1. What type of amplifier configuration is commonly used for small signal analysis?

a) Class A
b) Class B
c) Hybrid-π
d) Push-Pull

Answer: c) Hybrid-π

Explanation: The hybrid-π model is widely employed for small signal analysis of transistor amplifiers due to its simplicity and effectiveness in representing transistor behavior.

2. Which technique is utilized to increase the input impedance of an amplifier circuit?

a) Cascode amplifier
b) Class AB amplifier
c) Darlington amplifier
d) Current mirror circuit

Answer: a) Cascode amplifier

Explanation: The cascode amplifier technique involves stacking two transistors in a common emitter configuration to enhance input impedance.

3. Which amplifier configuration is known for its high linearity and low distortion?

a) Class A
b) Class C

c) Class D
d) Class B

Answer: a) Class A

Explanation: Class A amplifiers operate in such a way that the output transistor conducts throughout the entire cycle of the input signal, resulting in high linearity and low distortion.

4. What is the purpose of bootstrapping in amplifier circuits?

a) To increase voltage gain
b) To decrease input impedance
c) To increase output impedance
d) To reduce signal distortion

Answer: a) To increase voltage gain

Explanation: Bootstrapping is a technique used to enhance voltage gain by feeding a portion of the output signal back to the input, effectively increasing the input signal voltage.

5. Which coupling method is commonly used in multistage amplifier circuits to avoid DC bias issues?

a) Direct coupling
b) Capacitive coupling
c) Transformer coupling
d) Inductive coupling

Answer: b) Capacitive coupling

Explanation: Capacitive coupling is preferred in multistage amplifier circuits as it allows AC signals to pass while blocking DC, preventing DC bias issues between stages.

6. Which amplifier configuration is often employed in audio power amplifier applications?

a) Class A
b) Class B
c) Class AB
d) Class C

Answer: c) Class AB

Explanation: Class AB amplifiers combine the features of Class A and Class B amplifiers, offering improved efficiency and reduced distortion, making them suitable for audio power amplification.

7. What is the main advantage of using a Darlington pair configuration in amplifier circuits?

a) High input impedance
b) High voltage gain
c) High current gain
d) High output impedance

Answer: c) High current gain

Explanation: Darlington pairs provide a very high current gain, making them suitable for

applications requiring high current amplification.

8. In a push-pull amplifier, what is the function of the two transistors?

a) Both amplify the same phase of the input signal
b) One amplifies the input signal, and the other provides feedback
c) One amplifies the positive half-cycle, and the other amplifies the negative half-cycle
d) One amplifies the voltage, and the other amplifies the current

Answer: c) One amplifies the positive half-cycle, and the other amplifies the negative half-cycle

Explanation: Push-pull amplifiers utilize two transistors to amplify opposite phases of the input signal, combining them at the output to achieve higher efficiency and reduced distortion.

9. Which type of amplifier is known for its high efficiency and is commonly used in audio amplification?

a) Class A
b) Class B
c) Class AB
d) Class C

Answer: d) Class D

Explanation: Class D amplifiers, also known as switching amplifiers, are highly efficient due to their digital switching operation, making them suitable for audio amplification, especially in

portable devices.

10. What is the primary function of a transformer in transformer-coupled amplifiers?

a) To provide impedance matching
b) To amplify the input signal
c) To couple the input and output stages
d) To provide isolation between input and output

Answer: d) To provide isolation between input and output

Explanation: Transformers in transformer-coupled amplifiers isolate the input and output circuits electrically while coupling the signal between them, preventing DC bias issues and providing galvanic isolation.

11. Which class of amplifier is known for its conduction through less than 180 degrees of the input signal?

a) Class A
b) Class B
c) Class AB
d) Class C

Answer: d) Class C

Explanation: Class C amplifiers conduct for less than 180 degrees of the input signal cycle, making them highly efficient but suitable only for applications where distortion is not a concern, such as RF amplification.

12. What is the primary drawback of Class B amplifiers?

a) Low efficiency
b) High distortion
c) High power consumption
d) Limited frequency response

Answer: b) High distortion

Explanation: Class B amplifiers suffer from crossover distortion due to the non-linearity around the zero-crossing point of the input signal.

13. Which amplifier configuration is commonly used for RF (radio frequency) applications?

a) Class A
b) Class B
c) Class C
d) Class AB

Answer: c) Class C

Explanation: Class C amplifiers are preferred for RF applications due to their high efficiency, although they produce significant distortion.

14. In a cascode amplifier, what is the purpose of the second transistor?

a) To increase input impedance
b) To decrease output impedance

c) To increase bandwidth
d) To decrease voltage gain

Answer: a) To increase input impedance

Explanation: The second transistor in a cascode amplifier configuration is used to increase input impedance while maintaining other desirable characteristics.

15. Which coupling method is suitable for transferring both AC and DC signals between amplifier stages?

a) Capacitive coupling
b) Inductive coupling
c) Transformer coupling
d) Direct coupling

Answer: d) Direct coupling

Explanation: Direct coupling allows both AC and DC signals to pass between amplifier stages without the need for capacitors or transformers, simplifying the circuit design.

16. What is the primary advantage of a Class AB amplifier over a Class B amplifier?

a) Higher efficiency
b) Lower distortion
c) Greater linearity
d) Higher power handling

Answer: b) Lower distortion

Explanation: Class AB amplifiers reduce crossover distortion compared to Class B amplifiers, resulting in lower overall distortion.

17. Which amplifier configuration is commonly used in power supply applications for voltage regulation?

a) Class A
b) Class B
c) Class C
d) Class D

Answer: a) Class A

Explanation: Class A amplifiers are often used in voltage regulator circuits due to their inherent stability and low distortion characteristics.

18. What is the primary drawback of Class C amplifiers in audio applications?

a) Low efficiency
b) High distortion
c) Limited frequency response
d) High power consumption

Answer: b) High distortion

Explanation: Class C amplifiers produce significant distortion due to their non-linear

conduction characteristics, making them unsuitable for high-fidelity audio applications.

19. Which amplifier configuration is known for its high power efficiency but requires careful matching of load impedance?

a) Class A
b) Class B
c) Class AB
d) Class C

Answer: b) Class B

Explanation: Class B amplifiers are highly efficient but require precise load impedance matching to minimize crossover distortion.

20. What is the main advantage of using a push-pull amplifier configuration?

a) Higher power efficiency
b) Lower distortion
c) Greater voltage gain
d) Reduced power consumption

Answer: a) Higher power efficiency

Explanation: Push-pull amplifiers utilize two transistors to handle opposite phases of the input signal, resulting in higher power efficiency compared to single-ended configurations.

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