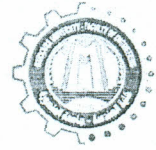




Mansoura University
Faculty of Engineering
Electrical Engineering Department



Course Title: Principles of Electromechanical and static relays	Course Code:5710	Year: 2012/ 2013
Date: Sunday 15 / 9 / 2013	Allowed Time: 3 Hrs	Total Marks: Marks
	Final Year Exam	No. of Pages:

Remarks: Answer All the following questions (assuming any missing data)

Question (1)

Compare between : Digital O C relay and Electromechanical OC relay ;
In so far as: Construction, theory of Operation, Setting Accuracy. (15marks)

Question (2)

Explain, with the aid of neat diagrams, Primary and Secondary (or Back- up)
Protection Systems, in any Electrical Power System. (10 marks)

Question (3)

Fig (1), shows a part of a Power System. **What are the Zones of Protection** in which
this system Should be Divided? Which Circuit Breakers will
Operate for FAULTS at F1 and F2 under these Conditions. (15 marks)

Question (4)

Calculate The Circuit Breaker Ratings of the Power System Given in
Fig. (2) . (20 marks)

Question (5)

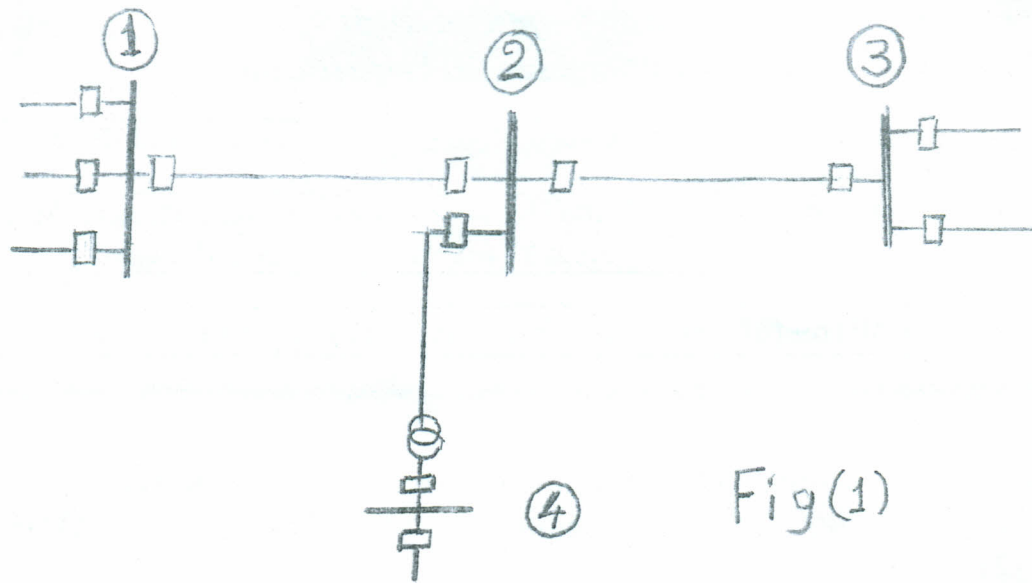
With Respect To Fig (3) : **Explain** ALL Possible Correct Operations AND
Mal Operations of Distance Relays shown , for faults at locations F1 & F2 .
(20 marks)

Question (6)

Small Renewable Energy Resources (SRERs), are Life Necessity for Sustainable
Development in Egypt. However, Planning, Operation, Control and PROTECTION of
Conventional Electrical Distribution Systems Have been dramatically changed by
adding to it SRERs and their MicroGrids.

Comment on the above statements regarding the Changes in Protection Systems of
Electrical Distributed Systems including SRERs.

Clarify your comments by simple diagrams. (20 marks)



Fig(1)

