

Electronics revision questions

The credit questions are in ----- ***bold and italics***

1. What are the three main sections of any electronic system?
2. State which of these are digital or analogue outputs?
 - a) a calculator
 - b) a liquid thermometer
 - c) a computer
 - d) an electronic balance
 - e) the clock at the back of the classroom
3. Which of these are digital and which are analogue oscilloscope traces?

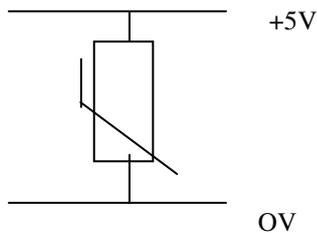


4. Draw the symbol for each of these input devices.
 - a) thermistor
 - b) thermocouple
 - c) capacitor
 - d) LDR
 - e) solar cell
 - f) switch
 - g) microphone
 - h) potentiometer
5. State whether the following are analogue or digital input devices.
 - a) thermistor
 - b) thermocouple
 - c) capacitor
 - d) LDR
 - e) solar cell
 - f) switch
 - g) microphone
 - h) potentiometer
6. *Give a use for or the name of an electronic device which might use each of these.*
 - a) *thermistor*
 - b) *thermocouple*
 - c) *capacitor*
 - d) *LDR*
 - e) *solar cell*
 - f) *switch*
 - g) *microphone*
 - h) *microphone*

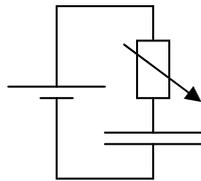
7. What happens to the resistance of an LDR if more light falls on it?

8. What happens to the resistance of a thermistor if its temperature increases?

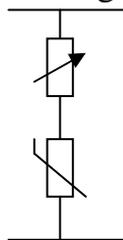
9. **Find the resistance of a thermistor if it connected as shown and a current of 10mA flows through it.**



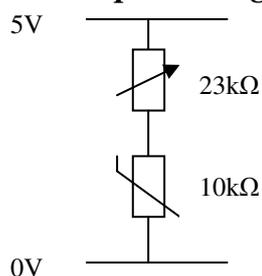
10. **State two ways that circuits like the one below could be changed so that it takes longer for the capacitor to become fully charged.**



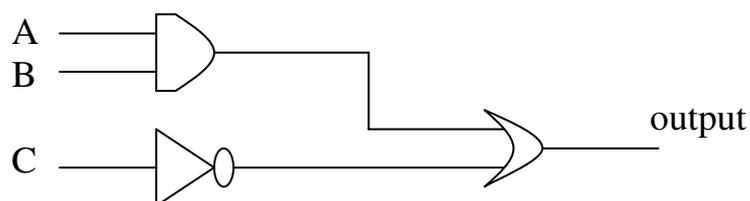
11. What name is given to circuits like the one below?



12. **What is the output voltage across the thermistor in this circuit?**



13. Name the 6 output devices studied during this topic, draw their symbol and state if they are analogue or digital outputs.
14. Why must an LED be connected the correct way into a circuit?
15. Why must a resistor be connected in series with an LED?
16. What segments on a seven segment display are active to make all the numbers from zero to nine?
17. *What output device could be used in each of these?*
 - a) *public address system*
 - b) *calculator display*
 - c) *a warning indicator on a control panel*
 - d) *a remote switch in a nuclear power station*
 - e) *a security lock*
 - f) *the paper feeder in a computer printer*
18. *Draw a circuit which shows an LED connected to a 6V power supply if the LED has to operate at a voltage of 2V.*
19. *Calculate the size of the resistor that should be used in question 18 if the maximum current in the LED is to be 10mA?*
20. What is a transistor used as in an electronic circuit?
21. What are the three terminals on a transistor called?
22. Draw the symbol for a transistor.
23. Which terminals control the state of the transistor?
24. What are the three logic gates studied in the electronics unit.
25. Draw their symbols and truth tables.
26. What do truth tables show?
27. *Draw a truth table for this logic diagram.*



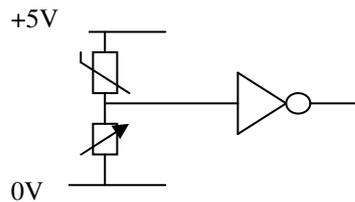
28. Name an electronic device that would include a counting circuit.

29. What number system do counting circuits use?

30. *Change this binary number into a decimal number 1011.*

31. *If the temperature is high is the output of this circuit HIGH or*

LOW



32. *Explain how the clock pulse circuit works.*

33. *What two things can be done to reduce the frequency of a clock pulse circuit?*

34. What do amplifiers do?

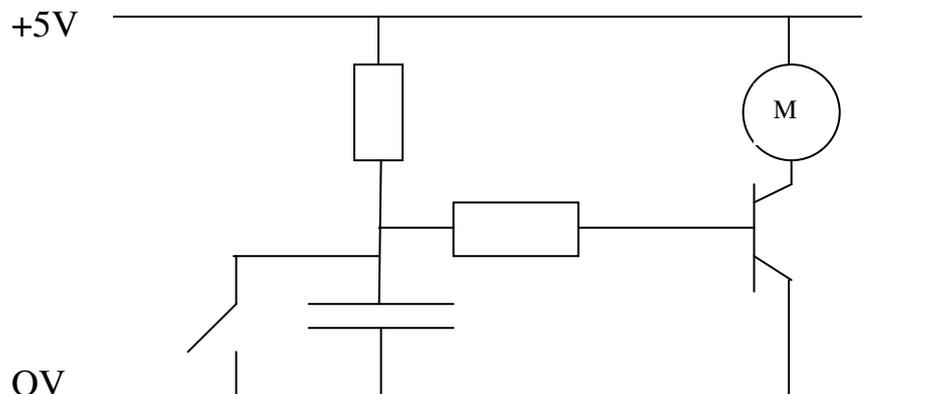
35. What is meant by the gain of an amplifier?

36. How do you calculate gain?

37. What are the units of gain?

38. Name 2 devices which contain amplifiers

39. *Explain whether the motor in this circuit is on or off if the switch is open.*



40. From the options below draw a block diagram which could be used to turn on a heater at night when it is cold in winter at night.

1 if on
0 if off

switch

AND

LED

Heater

0 if light
1 if dark

LDR

OR

Lamp

NOT

0 if cold
1 if hot

thermistor

Buzzer

Look at the bite size web site.

*Try the electronics section for
some more questions and
extra notes if you want them !*