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