

22329

21819

3 Hours / 70 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Illustrate your answers with neat sketches wherever necessary.
- (3) Figures to the right indicate full marks.
- (4) Assume suitable data, if necessary.
- (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.
- (6) Preferably write the answers in sequential order.

Marks

1. Attempt any FIVE of the following: 10
- a) State classification of Amplifiers.
- b) Define the terms related to tuned amplifier.
- (i) Resonant Frequency (F_r)
- (ii) Q Factor
- c) State the need of multistage amplifier.
- d) List the types of power amplifiers.
- e) List advantages of negative feedback (any four)
- f) Define:
- (i) Sweep time
- (ii) Retrace time
- g) State fixed voltage regulator IC'S.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Sketch circuit diagram of RC coupled single stage CE amplifier. State the function of each component.
 - b) Describe the working of single stage class A amplifier with circuit diagram.
 - c) Explain principle of feedback amplifier.
 - d) Draw circuit diagram of RC phase shift oscillator and state its working.
- 3. Attempt any THREE of the following:** **12**
- a) Sketch circuit diagram of common source FET Amplifier. State working principle of it.
 - b) Explain the term crossover distortion. State methods to overcome it.
 - c) Compare positive feedback and negative feedback on the basis of:
 - (i) Gain
 - (ii) Bandwidth
 - (iii) Phase shift
 - (iv) Stability
 - d) Draw block diagram of SMPS. State its working principle.
- 4. Attempt any THREE of the following:** **12**
- a) Calculate Resonant frequency of single tuned amplifier, if inductor $L = 10\text{mH}$ and capacitor $C = 4.7 \mu\text{f}$ of tank circuit.
 - b) An amplifier has gain 'A' of 300 without feedback, output impedance is $1\text{K}\Omega$. If negative feedback with feedback factor 0.03 is introduced in the circuit then calculate the gain with feedback and output impedance of this feedback amplifier.
 - c) Describe miller sweep generator circuit with neat input output waveforms.
 - d) Draw block diagram of IC 723 regulator. State the working principle of IC 723.

5. Attempt any TWO of the following:

- a) Compare RC coupled, transformer coupled, direct coupled amplifier on the basis of:
- Type of coupling
 - Frequency response
 - Gain
 - Application
- b) A complementary symmetry push pull amplifier is operated using ± 10 volt and deliver power to load $R_L = 5\Omega$. Calculate.
- Maximum power output
 - Power rating of transistor
 - D.C input at maximum power output.
- c) Identify the circuit given in Figure No. 1. Calculate output frequency of the given circuit if $R_1 = R_2 = R_3 = 2K\Omega$ and $G = C_2 = C_3 = 0.1 \mu\text{f}$.

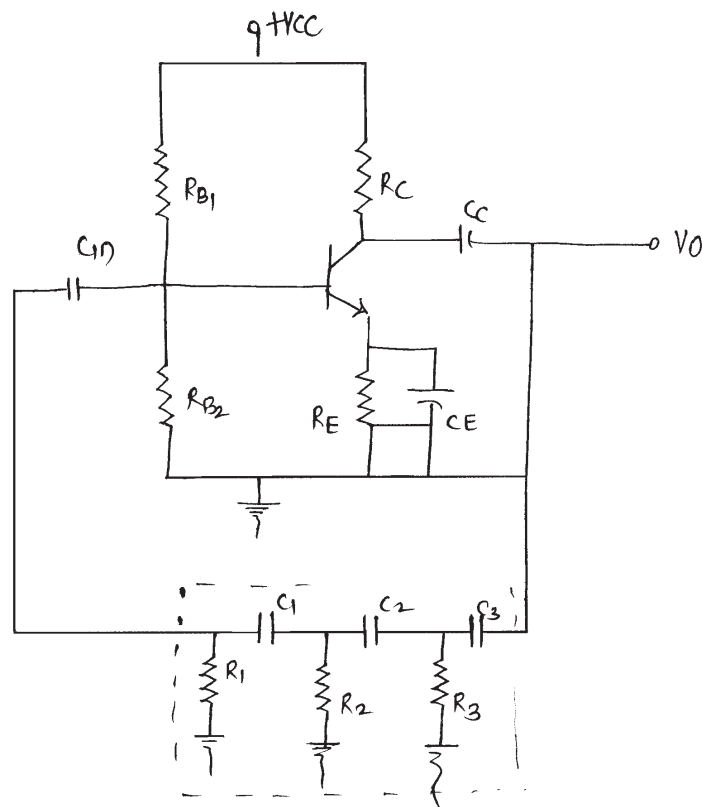


Fig. No. 1

6. Attempt any TWO of the following:**12**

- a) Compare Class A, Class B, Class C and class AB power amplifiers on the basis of:
- (i) Angle of conduction
 - (ii) Efficiency
 - (iii) Position of operating point in power dissipation
 - (iv) Distortion
 - (v) Application
- b) Draw Bootstrap sweep generator circuit. Compare Miller Integrator and bootstrap sweep generator with respect to the technique used.
- c) Build the circuit diagram of dual voltage regulator to get +12Vdc and -12Vdc using IC 7812 and IC 7912 along with rectifier.
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