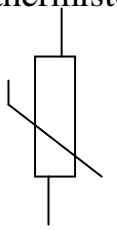
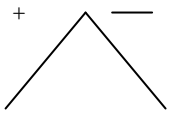
Answers
Electronics revision questions

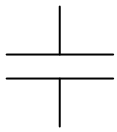
1. input process output

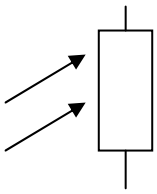
2. a) digital
   b) analogue
   c) digital
   d) digital
   e) analogue

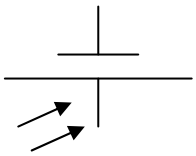
3. a--- digital
   b--- analogue
   c--- analogue
   d --- analogue
   e --- digital

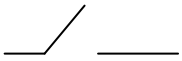
4. thermistor 

   thermocouple 

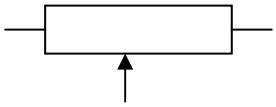
   capacitor 

   LDR 

   solar cell 

   switch 

   microphone 

   potentiometer 

5. a) thermistor ---- analogue
   b) thermocouple ---analogue
   c) capacitor -----analogue
   d) LDR --- analogue
   e) solar cell --- analogue
   f) switch --- digital
   g) microphone ---analogue
   h) potentiometer --- analogue

6. a) thermistor ---- electronic thermometer
   b) thermocouple --- electronic thermometer- high temperature
   c) capacitor -----time delay in a burglar alarm
   d) LDR --- light meter sensor
   e) solar cell --- charger unit in a calculator
   f) switch --- door sensor in burglar alarm
   g) microphone --- public address system
   h) potentiometer --- speed control on a toy car

7. resistance decreases

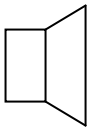
8. resistance decreases

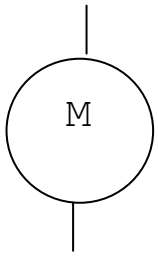
9. 500Ω

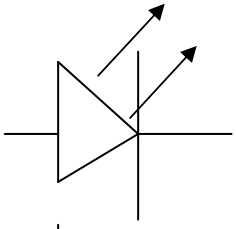
10. increases resist**ance** or increase capacit**ance**

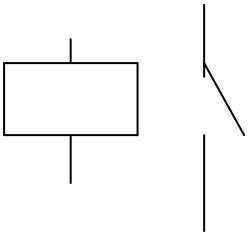
11. voltage divider

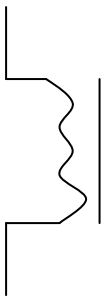
12. 1.52V

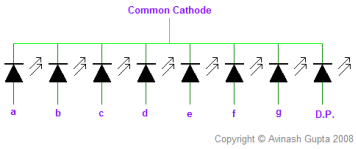
13. loudspeaker  analogue

Motor  analogue

Light emitting diode  digital

Relay  digital

Solenoid  digital

Seven segment display 

digital

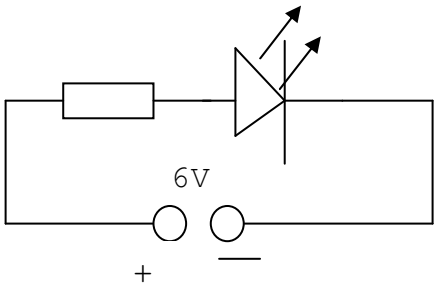
14. It will only conduct current in one direction.

15. To stop too much current flowing through it and damaging it.

16. 0 -- abcfed
1 -- bc
2 -- abged
3 -- abcdg
4 -- fgbc
5 --afgcd
6 --afedcg
7 --abc
8 --abcdefg
9 --abcdgf

17. a) loudspeaker
b) 7 segment display
c) LED
d) relay
e) solenoid
f) motor

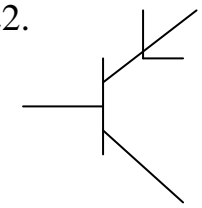
18.



19. 400Ω

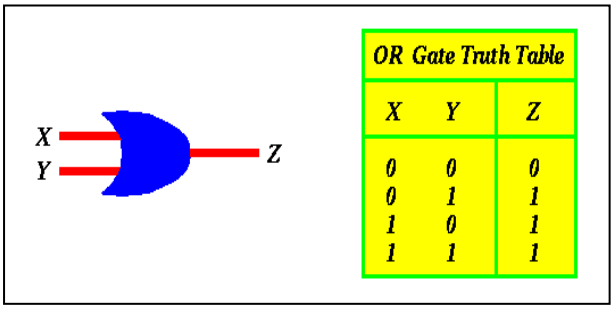
20. switch

21. base emitter collector

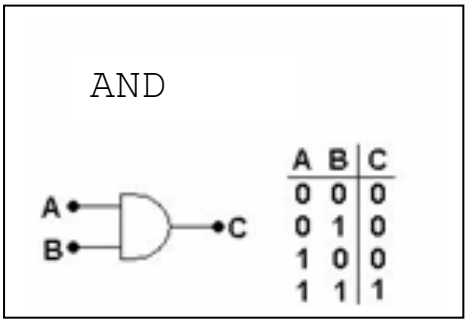
22. 

23. base and emitter

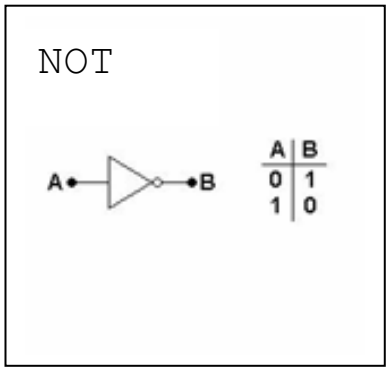
24. OR AND NOT

25. 

OR Gate Truth Table		
X	Y	Z
0	0	0
0	1	1
1	0	1
1	1	1



A	B	C
0	0	0
0	1	0
1	0	0
1	1	1



A	B
0	1
1	0

26. Truth tables show what the output will be for the various possible inputs

27.

input			output
A	B	C	
0	0	0	1
0	1	0	1
1	0	0	1
1	1	0	1
0	0	1	0
0	1	1	0
1	0	1	0
1	1	1	1

28. a clock

29. binary

30. eleven

31. LOW

32. Capacitor is uncharged to start
Voltage across capacitor is low
Voltage at output of NOT gate is HIGH
Capacitor charges through the resistor
Capacitor voltage increases and becomes High
Voltage at output to NOT gate becomes LOW
Capacitor discharges through resistor
Process repeats
Current is constantly changing direction – pulsing

33. increase resist<u>ance</u>
increase capacit<u>ance</u>

34. Amplifiers make signals bigger

35. The gain is how many **<u>times</u>** bigger the output signal is compared to the input signal

36. $\text{gain} = \frac{\text{output}}{\text{input}}$

37. there are no units for gain

38. a television and a radio

39. if the switch is closed the capacitor is charged
the voltage across the capacitor is high
the voltage across the base emitter terminals of the transistor is high
the transistor will conduct
the motor will be on

40.