

## **Unit-4**

### **PART A: Multiple choice questions**

1. A transistor amplifier operates in the \_\_\_\_\_ region.

- A) Cutoff
- B) Saturation
- C) Active
- D) Breakdown

**Answer: C**

2. The primary function of a transistor amplifier is to

- A) Rectify AC
- B) Convert AC to DC
- C) Increase signal strength
- D) Generate oscillations

**Answer: C**

3. In a CE amplifier, the output voltage is

- A) In phase with input
- B)  $90^\circ$  out of phase
- C)  $180^\circ$  out of phase
- D) Independent of input

**Answer: C**

4. Among CB, CE, and CC amplifiers, the highest current gain is provided by

- A) CB
- B) CE
- C) CC
- D) Equal in all

**Answer: C**

5. The common collector amplifier is commonly known as

- A) Current mirror
- B) Emitter follower
- C) Darlington pair

D) Differential amplifier

**Answer: B**

6. The voltage gain of an emitter follower is approximately

A) Zero

B) Less than unity but close to unity

C) Very high

D) Infinite

**Answer: B**

7. The common-base amplifier is characterized by

A) High input resistance

B) Low input resistance

C) Infinite input resistance

D) Zero output resistance

**Answer: B**

8. The h-parameter model is mainly used for

A) Large-signal analysis

B) Small-signal analysis

C) Power calculations only

D) Switching analysis

**Answer: B**

9. The parameter  $h_{fe}$  represents

A) Input resistance

B) Reverse voltage gain

C) Forward current gain

D) Output admittance

**Answer: C**

10. The parameter  $h_{ie}$  represents

A) Input impedance

B) Output impedance

C) Voltage gain

D) Power gain

**Answer: A**

**11.**Power gain of an amplifier is the product of

A) Voltage gain and current gain

B) Current gain only

C) Voltage gain only

D) Input and output resistance

**Answer: A**

**12.**The emitter bypass capacitor primarily affects

A) DC bias only

B) AC gain only

C) Collector current only

D) Breakdown voltage

**Answer: B**

**13.**Removing the emitter bypass capacitor from a CE amplifier causes

A) Increase in gain

B) No effect

C) Reduction in gain

D) Infinite gain

**Answer: C**

**14.**The reduction in amplifier gain due to an unbypassed emitter resistor is caused by

A) Positive feedback

B) Negative feedback

C) Oscillation

D) Resonance

**Answer: B**

**15.**Which amplifier configuration provides the highest voltage gain?

A) CC

B) CE

C) CB

D) None

**Answer: B**

**16.**A small-signal amplifier should operate with

A) Large output distortion

B) Minimal distortion

C) Saturation only

D) Cutoff only

**Answer: B**

**17.**The output resistance of a CC amplifier is generally

A) Very high

B) Moderate

C) Very low

D) Infinite

**Answer: C**

**18.**In a CE amplifier, if the collector resistance increases, voltage gain generally

A) Decreases

B) Remains constant

C) Increases

D) Becomes zero

**Answer: C**

**19.**The major advantage of a CC amplifier is

A) High voltage gain

B) High power dissipation

C) Impedance matching

D) High distortion

**Answer: C**

**20.**An amplifier that provides current gain close to unity is

A) CE

B) CB

C) CC

D) None

**Answer: B**

**PART-B: Fill in the Blanks**

1. An amplifier increases the \_\_\_\_\_ of a weak signal.

**Answer: Amplitude**

2. The transistor acts as a \_\_\_\_\_ controlled device in amplification.

**Answer: Current**

3. The AC equivalent circuit is obtained by replacing DC sources with their \_\_\_\_\_ resistance.

**Answer: Internal**

4. Coupling capacitors block \_\_\_\_\_ components.

**Answer: DC**

5. Coupling capacitors allow \_\_\_\_\_ signals to pass.

**Answer: AC**

6. The collector resistor is commonly represented by \_\_\_\_\_.

**Answer: RC**

7. The emitter resistor is commonly represented by \_\_\_\_\_.

**Answer: RE**

8. The output signal is taken from the \_\_\_\_\_ terminal in a CE amplifier.

**Answer: Collector**

9. The input signal is applied between base and \_\_\_\_\_.

**Answer: Emitter**

10. The hybrid model of a transistor is commonly called the \_\_\_\_\_ model.

**Answer: h-parameter**

11. The parameter  $h_{re}$  represents reverse voltage \_\_\_\_\_.

**Answer: Gain**

12. The parameter  $h_{oe}$  represents output \_\_\_\_\_.

**Answer: Admittance**

13. The unit of input impedance is \_\_\_\_\_.

**Answer: Ohm**

14. The unit of output admittance is \_\_\_\_\_.

**Answer:** Siemens

**15.**The CE amplifier provides both voltage and current \_\_\_\_\_.

**Answer:** Gain

**16.**The CB amplifier is commonly used in \_\_\_\_\_ frequency applications.

**Answer:** High

**17.**An emitter follower has high input impedance and low \_\_\_\_\_ impedance.

**Answer:** Output

**18.**The ratio of output signal to input signal is called \_\_\_\_\_.

**Answer:** Gain

**19.**Amplifier performance is affected by frequency and transistor \_\_\_\_\_.

**Answer:** Parameters

**20.**The CE amplifier is the most widely used \_\_\_\_\_ stage.

**Answer:** Amplifier