40 Lecture - PHY301

Important Mcqs

What is the symbol for a tunnel diode?

a) Zener diode symbol

b) LED symbol

c) Tunnel diode symbol

d) Rectifier diode symbol

Answer: c) Tunnel diode symbol

What is the doping concentration range for a tunnel diode?

a) 10^14 to 10^16 cm^-3

b) 10^18 to 10^20 cm^-3

c) 10^22 to 10^24 cm^-3

d) 10^26 to 10^28 cm^-3

Answer: b) 10^18 to 10^20 cm^-3

Which of the following statements is true about the tunnel diode?

a) It is a unipolar device

b) It is a bipolar device

c) It is a two-terminal device

d) It is a three-terminal device

Answer: b) It is a bipolar device

Which of the following is NOT a characteristic of a tunnel diode?

a) High forward resistance

b) Negative resistance region

c) Low breakdown voltage

d) Fast switching speed

Answer: a) High forward resistance

In which region of the voltage-current characteristic curve does the tunneling effect occur?

a) Forward bias region

b) Reverse bias region

c) Zero bias region

d) Breakdown region

Answer: c) Zero bias region

Which of the following is an application of the tunnel diode?

a) Voltage regulation

b) Power amplification

c) Phase shifting

d) Frequency doubling

Answer: d) Frequency doubling

What is the typical operating frequency range of a tunnel diode oscillator?

a) Less than 1 GHz

b) 1-10 GHz

c) 10-100 GHz

d) More than 100 GHz

Answer: c) 10-100 GHz

Which of the following is an advantage of the tunnel diode over other diodes?

a) Low cost

b) High power handling capability

c) High temperature stability

d) High breakdown voltage

Answer: c) High temperature stability

Which of the following is a disadvantage of the tunnel diode?

a) Low output power

b) Limited frequency range

c) High reverse leakage current

d) High forward resistance

Answer: b) Limited frequency range

In a tunnel diode, the tunneling effect results in:

a) Increased electron density in the conduction band

b) Decreased electron density in the conduction band

c) Increased hole density in the valence band

d) Decreased hole density in the valence band

Answer: a) Increased electron density in the conduction band