

FIRST TERM EVALUATION 2014 - '15

Physics

Time : 1½ hrs.

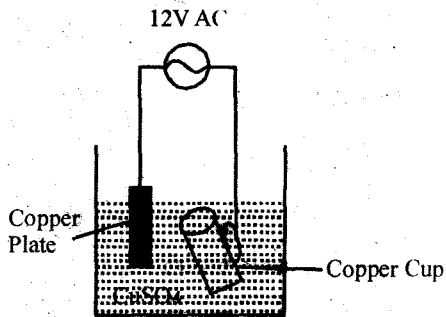
Score : 40

Std. 10

Instructions :

- ▲ The first 15 minutes of cool - off time.
- ▲ This time is to be spent for reading the question paper.
- ▲ You are not supposed to write anything during the cool - off time.
- ▲ Read the instructions carefully and attempt the questions.

1. Find the relation in the first pair and fill in the second pair  
Resistance : Ohm  
Resistivity : ..... (1)
2. The following statements are regarding three phase generators, Find out the wrong statement, correct it and rewrite.  
(a) There are three sets of armature coils for each pair of magnetic poles  
(b) The number of turns of coils in each armature is different  
(c) From such generators we get electric current of three different phases (1)
3. Following diagram represents the electroplating of a copper cup using silver. (1)



Identify the mistakes in the diagram

4. Match the following (2)

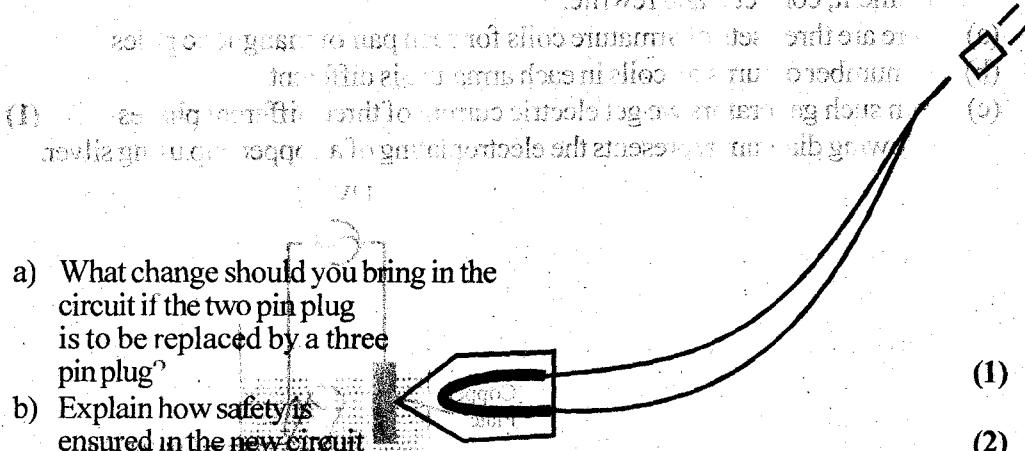
A	B
AC generator	Self induction
Transtformer	Slip ring
Dc Generator	Mutual induction
Inductor	Split rings

5. (a) You know that power  $p = I^2R$   
Find out another equation to calculate the power using  $I = V/R$  (2)
- (b) If the resistance of an electrical appliance working at 240 V is 120  $\Omega$ . What is its power (2)
6. "Current induced in the armature of a dc generator is ac"  
(a) Do you agree with this ? (½)  
(b) Justify your answer (1½)  
c. How does a dc generator differ from an ac generator in structure. (1)  
(d) How does the out put current obtained from a dc generator differ from the current obtained from a battery (1)
7. In a transformer without power loss the primary contains 10000 turns and secondary contains 500 turns. If the primary voltage is 240 V and current is 0. 1A find out the voltage and current in the secondary (4)

8. Analyse the table given below

Generator	No of pair of magnetic poles	No of armature Coils
A	3	3
B	6	18

- a) How the generators A and B are known to be (1)
- b) Which one is more efficient? Why? (2)
9. What are the problems when a permanent magnet is used as the field magnet in the generator (3)
10. Fuse wire protect the circuit due to the harmful effects caused by overloading and short circuit
  - a) What do you understand by the term overloading and short circuit (1)
  - b) How does a fuse wire protect the circuit from this? (2)
11. The diagram regarding the working of an electric iron using a two pin plug is given



- a) What change should you bring in the circuit if the two pin plug is to be replaced by a three pin plug? (1)
- b) Explain how safety is ensured in the new circuit (2)
12. Electricity produced in huge generators distributed to distant places with the help of transformers
  - (a) What is the role of transformers in the distribution of electricity (2)
13. You know that generator converts mechanical energy into electrical energy. What are the different ways of getting the mechanical energy required for working of generators in the following power station (2)
  - a) Nuclear power station
  - b) Thermal power station
14. Transformer is a device which work on the principle of mutual induction
  - a) What is meant by the term mutual induction? (1)
  - b) How does a transformer transfer the current from one circuit to the other? (2)
15. Voice coil, Magnet, Diaphragm
 

Important parts of a device which convert electrical energy into sound are given here

  - a) What is the working principle of this device? (1)
  - b) How does this device convert electrical energy into sound energy? (2)

OR

16. An electrical appliance having a resistance of  $200\Omega$  is operated at  $200\text{ V}$ . Calculate the energy consumed by the appliance in 5 minutes. (3)