Faculty of Engineering **Electrical 1st year Makeup**
Subject: English **year: 2012/2013**
Time: 2 hour

(I)Text book:

A- Answer the following questions :

1) What are the main sources of energy?

2) What determines the direction of the flow of energy?

3) What qualities make a metal a good conductor of electrical current?

4) How is electricity used to produce light?

5) What is the function of electrical charges in living systems?

6) What is an "electrical field" in a living system?

7) What role do electric charges and electric currents play in plants?

8) How does an eel kill its prey?

9) What are the mechanisms involved in the operation of the nervous system?

(II) Grammar and Structure:

Complete the sentence with the correct form of the verbs in brackets:

1) Why don't you…….. (**Phone**) the supplier?

2) You'll need to …… (**Drain**) the system completely.

3) Try …….. (**Adjust**) the release valve.

4) I think you should……. (**Switch off**) the power.

5) You'll have to …… (**Upgrade**) your software.

6) Have you tried……. (**Replace**) the bearings?

7) Quick,……. (**Close**) the valve.

8) The power keeps …….. (**Cut out**)

9) I think you should……. (**Expand**) the memory.

10) The computer has…….. (**Crash**)

Ill- Reading Comprehension

Read the following passage then answer the questions:

The resistance of metals varies with their temperature. When they get heated their resistance increases. When they cool, their resistance falls. The resistance of some metals and alloys steadily decreases as their temperature is lowered, then falls suddenly to a negligible value at temperatures a high degrees above absolute zero (-273C). in other words, these materials have almost no resistance to an electric current at very low temperatures. They become almost perfect conductors. This called superconductivity. It occurs only with certain materials, for example lead, and only at very low temperatures.

The practical applications of superconductivity are limited because of the very low temperatures required. A number of uses, however, have been proposed. If a current is induced by a magnetic field in a ring of superconducting material, it will continue to circulate when the magnetic field is removed. In theory this could be made use of in the memory cells of computers. Memory cells made of superconducting materials could store information indefinitely. Because of the zero resistivity of the cells, the information could be retrieved very quickly, as fast as 10 seconds.

Ninety per cent of the total losses in modern transformers is due to the resistance of the windings. Transformers could be made with windings cooled to the low temperatures at which superconductivity occurs. The resistance of the windings would be zero and the transformer would be almost ideal. Similarly a 100 efficient electric motor has been proposal using the magnetic field of superconducting coils.

A. Choose the correct answer:

1- One of superconducting materials is ……

a. Lead b. copper c. carbon d. bronze

2- Materials exhibit superconductivity at very …….. Temperature.

a. High b. certain c. low d. valuable

3- Superconductivities at very low temperatures are perfect ……..

a. Materials b. insulators c. conductors d. metals

B. Answer the following questions:-

1. What do we mean by Superconductivity?
2-When the transformer would be almost ideal?

IV- Writing a paragraph

Write a paragraph on only ONE of the following topics:-

1. Electrical Engineering.
2. Metals and its uses.
3. Science and technology.

Good Luck

Model Answer:

(I)Text book:

A- Answer the following questions :

1) The main sources of energy as natural energy in operation in various forms- we see it in the form of sunlight, heat, winds, water, we also know that large amounts of energy are stored in the form of matter, such as coal and oil. Electricity is also another form of energy in common use.

2) Electricity flows from a body at a higher potential to another at a lower potential. The rate of flow depends on the differences of potential between the two points of flow.

3) The resistance of the conductor is an important factor in determining the flow of current through it. The higher the resistance, the lower the current and vice versa.

4) A thin wire of high resistance is used for the filament of a lamp. When electricity is passed through this filament, a lot of power is consumed by it. This produces the white heat of the filament which it radiates in the form of light.

5) Electrical charges have important functions in living systems. They regulate the passage of chemicals through the surface of the cells. They aslo control the transmission of nerve impulse by nerve cells.

6) The electric fields are areas of electrical charges in organisms.

7) Electric charges and electric currents have a definite role in the transportation of ionic material in the plants.

8) Specialized muscles in some species of animals generate enough electricity to stun or kill a prey.

9) The operation of the entire nervous system involves two principal mechanisms. One is the transmission of the nerve impulse along the nerve fibre. The second is the excitation of one nerve cell by another across their synaptic connection.

(II) Grammar and Structure:

Complete the sentence with the correct form of the verbs in brackets:

1) Phone.
2) Drain.
3) Adjusting.
4) Switch.
5) Upgrade.
6) Replacing.
7) Close.
8) Cutting.
9) Expand.
10) Crashed.

III. Reading comprehension

A- Choose the correct answer :

1- Lead.
2- Low.
3- Conductors.

B. Answer the following questions:-

1- Materials have almost no resistance to an electric current at very low temperatures. They become almost perfect conductors. This called superconductivity
2- The resistance of the windings would be zero and the transformer would be almost ideal.

IV- Writing a paragraph

Writing is assessed by the examiner.