JOUF TECHNICAL COLLEGE

145 Quizzes

Electronics

Quiz-1 ◄ ► Unit-1: Electronics in the home. What are they?

1- _____ 2- _____

3- _____ 4- _____

5- _____ 6- _____

7- _____ 8- _____

9- _____ 10-_____

11-_____ 12-_____

Quiz-2 ◄ ► Unit-1: Electronics in the home. What do these abbreviations stand for?

1- IC stands for _____.

2- CD is the short form for _____.

3- hi-fi means _____.

Quiz-3 ◄ ► Unit-1: Electronics in the home. Read this passage and then answer the questions.

Electronics in the home.

Electronics began at the start of the **twentieth** century with the invention of the vacuum tube. The first devices for everyday use were radios, followed by
televisions, record players, and tape recorders. These devices were large and used a lot of power.

The invention of the **transistor** in **1947** meant that much smaller, low-powered devices could be developed. A wide variety of electronic devices such as
hi-fi units and portable radios became common in the home.

It was not until **1958** that microelectronics began with the development of **IC**s (integrated circuits) on silicon chips. This led to a great increase in the use of electronics in everyday items. The introduction of the microprocessor allowed electronics to be used for the control of many common processes.

Microprocessors are now used to control many household items such as automatic washing-machines, and food processors. Electronic timers are found in digital alarm clocks, water heaters, electric cookers, and microwave ovens. Telephones use electronics to provide automatic dialling and answerphone facilities. New entertainment devices have been developed, such as video recorders and CD (compact disc) players.

In the future, electronics are likely to become even more common in the home as multimedia entertainment systems and computer-controlled **robots** are developed.

A) Fill in the gaps.

Date	Invention	Applications in the home
1- 20th. century	_____	_____, TVs, record players, tape

recorders

2- ____ transistor _____, portable radios

3- 1958 _____ automatic washing-machines, dishwashers,

telephones,...etc

4- future - _____ entertainment systems,

computer-controlled _____.

B) Do as shown:

5- The vacuum tube was invented in the 20th. century. T F

6- Radios were invented (before - after) the invention of the valve.

7- In 1947, Man invented the _____ that led to the invention of hi-fi units and radios.

8- IC is the short form for _____.

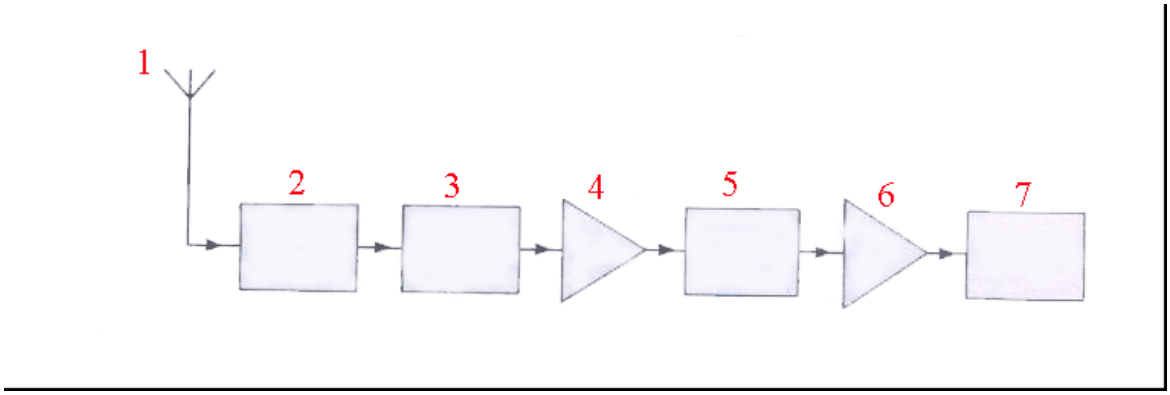
9- Electronic _____ were found in water heaters and electric cookers.

10- _____ will be very common in the home in the near future.

Quiz-4 ◄ ► Unit-1: Electronics in the home.

Electronic Diagrams

Although electronic devices may look complicated, they are made up of common basic units ('building blocks') connected together. The function of each of these units and the path of the signals between them can be shown in a block diagram.

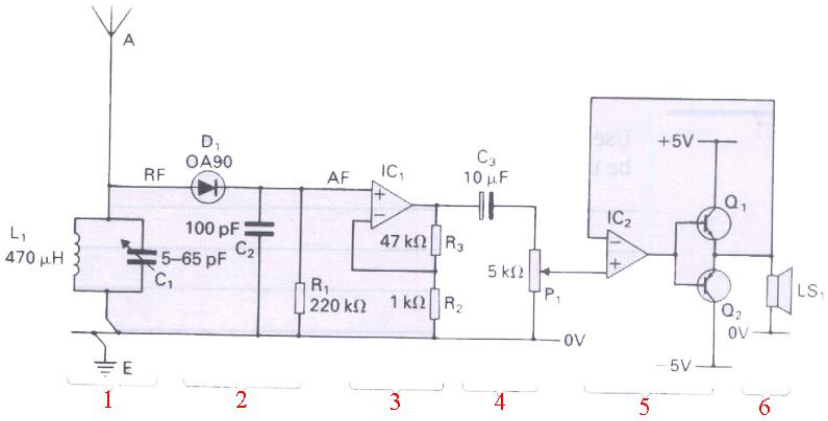


1- _____ 2- _____ 3-_____ 4- _____

5- _____ 6- _____ 7- _____

To understand how the radio works, it is more important to understand the function of each unit than to know what components are used. This is known as a systems approach to electronics. For example, in the above diagram the tuner selects the required signal, the detector then separates off the audio part of the signal, and the AF amplifier (amp) amplifies it.

The connections and the values of the components inside these basic units can be shown in a circuit diagram using standard electronic symbols.



Components:

1- _____ 2- _____

3- _____ 4- _____

5- _____ 6- _____

Symbols: What kind of component is P1? What's the value of C1?

A: _____ P1: _____

L1: _____ Q1: _____

C1: _____ Q2: _____

E: _____ LS1: _____

D1: _____ =5V, -5V,0V: _____

C2: _____

R1,R2,R3: _____

IC1,IC2: _____

C3: _____

Quiz-5 ◄ ► Unit-1: Electronics in the home. Describe the value of these components.

1- R1 is a _____.

2- R2 is a _____.

3- R3 is a _____.

4- C1 is a _____.

5- C2 is a _____.

6- C3 is a _____.

7- P1 is a _____.

8- L1 is a _____.

Quiz-6 ◄ ► Unit-1: Electronics in the home. Describing diagrams and circuits.

1- The radio _____ a tuner, a detector, and an AF amplifier.

A tuner, a detector, and an AF amplifier _____ the radio.

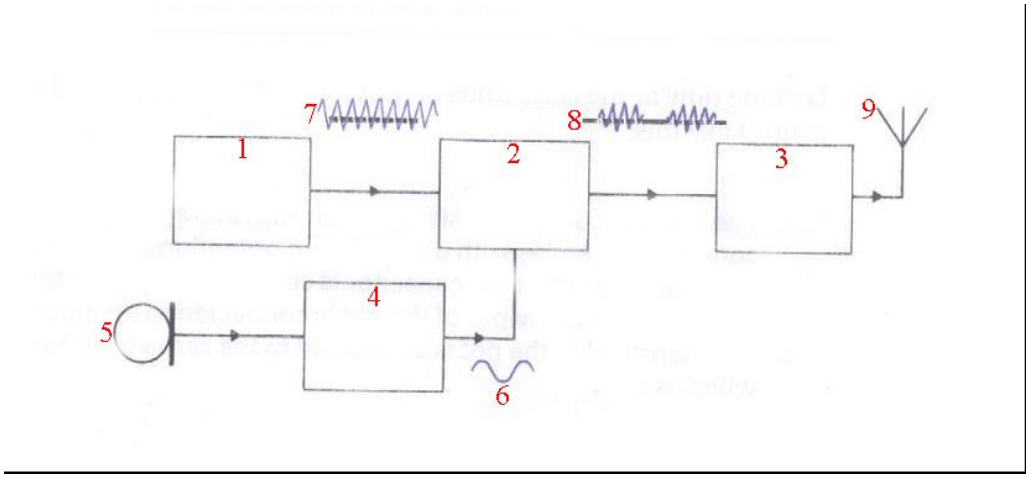
The tuner _____ the detector.

The tuner is _____ the detector.

2- The volume control _____ a ten-microfarad electrolytic capacitor connected in series with a five-kilohm potentiometer (pot). The positive terminal of the capacitor _____ the output of the AF amplifier and the wiper of the pot _____ the power amp. The third terminal of the pot _____ the zero voltage supply rail, which is earthed.

3- The tuned circuit _____ a four hundred and seventy microhenry inductor which is connected in parallel _____ a variable capacitor. The capacitor can be varied between five and sixty-five picofarads (puffs). The aerial _____ the top end of the tuner. It is also _____ the positive terminal of the diode in the detector. The bottom end of the tuner _____ earth via the zero voltage supply rail.

Quiz-7 ◄ ► Unit-1: Electronics in the home. What is the diagram of? Write the components and explain the functions of each unit.



1- _____ 2- _____ 3- _____

4- _____ 5- _____ 6- _____

7- _____ 8- _____ 9- _____

AM radio transmitter

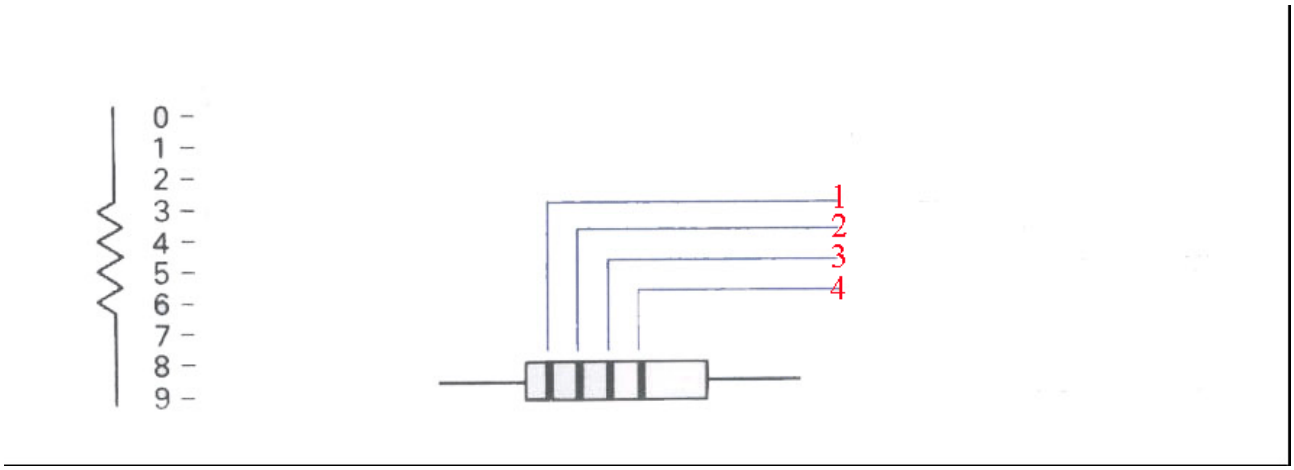
It _____ a radio frequency (RF) oscillator, a _____, an audio frequency (AF) amplifier, and an RF power amplifier.

The RF _____ generates an RF _____ wave which is fed into the modulator.

The microphone converts sounds into audio frequency signals which are amplified by the AF _____. The modulator then uses the amplified AF _____ to modulate the RF carrier wave.

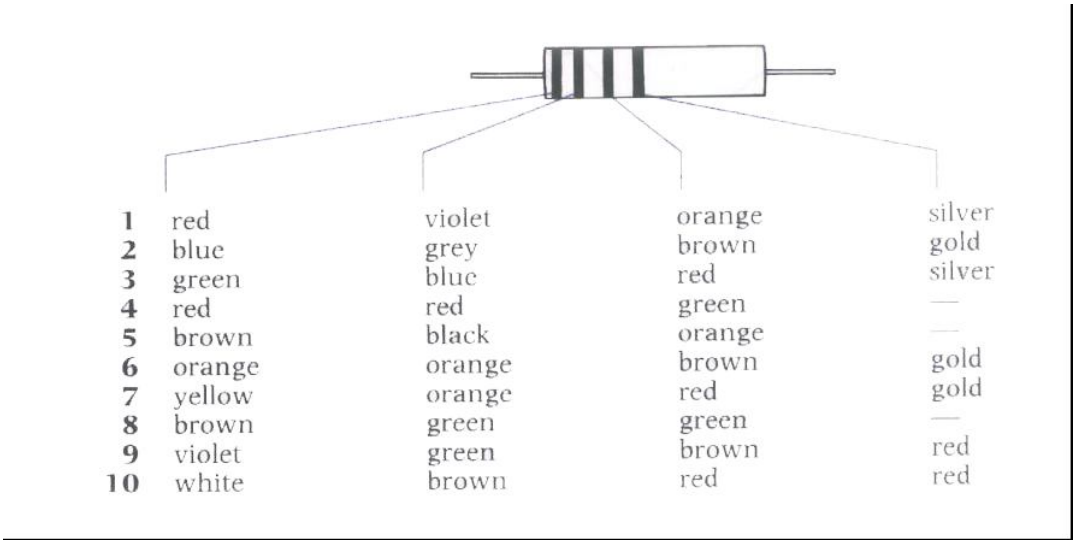
The power of the modulated carrier wave is increased by the RF
_____
amplifier. The strong modulated output signals are fed to the aerial
(_____)
which enables them to be transmitted over long distances.

Quiz-8 ◄ ► Unit-4: Component values.



Resistors are coded with coloured bands to ease the problem of marking such
small components.
The numbers corresponding to the ten colours used and the values per position
are shown above.
For example, 180,000 ohms is coded with the first digit brown, then grey and
finally yellow. The fourth band indicates the tolerance that the value has with
respect to the stated value.
For example, silver indicates 10% tolerance, meaning that the 180,000 ohms
could vary between 180,000± 18,000, i.e. 162,000 to 198,000.
These tolerances may seem to reflect poor manufacture but in most circuits they
are, in fact, quite satisfactory. Relaxing the tolerance enables the maker to sell
them more cheaply.

Quiz-9 ◄ ► Unit-4: Component values. Resistor values. Find the values and tolerances of resistors banded as follows.



1	red	violet	orange	silver
2	blue	grey	brown	gold
3	green	blue	red	silver
4	red	red	green	—
5	brown	black	orange	—
6	orange	orange	brown	gold
7	yellow	orange	red	gold
8	brown	green	green	—
9	violet	green	brown	red
10	white	brown	red	red

1- red-violet-orange-silver= Value: _____ Tolerance: _____

2- blue-grey-brown-gold= Value: _____ Tolerance: _____

3- green-blue-red-silver= Value: _____ Tolerance: _____

4- red-red-green- / = Value: _____ Tolerance: _____

5- brown-black-orange-/= Value: _____ Tolerance: _____

6- orange-orange-brown-gold= Value: _____ Tolerance: _____

7- yellow-orange-red-gold= Value: _____ Tolerance: _____

8- brown-green-green-/= Value: _____ Tolerance: _____

9- violet-green-brown-red= Value: _____ Tolerance: _____

10-white-brown-red-red= Value: _____ Tolerance: _____

Quiz-10 ◄ ► Unit-4: Component values. Answer these questions.

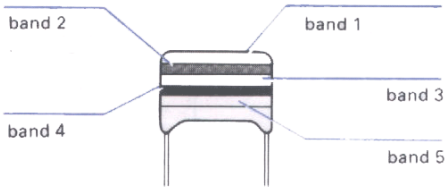
1- Why are resistors coded with coloured bands?

2- What would be the effect of making resistors with a much higher tolerance?

3- Between which values might a resistor marked green, blue, orange, and silver vary?

4- Why do manufacturers make resistors in the preferred values shown rather than in equally stepped values?

Quiz-11 ◄ ► Unit-4: Component values. Capacitor values. Name the colour bandings of the capacitors below.



		band	
		4	5
colour	black	20%	——
	white	10%	——
	green	5%	——
	orange	2.5%	——
	red	2%	250V
	brown	1%	——
	yellow	——	400V

1- band 1 refers to (_____)
2- band 2 refers to (_____)
3- band 3 refers to (_____)
4- band 4 refers to (_____)
5- band 5 refers to (_____)

Name the colour bandings of the capacitor: 220pF, 2.5% .

What's the value of this capacitor coded: brown-black-brown-black ?
What are the colour bandings of these capacitors:
1- 180pF, 10%
2- 22nF, 5%
3- 47nF, 20%
4- 220pF, 2.5%

Diode coding

The European system for classifying semiconductor diodes involves an alphanumeric code which employs either:
two letters and three figures: (general purpose diodes) or
three letters and two figures: (special purpose diodes).
The first two letters have the following significance:

First letter: ***material***	Second letter: ***type***	Third letter:	Zener diodes:	Voltage:
A: germanium	A: general purpose diode	*always ignored*	A± 1%	9V1= 9.1V
B: silicon	B: tuning (varicap) diode		B± 2%	4V7= 4.7V
C: gallium arsenide etc.	E: tunnel diode		C± 5%	2V4= 2.4V
D: photodiodes etc.	P: photovoltaic diode		D± 10%	
	Q: light-emitting diode			
	T: controlled rectifier			
	X: varactor diode			
	Y: power rectifier			
	Z: zener diode			

Identify each of the following diodes:
1- AA113 is a _____.
2- BB105 is a _____.

3- BZY88C4V7 is a
_____.
4- BAX16 is a _____.
5- BY126 is a _____.
6- BZX55C2V4 is a
_____.
7- AA119 is a _____.
8- BPX65 is a _____.

Quiz-13 ◄ ► Unit-4: Component values. Linking facts and ideas. Join the following and make one sentence.

1- Resistors are electronic components.
Resistors are used to add resistance to a circuit.

_____.

2- Very accurate resistors are used in instruments.
These resistors are expensive.

_____.

3- Each resistor is marked with colours.
The colours indicate the value of the resistor.

_____.

4- A resistor is a component.
A resistor is used to add resistance to a circuit.

_____.

5- Carbon resistors are made of compressed graphite.
The graphite is formed into small tubes.

_____.

6- A ceramic coating is applied over the graphite.
The ceramic coating insulates the graphite.

_____.

7- The ends of the graphite are sprayed with metal.
This forms contacts.

_____.

8- End caps are forced on the metal-sprayed ends.
The caps have connecting wires attached.

_____.

9- The ceramic is marked with colour bands.
The bands indicate the value and tolerance.

_____.

10- Resistors are made in a range of preferred values.
These values meet all the needs of circuit designers.

_____.

Quiz-14 ◄ ► Unit-4: Component values. Label this diagram of a carbon resistor.