

- c. DC collector resistance
 - d. Supply voltage divided by collector current
18. If $R_C = 100\ \Omega$ and $R_L = 180\ \Omega$, the ac load resistance equals
- a. $64\ \Omega$
 - b. $100\ \Omega$
 - c. $90\ \Omega$
 - d. $180\ \Omega$
19. The quiescent collector current is the same as the
- a. DC collector current
 - b. AC collector current
 - c. Total collector current
 - d. Voltage-divider current
20. The ac load line usually
- a. Equals the dc load line
 - b. Has less slope than the dc load line
 - c. Is steeper than the dc load line
 - d. Is horizontal
21. For a Q point closer to cutoff than saturation on a CE dc load line, clipping is more likely to occur on the
- a. Positive peak of input voltage
 - b. Negative peak of input voltage
 - c. Negative peak of output voltage
 - d. Negative peak of emitter voltage
22. In a Class-A amplifier, the collector current flows for
- a. Less than half the cycle
 - b. Half the cycle
 - c. Less than the whole cycle
 - d. The entire cycle
23. With Class-A, the output signal should be
- a. Unclipped
 - b. Clipped on positive voltage peak
 - c. Clipped on negative voltage peak
 - d. Clipped on negative current peak
24. The instantaneous operating point swings along the
- a. AC load line
 - b. DC load line
 - c. Both load lines
 - d. Neither load line
25. The current drain of an amplifier is the
- a. Total ac current from the generator
 - b. Total dc current from the supply
 - c. Current gain from base to collector
 - d. Current gain from collector to base
26. The power gain of an amplifier
- a. Is the same as the voltage gain
 - b. Is smaller than the voltage gain
 - c. Equals output power divided by input power
 - d. Equals load power
27. Heat sinks reduce the
- a. Transistor power
 - b. Ambient temperature
 - c. Junction temperature
 - d. Collector current
28. When the ambient temperature increases, the maximum transistor power rating
- a. Decreases
 - b. Increases
 - c. Remains the same
 - d. None of the above
29. If the load power is 300 mW and the dc power is 1.5 W, the efficiency is
- a. 0
 - b. 2 percent
 - c. 3 percent
 - d. 20 percent
30. The ac load line of an emitter follower is usually
- a. The same as the dc load line
 - b. Vertical
 - c. More horizontal than the dc load line
 - d. Steeper than the dc load line
31. If an emitter follower has $V_{CEQ} = 6\text{ V}$, $I_{CQ} = 200\text{ mA}$, and $r_e = 10\ \Omega$, the maximum peak-to-peak unclipped output is
- a. 2 V
 - b. 4 V
 - c. 6 V
 - d. 8 V
32. The ac resistance of compensating diodes
- a. Must be included
 - b. Is very high
 - c. Is usually small enough to ignore
 - d. Compensates for temperature changes
33. If the Q point is at the middle of the dc load line, clipping will first occur on the
- a. Left voltage swing
 - b. Upward current swing
 - c. Positive half-cycle of input
 - d. Negative half-cycle of input
34. The maximum efficiency of a Class-B push-pull amplifier is
- a. 25 percent
 - b. 50 percent
 - c. 78.5 percent
 - d. 100 percent
35. A small quiescent current is necessary with a Class-AB push-pull amplifier to avoid
- a. Crossover distortion
 - b. Destroying the compensating diodes
 - c. Excessive current drain
 - d. Loading the driver stage

Problems

SEC. 10-2 TWO LOAD LINES

10-1 What is the dc collector resistance in Fig. 10-38? What is the dc saturation current?

10-2 In Fig. 10-38, what is the ac collector resistance? What is the ac saturation current?

10-3 What is the maximum peak-to-peak output in Fig. 10-38?

10-4 All resistances are doubled in Fig. 10-38. What is the ac collector resistance?

10-5 All resistances are tripled in Fig. 10-38. What is the maximum peak-to-peak output?