This is a study guide for the technical side of the exam only. If you are looking for every answer for every question on every test, this isn't it. If you can answer most of these questions, you should do well on the technical side of the exam no matter what test or question the Postal Service gives you. It does not cover the KSA's for Math, English or reading a Mechanical drawing. Several people have now used this Study Guide, and they passed the Electronics portion but bombed the sections on English, following directions, or Math. So if you have problems in these areas, I strongly suggest you get a tutor. I make no warranty, express or implied, that if you use this Study Guide, that you will pass the exam.

The USPS Electronics Technician test consists of sections:
Questions on following directions (ex: if 5 is greater than 6, put a 3 in the large box, if it is not, put an A in the small circle)

Questions on English language comprehension (they will give you a paragraph, and then give you a multiple choice selection to pick the best answer from)

There are approximately 160 questions on the following areas covering your KSA's. I've included all the KSA's at the end of the study guide. For the 932 Electronics Technician Exam, the KSA's that are covered are listed below. The KSA's that have an * are not on the exam.

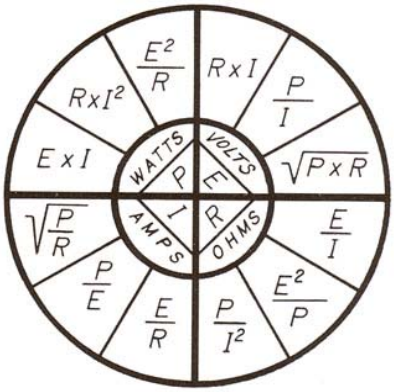
If you are "in-house", meaning you are already an employee of the USPS, and you are not already in Maintenance, you have to take the test as if you were on the street, or as if you were not an employee of the USPS. Your score is determined by all of the "Y" boxes, if you do not get a total combined score of 70 or more, you will only get a letter stating that you are "ineligible". ***It does not give you the areas you passed or failed, or your score.*** You only will get that if you are already in Maintenance and in a position such as a Custodian. The review board may ask you questions from the areas that have an "*", but that is just to determine your general knowledge. If you get a combined score of 70 or more, you will get a letter with your score on it and the letter will state "eligible".

For those individuals that are not employees of the USPS, ***normally***, you will take the exam first and if you get the "eligible" letter, you will be called in for a Review Panel. This just places you on the list for when an opening becomes available, and the list is only good for a specific period of time and I believe a certain area, it does ***NOT*** guarantee you a job.

KSA	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
Exam 932	Y	Y	Y	Y	Y	Y		*	*	*	*	*	*	*	*	*	*	*	Y	Y	Y	Y	Y			Y					Y		*		Y	Y	Y	*
Review Panel	Y	Y	Y	Y		Y	Y	*	*	*	*	*	*	*	*	*	*	*		Y				Y	Y		Y	Y	Y	Y		Y	*	Y	Y	Y	Y	*
Supervisor					Y		Y	*	*	*	*	*	*	*	*	*	*	*			Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	*					*

I am human, I do make errors, but I correct them as I find them and I am constantly updating this file. If you find an error or think something should be added to help out others, please email me with it. I'm not trying to get rich; this is just a hobby of mine.

1. Know Ohm's Law formulas E=IR, I=E/R, R=E/I, P=IE, $P=I^2R$



2. Digital gates, AND, OR, NOR, NAND, Inverter, and Exclusive OR (see symbols at below)

AND gate

2 Input AND gate		
A	B	A.B
0	0	0
0	1	0
1	0	0
1	1	1

The AND gate is an electronic circuit that gives a **high** output (1) only if **all** its inputs are high

OR gate

2 Input OR gate		
A	B	A+B
0	0	0
0	1	1
1	0	1
1	1	1

The OR gate is an electronic circuit that gives a high output (1) if **one or more** of its inputs are high. A plus (+) is used to show the OR operation.

NOT gate, (also known as Inverter)

NOT gate	
A	$\overline{A}$
0	1
1	0

The NOT gate is an electronic circuit that produces an inverted version of the input at its output. It is also known as an *inverter*. If the input variable is A, the inverted output is known as NOT A. This is also shown as A', or A with a bar over the top, as shown at the outputs. The diagrams below show two ways that the NAND logic gate can be configured to produce a NOT gate. It can also be done using NOR logic gates in the same way.

NAND gate

2 Input NAND gate		
A	B	$\overline{A.B}$
0	0	1
0	1	1
1	0	1
1	1	0

This is a NOT-AND gate which is equal to an AND gate followed by a NOT gate. The outputs of all NAND gates are high if **any** of the inputs are low. The symbol is an AND gate with a small circle on the output. The small circle represents inversion.

NOR gate

2 Input NOR gate		
A	B	$\overline{A+B}$
0	0	1
0	1	0
1	0	0
1	1	0

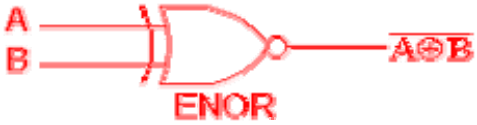
This is a NOT-OR gate which is equal to an OR gate followed by a NOT gate. The outputs of all NOR gates are low if **any** of the inputs are high.
The symbol is an OR gate with a small circle on the output. The small circle represents inversion.

EXOR gate (also seen as just XOR)

2 Input EXOR gate		
A	B	A⊕B
0	0	0
0	1	1
1	0	1
1	1	0

The '**Exclusive-OR**' gate is a circuit which will give a high output if **either, but not both**, of its two inputs are high. An encircled plus sign (⊕) is used to show the EOR operation.

EXNOR gate (also seen as just XNOR)



2 Input EXNOR gate		
A	B	$\overline{A⊕B}$
0	0	1
0	1	0
1	0	0
1	1	1

The '**Exclusive-NOR**' gate circuit does the opposite to the EOR gate. It will give a low output if **either, but not both**, of its two inputs are high. The symbol is an EXOR gate with a small circle on the output. The small circle represents inversion. The NAND and NOR gates are called *universal functions* since with either one the AND and OR functions and NOT can be generated.

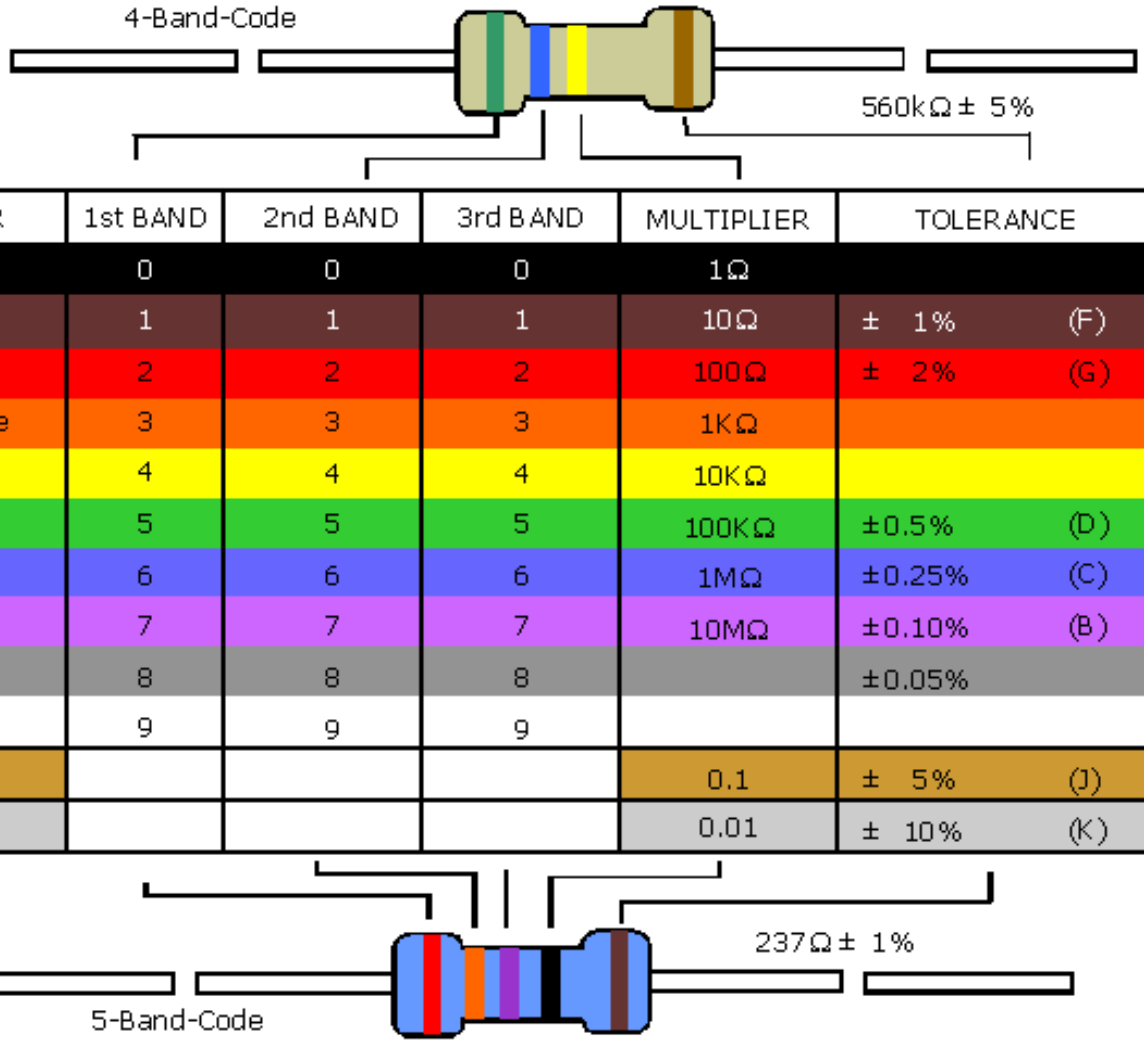
Note: If an inverter symbol is on the input side of a gate, it has the same effect as if it were on the output side. If you have a 0 into the gate, it will give a 1 out, and vice versa.

3. Boolean Algebra, if you are given a circuit with AND, OR or Inverters in it, give the Boolean Expression for the output. Ex: (A+B)+(AB) (see above)

4. Truth tables Ex: truth table for a OR gate where A and B are inputs, and Z is the output (See above)

A	B	Z
0	0	0
1	0	1
0	1	1
1	1	1

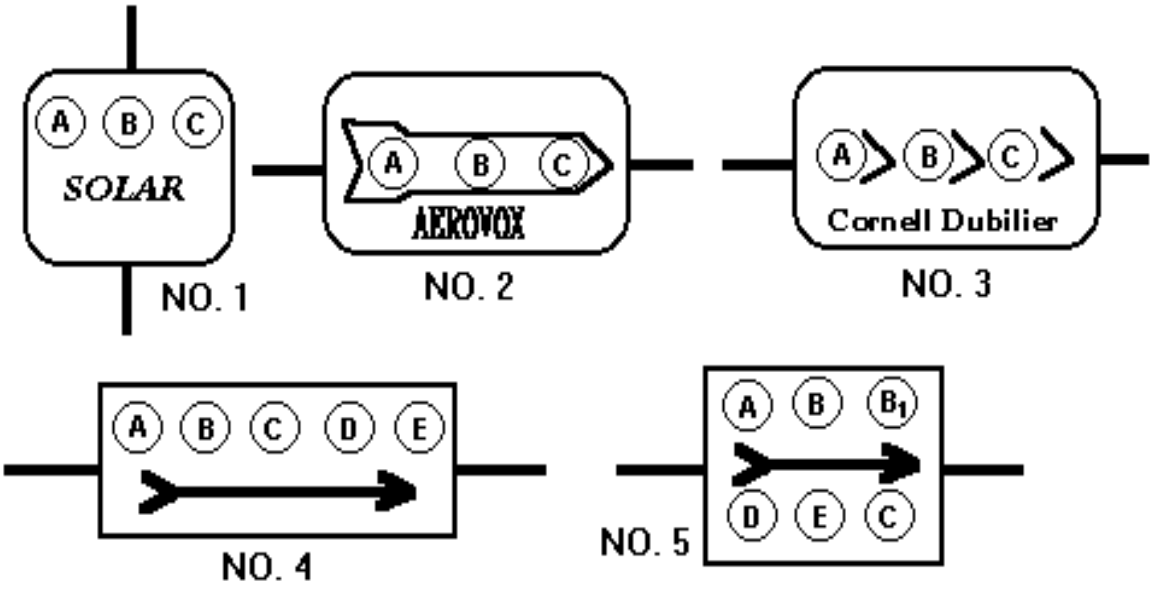
5. Tell the resistance value of a resistor from the color code by reading either a four or FIVE band resistor, even if one of the bands for size is Gold or Silver



COLOR	1st BAND	2nd BAND	3rd BAND	MULTIPLIER	TOLERANCE	
Black	0	0	0	1Ω		
Brown	1	1	1	10Ω	± 1%	(F)
Red	2	2	2	100Ω	± 2%	(G)
Orange	3	3	3	1KΩ		
Yellow	4	4	4	10KΩ		
Green	5	5	5	100KΩ	±0.5%	(D)
Blue	6	6	6	1MΩ	±0.25%	(C)
Violet	7	7	7	10MΩ	±0.10%	(B)
Grey	8	8	8		±0.05%	
White	9	9	9			
Gold				0.1	± 5%	(J)
Silver				0.01	± 10%	(K)

6. Know what the arrow stands for/does on a mica and paper capacitor. It tells the direction to read the color code from, and from which end to start reading. (see below)

7. Tell the value of a capacitor by the color code. The following is for paper and mica capacitors, an electrolytic will have the information written on it.



A First Figure	B Second Figure	C Number of zeros after second figure	D Voltage Rating	E Tolerance (+/-)
Black...0	Black...0	Black...none	Brown....100	Brown...1%
Brown...1	Brown...1	Brown...1	Red......200	Red.....2%
Red.....2	Red.....2	Red.....2	Orange...300	Orange..3%
Orange..3	Orange..3	Orange..3	Yellow...400	Yellow..4%
Yellow..4	Yellow..4	Yellow..4	Green....500	Green...5%
Green...5	Green...5	Green...5	Blue.....600	Blue....6%
Blue....6	Blue....6	Blue....6	Violet...700	Violet..7%
Violet..7	Violet..7	Violet..7	Gray.....800	Gray....8%
Gray....8	Gray....8	Gray....8	White....900	White...9%
White...9	White...9	White...9	Gold...1,000	Gold.....
			Silver.....	Silver..10%
			No Color.500	No Color.20%

The color dots must be read in the correct sequence (A, B, C) from left to right in order to correctly interpret the color code. In order to make certain that the capacitor will be held in the proper position while the dots are being read, manufacturers have adopted several 3-dot marking arrangements. In that shown in illustration No. 1 above, the capacitor must be held so that the manufacturer's name or trademark appears right side up, as shown. Then the dot will be read in the proper sequence if they are read from left to right. Another somewhat similar arrangement is shown in illustration No. 2 above. Here, the three colored dots are stamped on an arrow molded in the capacitor case. The arrow always points to the correct direction of reading.

On some makes of capacitors, the dots are shaped so they are slightly 'pointed' in the direction in which they are to be read, others have an adjacent direction-arrow molded alongside each dot as shown in illustration No. 3.

3-Dot Example: *Red(A) Green(B) Black(C)* = 25 mmfd. = .000025 mfd