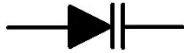


### Question block created by wizard

This exam contains 40 questions.

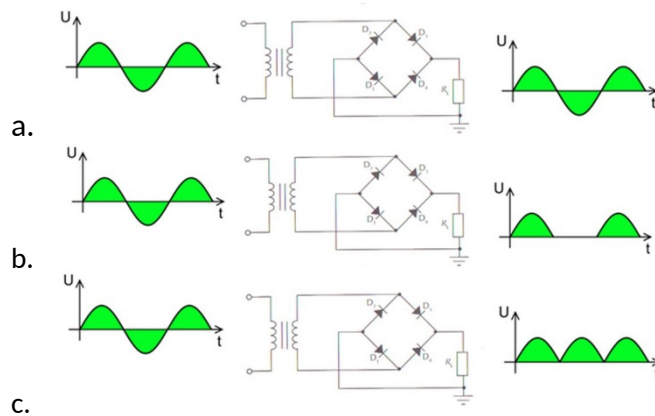
1. What kind of diode is shown here?



- a. This is an zener diode.
  - b. This is a Schottky barrier diode.
  - c. This is a Varicap diode.
2. What is in excess present in N type semi-conductor material?
- a. Holes.
  - b. Electrons.
  - c. Non.
3. How can a high voltage be distributed over more than one diode?
- a. This can be done by connecting diodes in series and connecting a resistor in series with each diode.
  - b. This can be done by connecting diodes in series and connecting a resistor parallel with each diode.
  - c. This can be done by connecting diodes in series. No additional components are needed.
4. How can a high current be distributed amongst more than one diode?
- This can be done by....
- a. connecting diodes parallel and connecting a resistor in series with each diode.
  - b. connecting diodes in series.
  - c. connecting diodes parallel and connecting a resistor parallel to each diode.
5. A thyristor is not triggered, what is true?
- The thyristor will....
- a. conduct the negative halve of a sine wave.
  - b. not conduct.
  - c. conduct the positive halve of a sine wave.

6. What happens when the voltage across a varistor increases?
- The varistor will start conducting slowly at its defined voltage level.
  - The varistor will start conducting immediately at its defined voltage level.
  - The varistor will stop conducting immediately at its defined voltage level.

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



8. When testing a diode with a multi-meter, what must be observed?
- The circuit that contains the diode in must be properly biased to get reliable results.
  - The diode must be disconnected from the circuit before any test is performed.
  - The circuit that contains the diode should not be connected to any power source.
9. Which one of the following answers gives the approximate forward voltage drop for a silicon diode?
- 0.3 V
  - 0.6 V
  - 1.2 V
10. The direction of conventional current flow in a diode is from:
- anode to cathode.
  - cathode to anode.
  - emitter to collector.
11. If forward bias is increased from zero on a p-n junction, a rapid increase in current flow for a relatively small increase in voltage occurs....
- only after the forward bias exceeds the potential barrier.
  - when the flow of minority carriers is sufficient to cause an avalanche breakdown.

- c. when the depletion layer becomes larger than the space charge area.

**12.** When a diode is forward biased it exhibits:

- a. a very low resistance
- b. a very high resistance
- c. zero resistance

**13.** When a diode is fully conductive and the current through the diode increases.

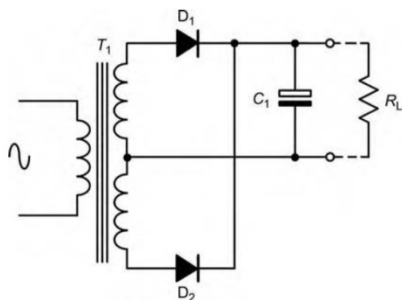
The voltage across the p-n junction....

- a. increases too, according Ohm's law.
- b. will hardly change.
- c. decreases so the current can rise.

**14.** A silicon diode has an upper temperature limit of about....

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

**15.** The function of  $C_1$  in the circuit shown in the figure is to:



- a. block direct current at the output
- b. act as a reservoir
- c. form a load with  $R_L$

**16.** A zener diode is designed to operate

- a. either above or below its breakdown voltage
- b. above its breakdown voltage
- c. below its breakdown voltage

**17.** A typical application for a rectifier diode is:

- a. switching current in an alternating current power controller.
- b. detecting signals in a radio receiver .
- c. converting alternating current to direct current in a power supply.

**18.** The device shown in the figure is:



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

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

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

**20.** What is the  $h_{FE}$  for a transistor when  $I_B = 1$  mA and  $I_C = 50$  mA?

- a. 0.02
- b. 49
- c. 50

**21.** What are the three elements of a transistor?

- a. Anode, base and collector.
- b. Cathode, base and collector.
- c. Emitter, collector and base.

**22.** For conduction of a transistor the emitter junction is

- a. fwd biased .
- b. reverse biased.
- c. fwd or reverse as appropriate to the input signal.

**23.** The input resistance of a transistor in common-emitter mode is found from the ratio of:

- a. collector-emitter voltage to emitter current.

- b. base-emitter voltage to base current.
- c. collector-base voltage to base current.

**24.** A JFET is

- a. current sensitive.
- b. voltage sensitive.
- c. either of the above depending on resistance in the circuit.

**25.** An amplifier can provide both voltage gain and current gain when it is connected in the

- a. common collector configuration.
- b. common emitter configuration .
- c. common base configuration.

**26.** Which class of amplifier has the lowest efficiency?

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

**27.** A flip-flop has two inputs, Set and Reset.

What happens with the output of this flip-flop when Set = 1 and Reset = 1?

- a. The output will not change.
- b. The output will go to HIGH state because the Set input overruled the Reset input.
- c. The output will go to LOW state because the Reset input overruled the Set input.

**28.** An example of a logic gate function is to....

- a. send an appropriate output depending on the input.
- b. math the input to the output.
- c. close a set of switches in a logical sequence.

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



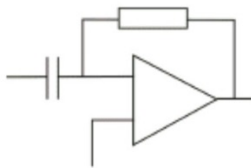
- a. NAND
- b. EXOR

c. EXNOR

**30.** The negative feedback for an integrator is connected via a

- a. capacitor.
- b. resistor.
- c. inductor.

**31.** This is a diagram of....



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

**32.** Resistors and capacitors are used to couple stages of amplifiers so that

- a. only DC can be applied.
- b. equal amounts of AC and DC can be applied.
- c. only AC can be applied.

**33.** When negative feedback is applied to an amplifier,....

- a. the overall gain is reduced and the bandwidth is increased.
- b. the overall gain is increased and the bandwidth is reduced.
- c. this will result in instability and oscillation.

**34.** Which laminate material is used for High Frequency PCB's?

- a. FR-4
- b. PTFE
- c. G-10

**35.** The layer of protective material laid over the metal (on a PCB) to prevent short circuits and corrosion is known as

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

- 36.** When a servo has reached its null and stopped, the velocity feedback is
- zero.
  - maximum and anti-phase.
  - maximum and in phase.
- 37.** The speed feedback signal of a closed-loop speed control system is in....
- phase with the input demand signal.
  - phase advanced by  $90^\circ$  with respect to the input signal.
  - anti-phase with the demand signal.
- 38.** A differential synchro stator has
- two windings.
  - three windings.
  - one winding.
- 39.** The power supply of a synchro system is connected to the....
- transmitter stator.
  - transmitter and receiver rotors.
  - transmitter rotor only.
- 40.** The result of reversing the rotor connections to the receiver of a torque synchro system is that the rotor position
- is unchanged.
  - is changed by  $180^\circ$
  - is changed by  $120^\circ$ .