



MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution)

(Approved by AICTE, New Delhi, Accredited by NAAC & Affiliated to Anna University)
Rasipuram - 637 408, Namakkal Dist., Tamil Nadu.

Department of Electronics and Communication Engineering Question Bank - Academic Year (2021-22)

Course Code & Course Name : 19ECC03 & ANALOG ELECTRONICS
Name of the Faculty : Mrs.A.Nivetha
Year/Sem/Sec : II / III / A

Unit-I: BJT and FET Amplifiers

Part-A (2 Marks)

1. What is biasing and need for biasing?
2. Comparison of n-channel MOSFET and p-channel MOSFET.
3. Comparison of MOSFET and BJT.
4. Why voltage divider bias is commonly used in amplifier circuit?
5. Comparison of the three BJT configurations (CE,CC and CB).
6. What are the types of biasing?
7. Define the stability factor.
8. Draw the small signal equivalent of p-MOSFET.
9. State Miller's theorem.
10. Why N channel FET's are preferred over P channel FET's?

Part-B (16 Marks)

1. Explain any two methods of biasing BJT and derive its stability factor. (16)
2. Draw the small signal hybrid π model of MOSFET Common Source amplifier and derive expression for its R_i , R_o , and A_v . (16)
3. Explain the small signal analysis of BJT CB amplifier and derive the expression. (16)
4. Derive gain, input and output impedance of common drain MOSFET amplifier with neat circuit diagram and equivalent circuit. (16)
- 5.(i). Derive the voltage gain of CE amplifier (8)
(ii). Describe the CC amplifier. (8)

Unit-II : IC AND DIFFERENTIAL AMPLIFIERS

Part-A (2 Marks)

1. What is constant current source?
2. Write the need for constant current source for difference amplifier?
3. Why constant current source biasing is preferred for differential amplifier?

4. What is current mirror?
5. What is current steering?
6. What is the need for current steering circuit in multistage amplifier circuit?
7. Write the formula for gain calculation?
8. Define cascode connection.
9. Define differential amplifier.
10. What is CMRR and its formula.

Part-B (16 Marks)

1. Explain in detail about MOSFET Cascode amplifier.
2. Derive the expression for CMRR of emitter coupled differential amplifier.
3. Derive the expression for CMRR of MOSFET differential amplifier
4. Explain in detail about BJT differential amplifier with current mirror.
5. Derive the frequency response of differential amplifier at low frequency and high frequency.

Unit-III : FEEDBACK AND OSCILLATORS

Part-A (2 Marks)

1. Define positive and negative feedback?
2. What are the advantages of negative feedback?
3. List four basic types of feedback?
4. What is meant by phase and gain margin?
5. Define open loop and closed loop gain.
6. What is Barkhausen criterion?
7. What is the difference between amplifier and oscillator?
8. State Nyquist's stability criteria for feedback amplifiers.
9. Define 'feedback factor' of a feedback amplifier.
10. What is Multivibrator?

Part-B (16 Marks)

1. Explain the characteristics of negative feedback amplifier.
2. Describe about different topologies of feedback amplifiers.

3. Explain any of the RC phase shift oscillator in detail.
4. Explain any of the LC oscillator in detail.
5. Explain in detail about multivibrator and its types

Unit-IV : TUNED AMPLIFIERS

Part-A (2 Marks)

1. What is tuned amplifier?
2. What are the various types of tuned amplifiers?
3. State two advantages and two disadvantages of tuned amplifiers.
4. What is Single tuned amplifiers?
5. What is double tuned amplifiers?
6. What are the different coil losses or component of losses?
7. What is Stagger tuned amplifier
8. Define Q factor of resonant circuit.
9. Define unloaded and loaded Q of tuned circuit.
10. What is dissipation factor?

Part-B (16 Marks)

1. Explain in detail about single-tuned amplifier.
2. Explain in detail about double-tuned amplifier.
3. Explain in detail about stagger-tuned amplifier.
4. Describe about the amplifier with multiple tuned circuit in detail.
5. Explain cascode CC-CB and cascade amplifiers concept.

Unit-V : POWER AMPLIFIERS

Part-A (2 Marks)

1. Define power amplifier.
2. What is class A amplifier?
3. What is class B amplifier?
4. What is class C amplifier?
5. What is class AB amplifier?
6. Compare class A,B,C,AB.

7. What is power transistor?
8. Define heat sink.
9. Draw the bridge circuit.
10. What is class D amplifier.

Part-B (16 Marks)

1. Explain in detail about class A amplifier with efficiency calculation.
2. Explain in detail about class B push-pull amplifier with efficiency calculation.
3. Describe class C amplifier in detail and also explain why this class C is not preferred for audio frequency application.
4. Compare all the classes of power amplifiers.
5. Explain about the bridge circuit in detail.

Course Faculty

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