Question block created by wizard

This exam contains 40 questions.

1. What type of diode is shown here?

a. This is the symbol of a zener diode.
b. This is the symbol of a tunnel diode.
c. This is the symbol of a shottky diode.

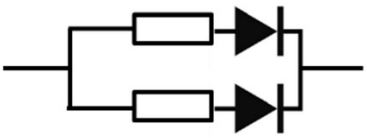
2. What is in excess present in P type semi-conductor material?

a. Holes
b. Non.
c. Electrons.

3. Which of the following answers gives a typical value of forward current for a small-signal silicon diode?

a. 10 mA
b. 1 A
c. 10 A

4. See figure. What is the purpose of the resistor in series with each diode?



a. To assure that each diode has the same voltage applied.
b. To increase the breakdown voltage across each diode.
c. To equal out the difference in the diodes.

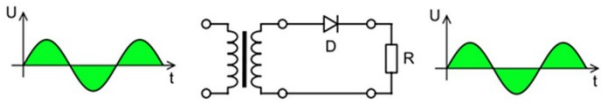
5. What is the name of the control connection of a thyristor?

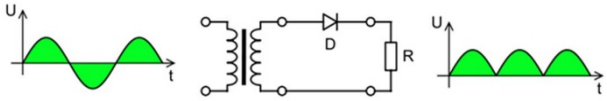
a. Gate.
b. Anode.
c. Cathode.

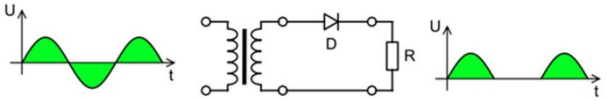
6. What is a typical characteristic of a Varistor?

a. The output voltage decreases when the input voltage increases.
b. When the voltage exceeds a certain level, its resistance will drop.
c. With the increasing of voltage the variable resistor value will increase.

7. What is the correct picture for the voltage across the load resistor?

a.


b.


c.


8. A diode, measured both ways with an ohm meter, indicates infinite one way and zero the other way. What is your conclusion about this diode?

a. The diode is shorted and defective.
b. The diode is good.
c. The diode is open and defective.

9. The region inside a diode where no free charge carriers exist is known as the:

a. conduction layer
b. depletion layer
c. insulation layer

10. The stripe on a plastic encapsulated diode usually indicates the:

a. anode connection.
b. cathode connection.
c. earth or ground connection.

11. An atom with 5 electrons in its outer shell is part of

a. a C type material
b. a P type material
c. a N type material

12. A silicon diode, when compared to a germanium diode has

a. the same forward bias voltage
b. a higher forward bias voltage
c. less forward bias voltage

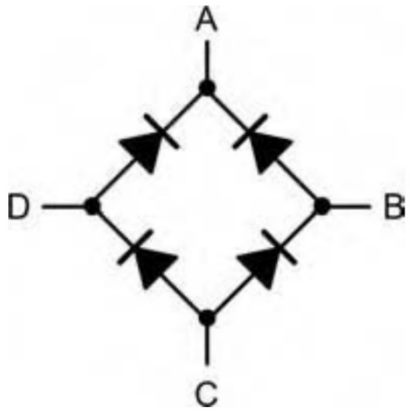
13. To check the forward resistance of a diode with a multi-meter, the lead connected to the positive terminal is put to the

a. cathode
b. anode
c. either anode or cathode

14. A germanium diode has an upper temperature limit of about....

a. 80° - 100°C
b. 150° - 200°C
c. 250° - 300°C

15. At which terminals the alternating current input should be connected to the bridge rectifier shown?



a. B and D
b. A and B
c. A and C

16. This symbol is

a. a laser diode
b. a photodiode
c. an LED

17. A typical application for a Zener diode is:

a. controlling the current in a load.
b. acting as a variable capacitance in a tuned circuit.
c. regulating a voltage supply.

18. The device shown in the figure is:

a. a junction gate field effect transistor.
b. an NPN bipolar junction transistor.
c. a PNP bipolar junction transistor.

19. In an NPN transistor the P type material is the?

a. emitter
b. collector
c. base

20. In normal operation of a bipolar NPN junction transistor....

a. the base-emitter junction is reverse biased and the collector-base junction is forward biased.
b. both junctions are forward biased.
c. the base-emitter junction is forward biased and the collector-base junction is reverse biased.

21. What are the two junctions of a transistor?

a. emitter-base and collector-emitter

b. Emitter-base and emitter-collector
c. emitter-base and base-collector

22. Which way does conventional current flow in a PNP junction?

a. Emitter to base.
b. Collector to emitter.
c. Collector to base.

23. The connections to a JFET are labelled:

a. collector, base and emitter.
b. anode, cathode and gate.
c. source, gate and drain.

24. A FET when compared to a junction transistor is

a. high impedance.
b. low impedance.
c. current operated.

25. The common collector amplifier is sometimes called the emitter follower circuit because

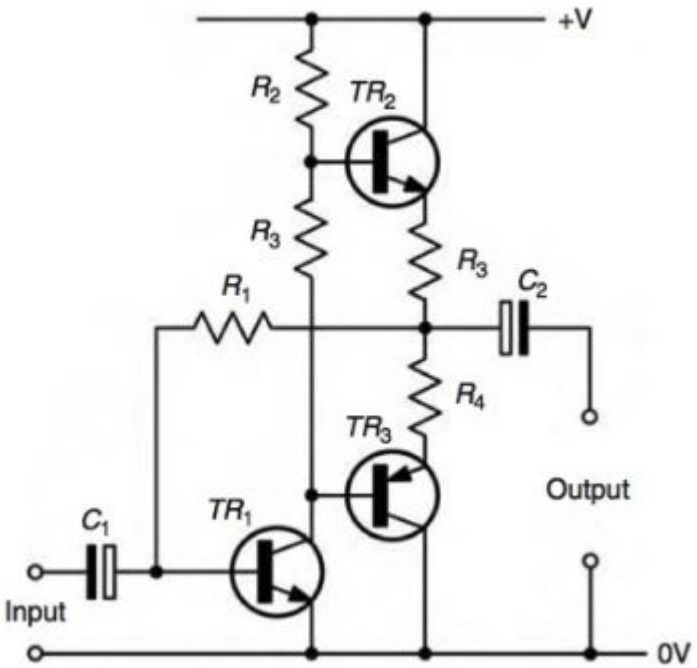
a. the emitter current follows the collector current.
b. the emitter voltage follows the base voltage.
c. the emitter voltage follows the collector voltage.

26. Which class of amplifier allows collector current to flow for a full 360 degrees of the input signal?

a. Class A
b. Class B
c. Class C

27. In the figure you see a push-pull amplifier. The transistor TR2 and TR3 are from different types. One is a PNP transistor and the other a NPN transistor.

Why are used two different transistors?



a. Both transistors work together at the same time to produce more power at the output.
b. It is not necessary to use two different transistors. It is also possible to use the same type of transistor.
c. One transistor amplifies the positive half and the other transistor amplifies the negative half of the input signal.

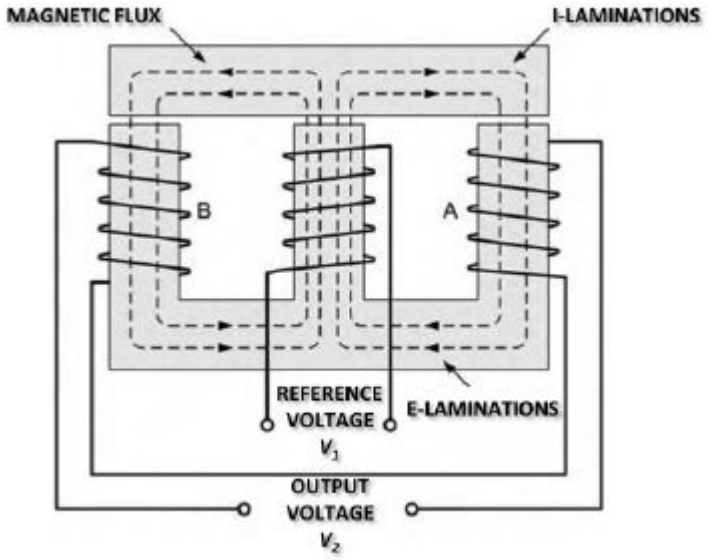
28. The function of a NOT logic gate within a circuit is to....

a. ensure the output signal is of the same state as the input signal.
b. invert the input signal so that the output is always of the opposite state.
c. ensure the input signal is DC only.

29. The following symbol represents a ……. Logic gate. See the figure

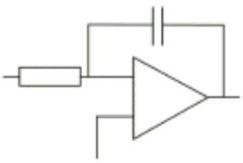
a. EXOR
b. NOT
c. NAND

30. The two secondary windings of an E&I transformer produce....



a. out of phase voltages.
b. in phase voltages.
c. equal and in phase voltages.

31. This is a diagram of....



a. an adder
b. a differentiator
c. an integrator

32. The input resistance to an inverting op-amp is 100 Ω. The feedback resistance is 100 kΩ. What is the amplifier gain?

a. 1000
b. 1/1000
c. -1000

33. When does an amplifier become unstable and starts to oscillate (i.e. It generates an output without an input being present)?

a. By applying negative feedback.

b. By coupling it to a transformer.
c. By applying positive feedback.

34. What is the maximum operating temperature for PCB FR-4 laminate?

a. 225 ºC
b. 75 ºC
c. 125 ºC

35. The letters, numbers, symbol and imagery on a circuit board is known as

a. thieving.
b. solder mask.
c. silkscreen.

36. A closed loop servomechanism

a. can have either position or velocity feedback.
b. must only have position feedback.
c. must have both position and velocity feedback.

37. An open loop system is one which has

a. position feedback loop.
b. no direct feedback loop.
c. rate feedback loop.

38. A tacho-generator output is

a. variable frequency, variable voltage.
b. variable frequency, constant voltage.
c. variable voltage, constant frequency.

39. The power supply to a synchro system is....

a. AC or DC
b. AC
c. DC

40. Reversal of two of the stator connections on a torque synchro receiver would cause

a. the transmitter to become the receiver.

b. the output to move in the reverse direction to the input.
c. the output to move in the same direction as the input.