Question block created by wizard

This exam contains 40 questions.

1. What type of diode is shown here?

- o (a) This is the symbol of a zener diode.
- o (b) This is the symbol of a tunnel diode.
- (c) This is the symbol of a shottky diode.

If choice c is selected set score to 1.

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

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

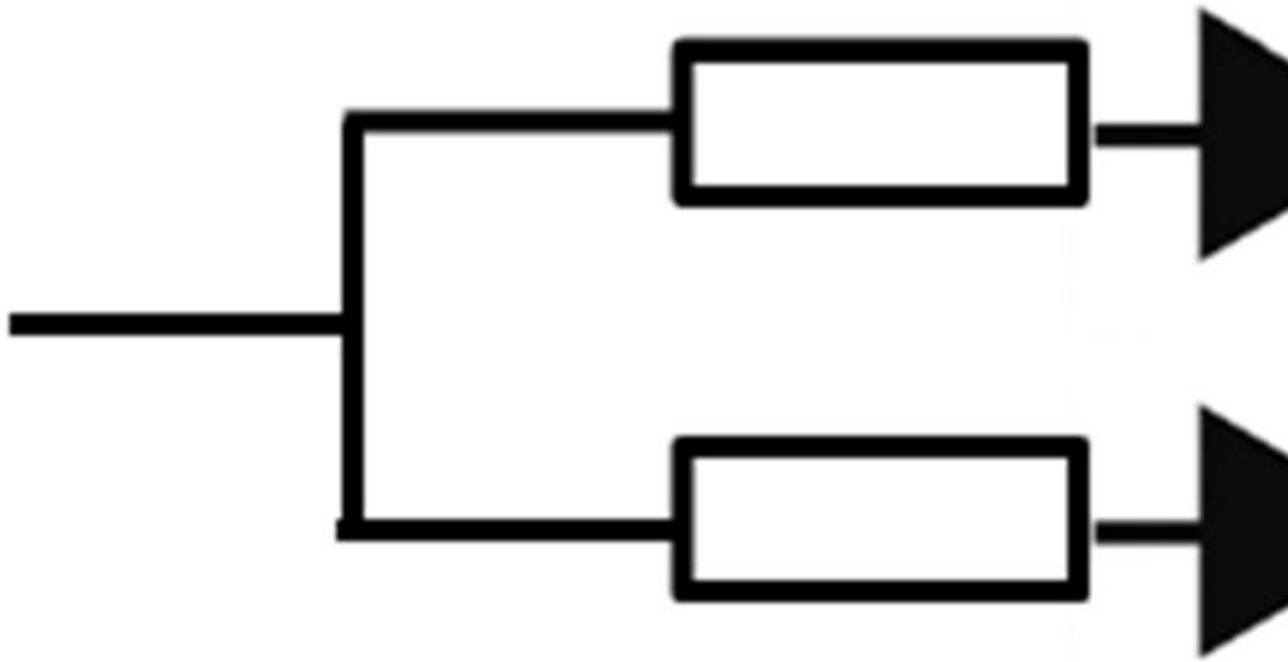
If choice a is selected set score to 1.

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

- (a) 10 mA
- o (b) 1 A
- o (c) 10 A

If choice a is selected set score to 1.

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



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

If choice c is selected set score to 1.

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

- • (a) Gate.
- o (b) Anode.
- o (c) Cathode.

If choice a is selected set score to 1.

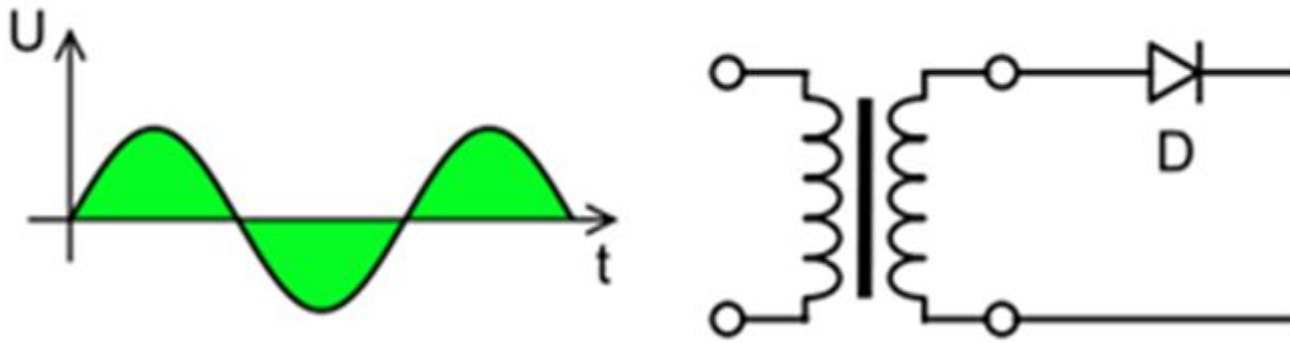
6. What is a typical characteristic of a Varistor?

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

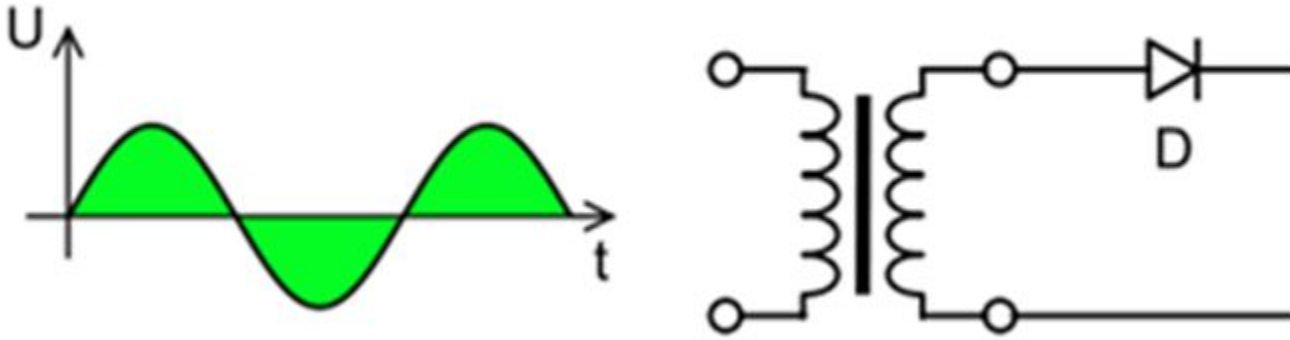
If choice b is selected set score to 1.

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

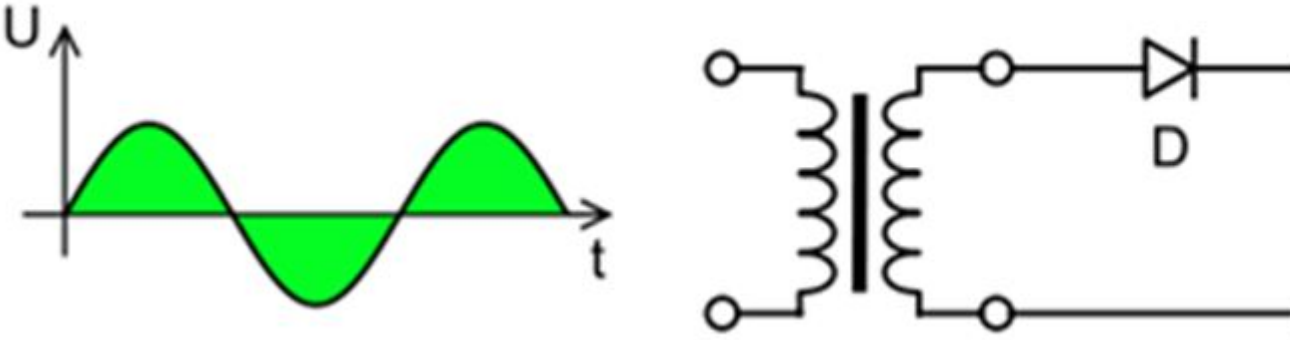
o (a)



o (b)



• (c)



If choice c is selected set score to 1.

8. 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?

o (a) The diode is shorted and defective.

• (b) The diode is good.

o (c) The diode is open and defective.

If choice b is selected set score to 1.

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

- o (a) conduction layer
- • (b) depletion layer
- o (c) insulation layer

If choice b is selected set score to 1.

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

- o (a) anode connection.
- • (b) cathode connection.
- o (c) earth or ground connection.

If choice b is selected set score to 1.

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

- o (a) a C type material
- o (b) a P type material
- • (c) a N type material

If choice c is selected set score to 1.

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

- o (a) the same forward bias voltage
- • (b) a higher forward bias voltage
- o (c) less forward bias voltage

If choice b is selected set score to 1.

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

- o (a) cathode
- • (b) anode
- o (c) either anode or cathode

If choice b is selected set score to 1.

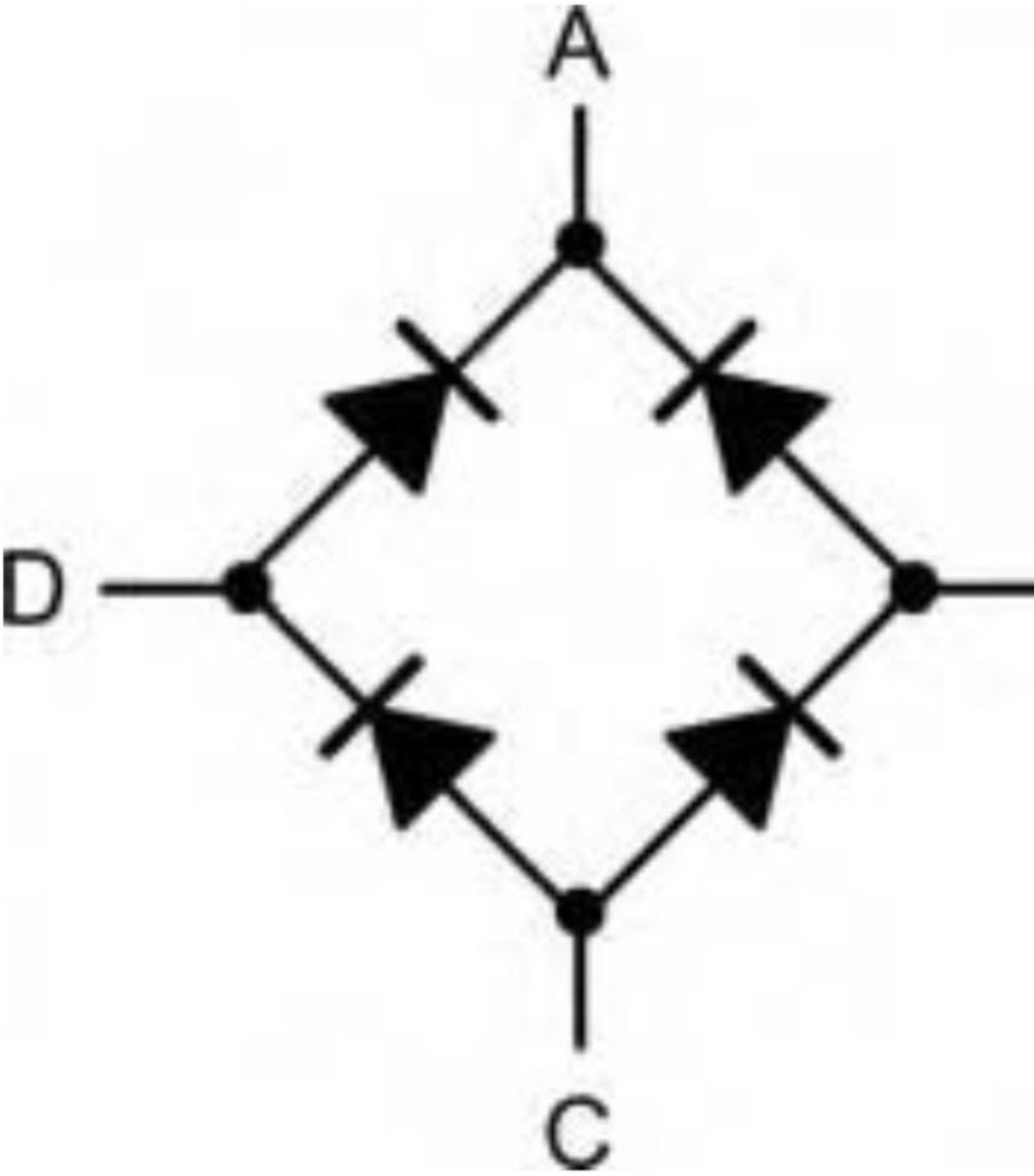
14. A germanium diode has an upper temperature limit of about....

- (a) 80° - 100°C

- (b) 150° - 200°C
- (c) 250° - 300°C

If choice a is selected set score to 1.

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



- (a) B and D
- (b) A and B

o (c) A and C

If choice a is selected set score to 1.

16. This symbol is

o (a) a laser diode

• (b) a photodiode

o (c) an LED

If choice b is selected set score to 1.

17. A typical application for a Zener diode is:

o (a) controlling the current in a load.
o (b) acting as a variable capacitance in a tuned circuit.

• (c) regulating a voltage supply.

If choice c is selected set score to 1.

18. The device shown in the figure is:

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

If choice b is selected set score to 1.

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

- o (a) emitter
- o (b) collector
- • (c) base

If choice c is selected set score to 1.

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

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

If choice c is selected set score to 1.

21. What are the two junctions of a transistor?

- o (a) emitter-base and collector-emitter
- o (b) Emitter-base and emitter-collector
- • (c) emitter-base and base-collector

If choice c is selected set score to 1.

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

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

If choice a is selected set score to 1.

23. The connections to a JFET are labelled:

- o (a) collector, base and emitter.
- o (b) anode, cathode and gate.
- • (c) source, gate and drain.

If choice c is selected set score to 1.

24. A FET when compared to a junction transistor is

- • (a) high impedance.
- o (b) low impedance.
- o (c) current operated.

If choice a is selected set score to 1.

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

- o (a) the emitter current follows the collector current.
- • (b) the emitter voltage follows the base voltage.
- o (c) the emitter voltage follows the collector voltage.

If choice b is selected set score to 1.

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

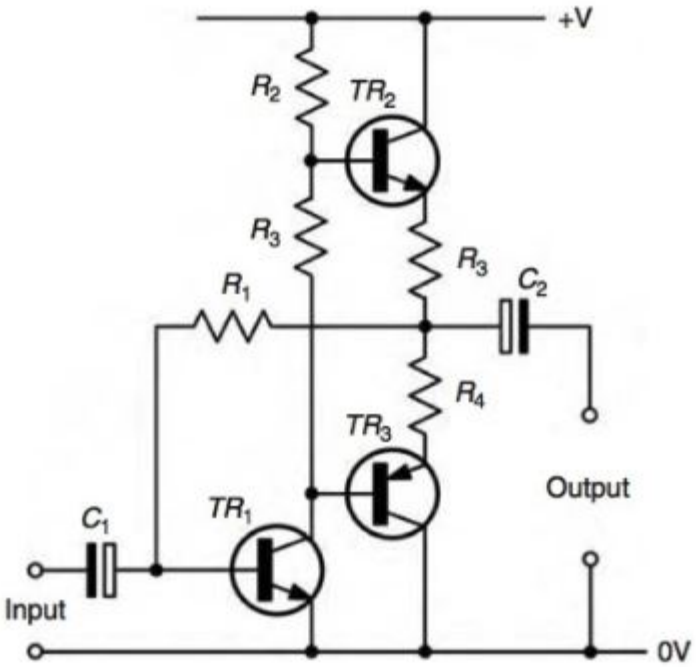
- • (a) Class A

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

If choice a is selected set score to 1.

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?



- o (a) Both transistors work together at the same time to produce more power at the output.
- o (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.

If choice c is selected set score to 1.

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

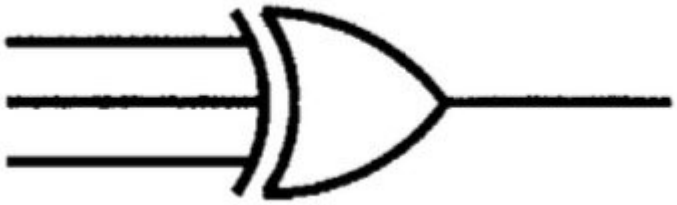
- o (a) ensure the output signal is of the same state as the input signal.

- • (b) invert the input signal so that the output is always of the opposite state.

- o (c) ensure the input signal is DC only.

If choice b is selected set score to 1.

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

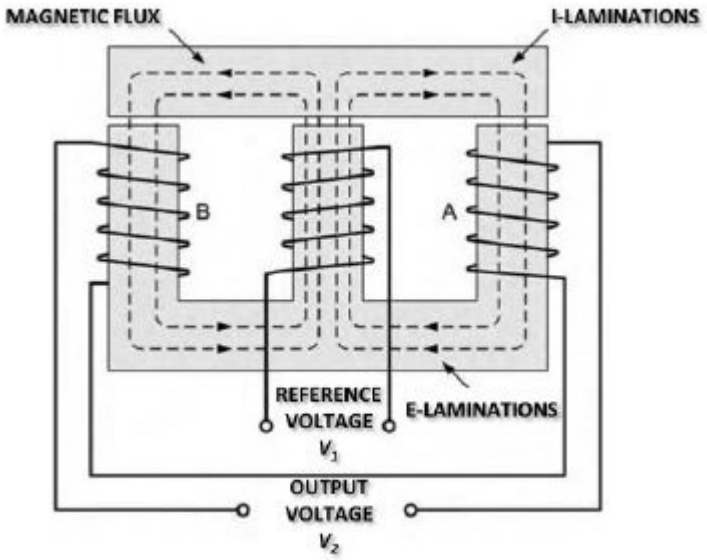


- (a) EXOR

o (b) NOT
o (c) NAND

If choice a is selected set score to 1.

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

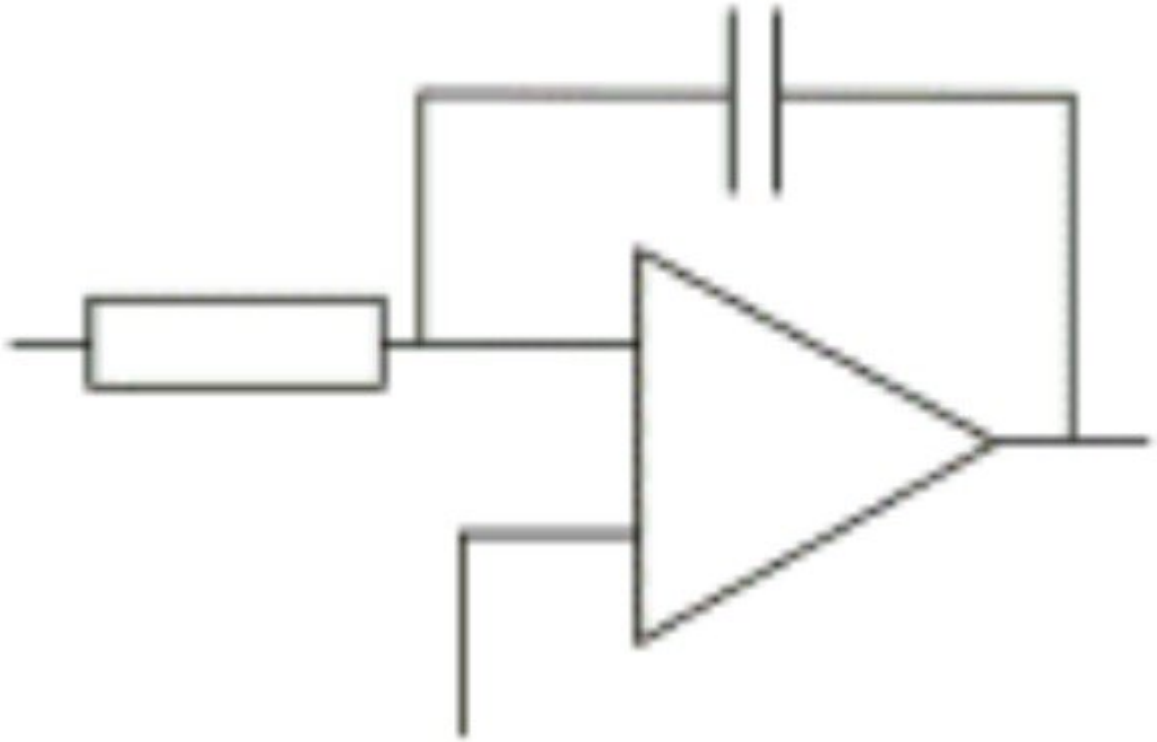


- (a) out of phase voltages.

o (b) in phase voltages.
o (c) equal and in phase voltages.

If choice a is selected set score to 1.

31. This is a diagram of....



- (a) an adder
- (b) a differentiator

- (c) an integrator

If choice c is selected set score to 1.

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

If choice c is selected set score to 1.

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.

If choice c is selected set score to 1.

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

- o (a) 225 °C
- o (b) 75 °C
- • (c) 125 °C

If choice c is selected set score to 1.

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

- o (a) thieving.
- o (b) solder mask.
- • (c) silkscreen.

If choice c is selected set score to 1.

36. A closed loop servomechanism

- • (a) can have either position or velocity feedback.
- o (b) must only have position feedback.
- o (c) must have both position and velocity feedback.

If choice a is selected set score to 1.

37. An open loop system is one which has

- o (a) position feedback loop.
- • (b) no direct feedback loop.
- o (c) rate feedback loop.

If choice b is selected set score to 1.

38. A tacho-generator output is

- o (a) variable frequency, variable voltage.
- o (b) variable frequency, constant voltage.
- • (c) variable voltage, constant frequency.

If choice c is selected set score to 1.

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

- o (a) AC or DC

- (b) AC

o (c) DC

If choice b is selected set score to 1.

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

o (a) the transmitter to become the receiver.

- (b) the output to move in the reverse direction to the input.

o (c) the output to move in the same direction as the input.

If choice b is selected set score to 1.

If assessment score is 0% to 100% Feedback