SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

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DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE NAME : 19EE605 PROTECTION AND SWITCHGEAR

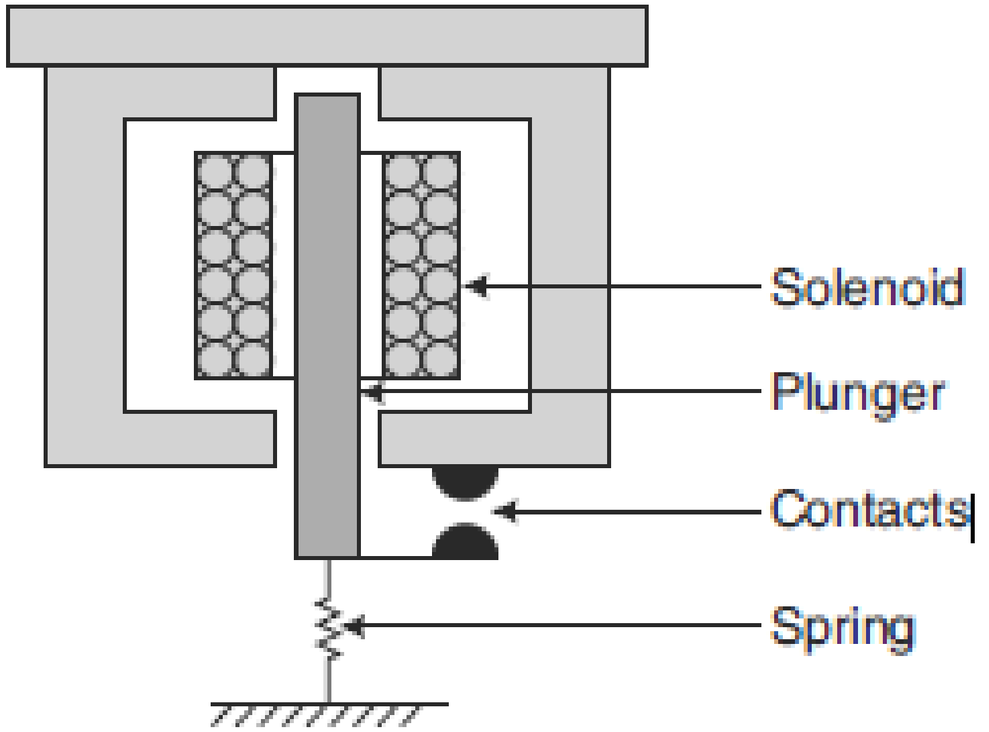
III YEAR /VI SEMESTER

Unit 2- ELECTROMAGNETIC RELAY

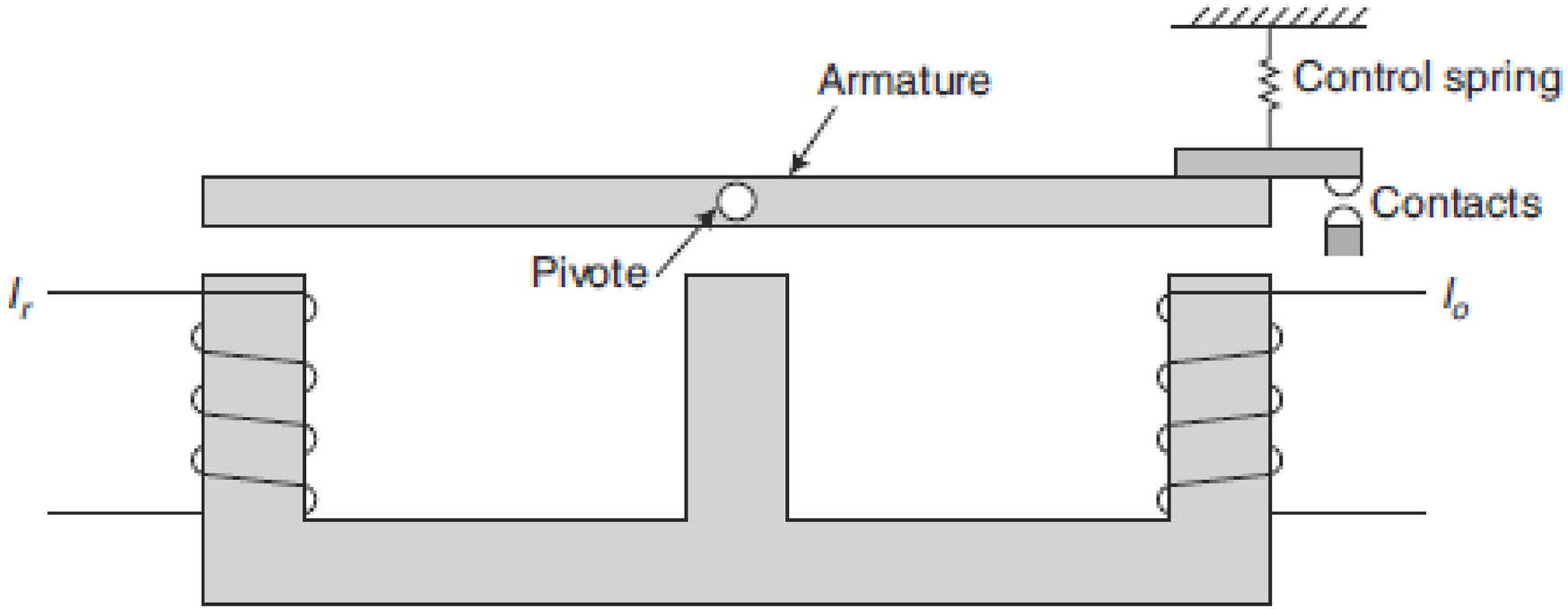
Topic: Plunger Type & Balanced Beam Relay

Plunger-Type Relays

- In this type of a relay, there is a solenoid and an iron plunger which moves in and out of the solenoid to make and break the contact.
- The movement of the plunger is controlled by a spring.
- This type of construction has however become obsolete as it draws more current.



Balanced Beam Relays



I_o- Operating current

I_r- Restraining current

- Its an attracted armature type relay.
- As its name indicates, it consists of a beam carrying two electromagnets at its ends.
- One gives operating torque while the other retraining torque.
- The beam is supported at the middle and it remains horizontal under normal conditions.
- When the operating torque exceeds the restraining torque, an armature fitted at one end of the beam is pulled and its contacts are closed.

- Though now obsolete, this type of a relay was popular in the past for constructing impedance and differential relays.
- It has been superseded by rectifier bridge comparators and permanent magnet moving coil relays.
- The beam type relay is robust and fast in operation, usually requiring only 1 cycle, but is not accurate as it is affected by dc transients.

Assessment

1. What is the main function of a relay?

   A) To amplify the current in a circuit

   b) To control the flow of current in a circuit.

   c) To store energy in a circuit

   d) None of these

Assessment

Which of the following is NOT a primary function of a protective relay?

A. Detecting abnormal system conditions

B. Isolating faulted equipment

C. Initiating corrective actions

D. Providing backup power.

References

1. SuniS Rao, “Switchgear, Protection and Power System (Theory, Practice & Solved Problems)”, Khanna Publishers, New Delhi, 2019.

2. Paithankar Y G, Bhide S R, “Fundamentals of Power System Protection”, Prentice Hall of India Pvt Ltd., New Delhi, 2nd Edition, 2014.

3. Badriram, Vishwakarma B.H, “Power System Protection and Switchgear”, New Age International Pvt Ltd Publishers, 2nd Edition 2017.

Thank You