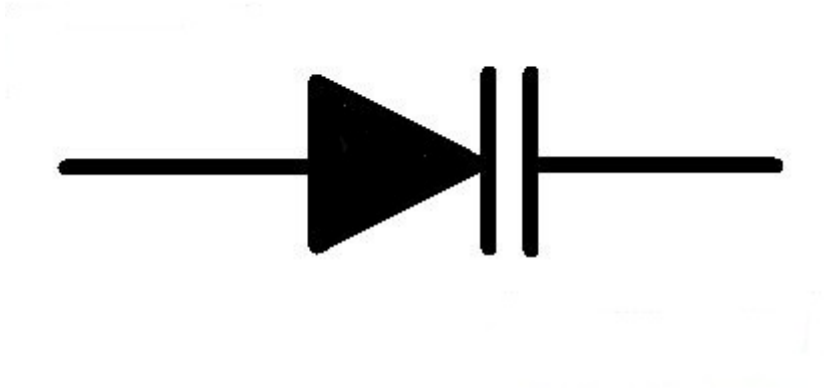
Question block created by wizard

This exam contains 40 questions.

1. What kind of diode is shown here?



- o (a) This is an zener diode.
- o (b) This is a Schottky barrier diode.
- • (c) This is a Varicap diode.

If choice c is selected set score to 1.

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

- o (a) Holes.
- • (b) Electrons.
- o (c) Non.

If choice b is selected set score to 1.

3. How can a high voltage be distributed over more than one diode?

- o (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.

If choice b is selected set score to 1.

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.

If choice a is selected set score to 1.

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.

If choice b is selected set score to 1.

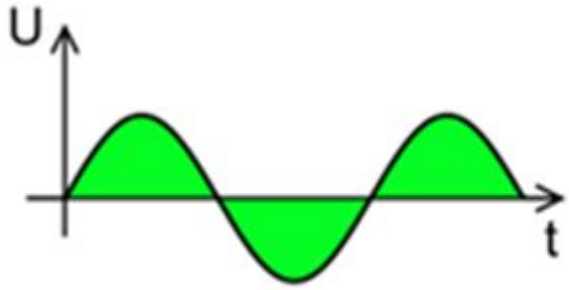
6. What happens when the voltage across a varistor increases?

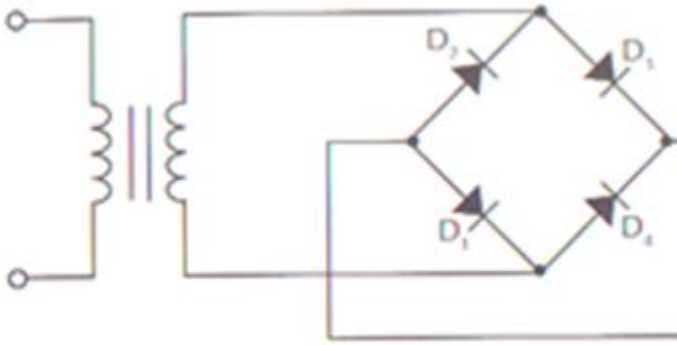
- (a) The varistor will start conducting slowly at its defined voltage level.
- (b) The varistor will start conducting immediately at its defined voltage level.
- (c) The varistor will stop conducting immediately at its defined voltage level.

If choice b is selected set score to 1.

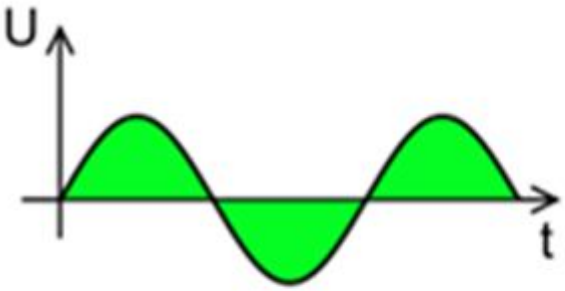
7. What is the correct picture for the voltage across the load resistor?

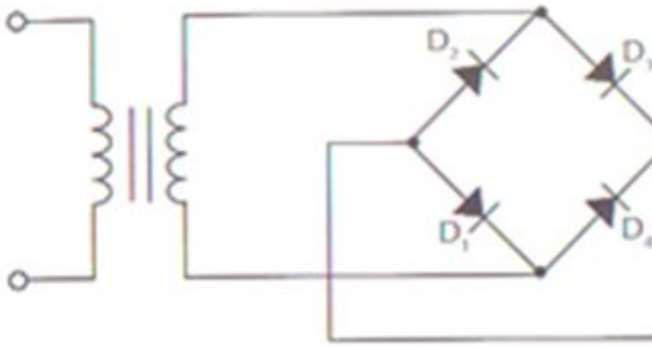
o (a)



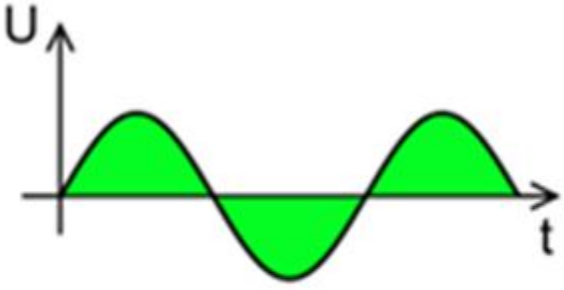


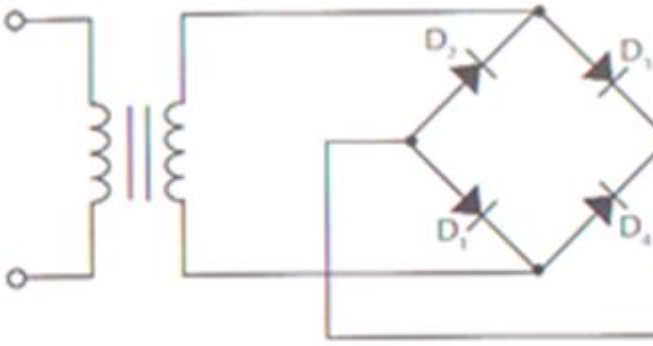
o (b)





- (c)





If choice c is selected set score to 1.

8. When testing a diode with a multi-meter, what must be observed?

- o (a) The circuit that contains the diode in must be properly biased to get reliable results.
- • (b) The diode must be disconnected from the circuit before any test is performed.
- o (c) The circuit that contains the diode should not be connected to any power source.

If choice b is selected set score to 1.

9. Which one of the following answers gives the approximate forward voltage drop for a silicon diode?

- o (a) 0.3 V
- • (b) 0.6 V
- o (c) 1.2 V

If choice b is selected set score to 1.

10. The direction of conventional current flow in a diode is from:

- • (a) anode to cathode.
- o (b) cathode to anode.
- o (c) emitter to collector.

If choice a is selected set score to 1.

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....

- • (a) only after the forward bias exceeds the potential barrier.
- o (b) when the flow of minority carriers is sufficient to cause an avalanche breakdown.
- o (c) when the depletion layer becomes larger than the space charge area.

If choice a is selected set score to 1.

12. When a diode is forward biased it exhibits:

- • (a) a very low resistance
- o (b) a very high resistance
- o (c) zero resistance

If choice a is selected set score to 1.

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.

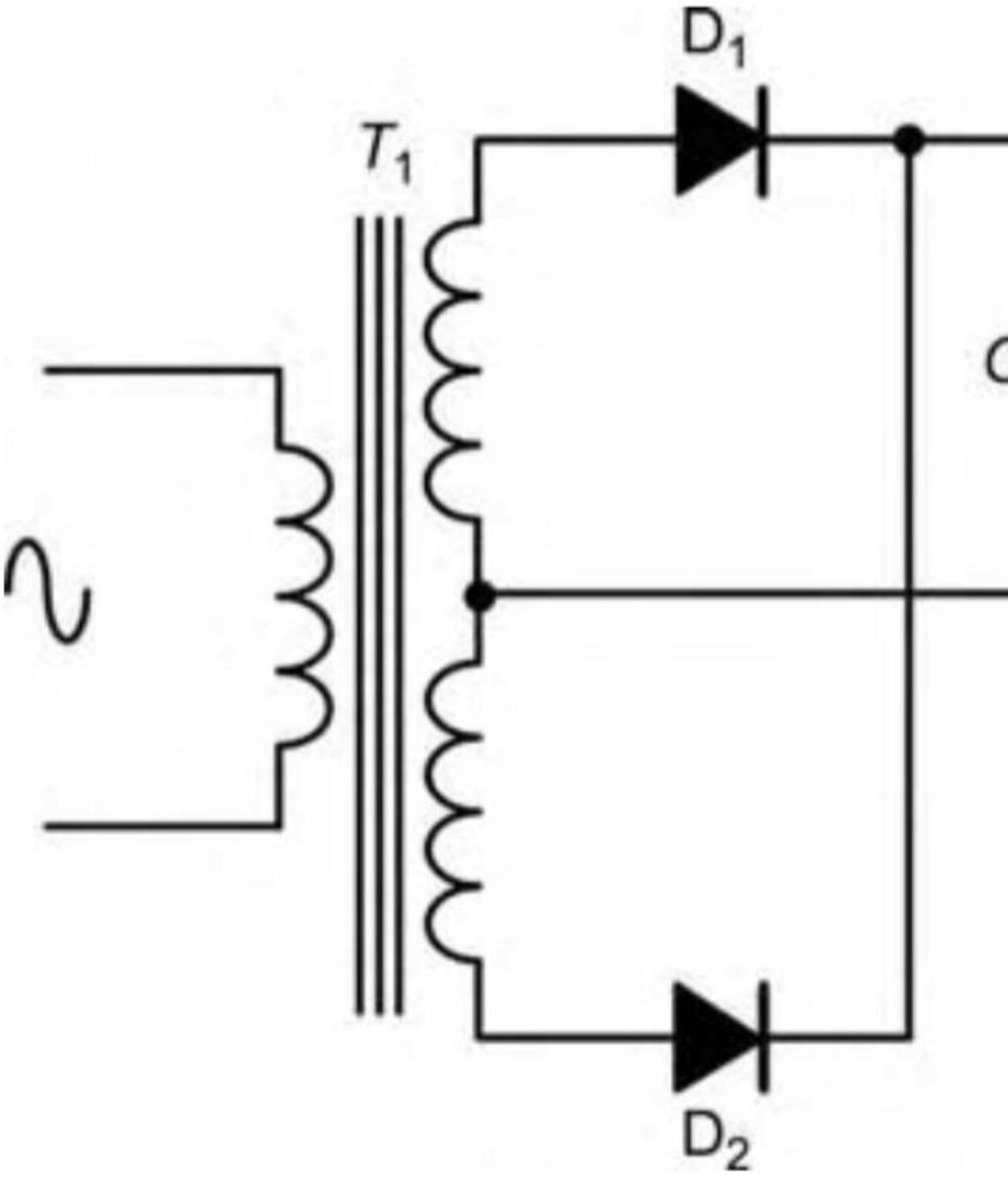
If choice b is selected set score to 1.

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

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

If choice b is selected set score to 1.

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

If choice b is selected set score to 1.

16. A zener diode is designed to operate

- o (a) either above or below its breakdown voltage
- • (b) above its breakdown voltage
- o (c) below its breakdown voltage

If choice b is selected set score to 1.

17. A typical application for a rectifier diode is:

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

If choice c is selected set score to 1.

18. The device shown in the figure is:

- o (a) an NPN bipolar junction transistor.
- • (b) a PNP bipolar junction transistor.
- o (c) a junction gate field effect transistor.

If choice b is selected set score to 1.

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

- o (a) Collector to emitter.
- o (b) Collector to base.
- • (c) Emitter to base.

If choice c is selected set score to 1.

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

- o (a) 0.02
- o (b) 49
- • (c) 50

If choice c is selected set score to 1.

21. What are the three elements of a transistor?

- o (a) Anode, base and collector.
- o (b) Cathode, base and collector.
- • (c) Emitter, collector and base.

If choice c is selected set score to 1.

22. For conduction of a transistor the emitter junction is

- • (a) fwd biased .
- o (b) reverse biased.
- o (c) fwd or reverse as appropriate to the input signal.

If choice a is selected set score to 1.

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

- o (a) collector–emitter voltage to emitter current.
- • (b) base–emitter voltage to base current.
- o (c) collector–base voltage to base current.

If choice b is selected set score to 1.

24. A JFET is

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

If choice b is selected set score to 1.

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

- o (a) common collector configuration.

- (b) common emitter configuration .

o (c) common base configuration.

If choice b is selected set score to 1.

26. Which class of amplifier has the lowest efficiency?

- (a) Class A

o (b) Class B
o (c) Class C

If choice a is selected set score to 1.

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.

o (b) The output will go to HIGH state because the Set input overruled the Reset input.
o (c) The output will go to LOW state because the Reset input overruled the Set input.

If choice a is selected set score to 1.

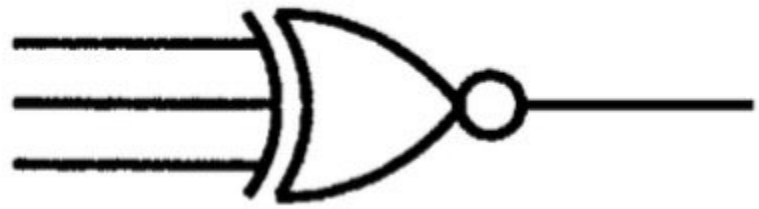
28. An example of a logic gate function is to....

- (a) send an appropriate output depending on the input.

o (b) math the input to the output.
o (c) close a set of switches in a logical sequence.

If choice a is selected set score to 1.

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



o (a) NAND
o (b) EXOR

- (c) EXNOR

If choice c is selected set score to 1.

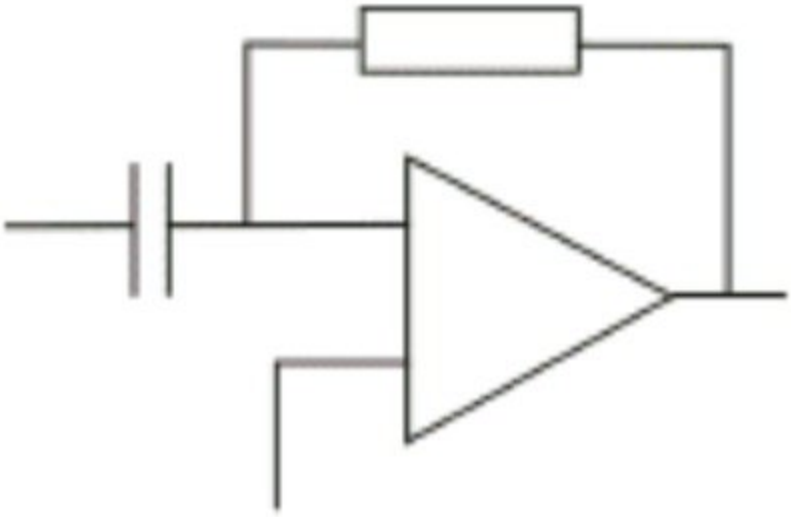
30. The negative feedback for an integrator is connected via a

- (a) capacitor.

o (b) resistor.
o (c) inductor.

If choice a is selected set score to 1.

31. This is a diagram of....



- (a) a differentiator

o (b) an integrator
o (c) an adder

If choice a is selected set score to 1.

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

o (a) only DC can be applied.
o (b) equal amounts of AC and DC can be applied.

- (c) only AC can be applied.

If choice c is selected set score to 1.

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

- (a) the overall gain is reduced and the bandwidth is increased.

o (b) the overall gain is increased and the bandwidth is reduced.

- (c) this will result in instability and oscillation.

If choice a is selected set score to 1.

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

- (a) FR-4
- (b) PTFE
- (c) G-10

If choice b is selected set score to 1.

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.

If choice a is selected set score to 1.

36. When a servo has reached its null and stopped, the velocity feedback is

- (a) zero.
- (b) maximum and anti-phase.
- (c) maximum and in phase.

If choice a is selected set score to 1.

37. The speed feedback signal of a closed-loop speed control system is in....

- (a) phase with the input demand signal.
- (b) phase advanced by 90° with respect to the input signal.
- (c) anti-phase with the demand signal.

If choice c is selected set score to 1.

38. A differential synchro stator has

- (a) two windings.
- (b) three windings.
- (c) one winding.

If choice b is selected set score to 1.

39. The power supply of a synchro system is connected to the....

- o (a) transmitter stator.
- • (b) transmitter and receiver rotors.
- o (c) transmitter rotor only.

If choice b is selected set score to 1.

40. The result of reversing the rotor connections to the receiver of a torque synchro system is that the rotor position

- o (a) is unchanged.
- • (b) is changed by 180°
- o (c) is changed by 120°.

If choice b is selected set score to 1.

If assessment score is 0% to 100% Feedback