case.

(b) Discuss operation of OP-AMP as a multiplier.

8. (a) What is basic function of Bootstrap sweep generator ? Discuss its design.

(b) Explain the schematic and operation of monostable multivibrator.