

Expected questions for Analog Electronics and Op-amp 4th Sem EE

SQ → Short Question, LQ → Long Question

Module 1 & 2

SQ 1) What is a pn-junction diode?

2 marks each 2) Draw VI characteristics of a pn-junction diode

3) Define the following terms - a) ~~Breakdown voltage~~ of diode.

a) Breakdown voltage of diode b) What is knee voltage?

c) Define Peak Inverse voltage or Peak Reverse Voltage of a diode.

d) What are clippers and clampers?

e) What is junction breakdown? and name different types of junction breakdown in a diode?

LQ (5 marks)

1) Explain the working of PN junction diode with the help of a neat labelled diagram.

2) Write short notes on - a) Junction breakdown and its types

b) Clippers

c) Clampers

d) Thermistors

e) Zener diode

f) Tunnel diode

g) PIN Diode.

MODULE-3 SQ) 1) What is a rectifier? Name different types of rectifiers

2) Classify different rectifiers used in electronics ckt.

3) What is rectifier efficiency? Mention the rectifier efficiency values of HWR and FWR.

4) What is Ripple factor? Mention the ripple factor values of HWR and FWR.

5) What is Transformer Utilisation factor?

6) What are filters in electronics ckt? Name different types of filters used in electronics ckt.

LQ (5 marks)

1) Write short notes on filters and its types

2) For half wave / full wave rectifier derive the expression for a) DC o/p current and voltage

b) RMS o/p current and voltage

c) Rectifier efficiency

d) Ripple factor

e) ~~Regulation~~ Voltage Regulation

5/10 marks.

MODULE (4 and 5)

SQ) 1) What is a transistor? Name different types of transistor.

2) What are the applications of a transistor.

3) Name different modes of operation of a transistor.

4) What are the different configuration of transistor? Name them?

5) Define the ~~input~~ input characteristics of a transistor in CB/CE/CC configuration and draw it

6) Define the output characteristics of a transistor in CB/CC/CE configuration and draw it.

7) Define the current amplification factors - α , β & γ

8) State the relationship between α and β

9) State " " " α , β and γ

10) Derive the relationship between α , β & β

11) " " " " α , β & γ

- 12) What is transistor biasing?
- 13) What are the necessary conditions required to achieve faithful amplification?
- 14) What is stabilisation? Define stability factor.
- 15) Name different biasing methods used in a transistor.

LQ) Write short notes on ~~the~~ voltage divider biasing method of a transistor.

- 2) Short notes on different biasing methods of a transistor.
- 3) Explain how transistor behaves as an amplifier.
- 4) Write short notes on -
 - a) CB configuration
 - b) CE configuration
 - c) CC configuration of transistor.

MODULE 7 SQ) What is FET? State the advantages of FET over BJT

- 2) Differentiate between FET and BJT
 - 3) What is ac drain resistance of FET
 - 4) Define the Transconductance of FET
 - 5) Define the Amplification factor of FET.
 - 6) Derive the relationship between ~~the~~ the FET parameter.
- SQ - LQ) Write short notes on different ~~the~~ biasing methods of FET.

MODULE 8 SQ) What is an op-amp?

- 2) Name different stages of op-amp.
- 3) Draw the equivalent ckt of op-amp
- 4) Differentiate between open loop and closed loop configuration of op-amp.

5) Differentiate between inverting and non-inverting op-amp.

6) What is CMRR in op-amp?

7) Define slew rate in op-amp

8) Explain the concept of virtual ground in op-amp

9) Why op-amp is called as voltage follower and buffer?

8 LQ (5 marks) 1) Write short notes

2) Explain ~~the~~ with diagram the role of op-amp as

1) Adder & summing amplifier

2) Subtractor

3) Integrator

4) Differentiator

5) Differential amplifier.

MODULE 6 Short question

1) What is load line and Q point of Transistor? Draw it for CE configuration of Transistor 2 marks

2) What is Barkhausen ~~crit~~ condition for sustained oscillation?

3) ~~St~~ Differentiate between voltage & power amplifier.

4) What is feedback? Write the advantages of negative feedback.

5) State the essentials of transistor oscillator

6) Name different types of oscillators?