SNS COLLEGE OF ENGINEERING

Kurumbapalayam (Po), Coimbatore – 641 107

An Autonomous Institution

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

COURSE NAME : 23EET01 BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

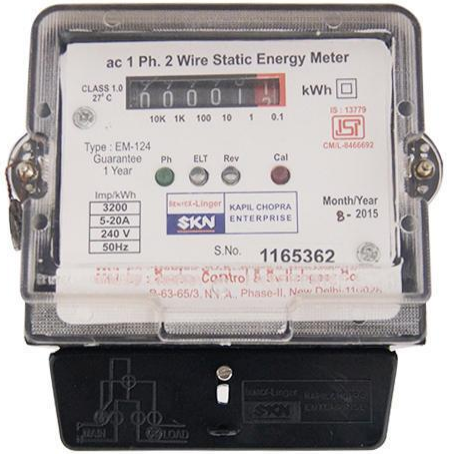
I YEAR /II SEMESTER ARTIFICIAL INTELLIGENCE & DATA SCIENCE

Unit 1 – Electrical Circuits and Measurements

Introduction to Measuring Instruments & Torque

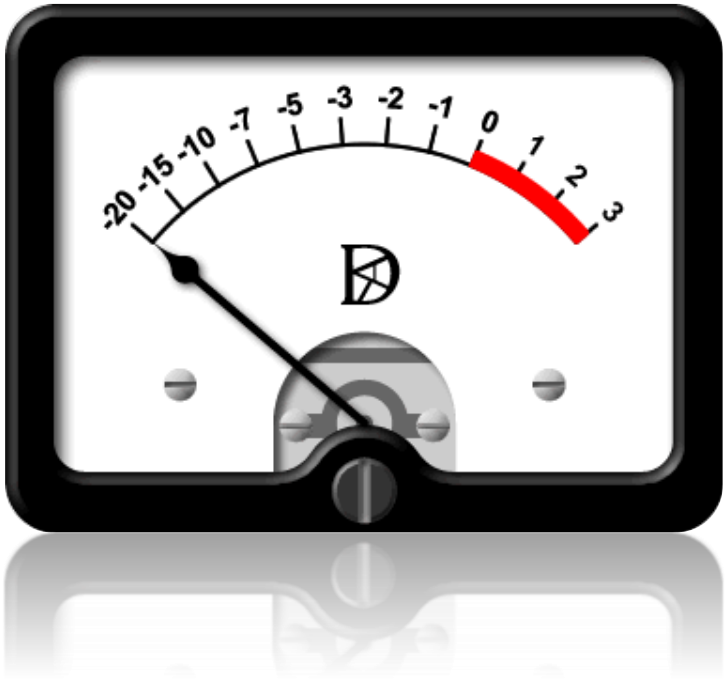
MEASURING INSTRUMENTS

Why do we need measuring instruments in Electrical and Electronics Engineering?



The instruments used for all electrical measurements are called measuring instruments. They include ammeters, voltmeters, wattmeters, energy meters etc.

BASIC PRINCIPLE



OMG!! How it works?

How is the pointer moving?

How do instruments operating to measure electrical and electronic quantities ?

DEFLECTING TORQUE

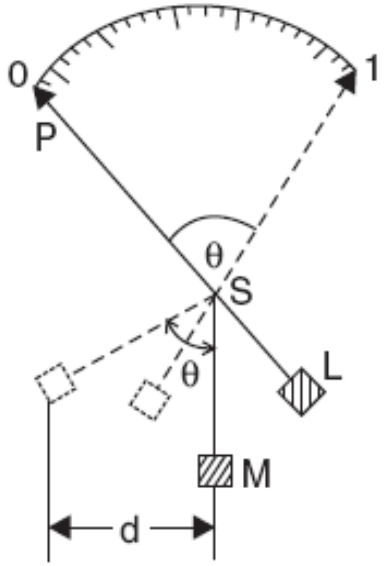
- Have you ever played with a magnet ?

- Electrostatic effect is used mainly for the deflecting torque makes the pointer moves from zero position to the final position.

CONTROLLING TORQUE

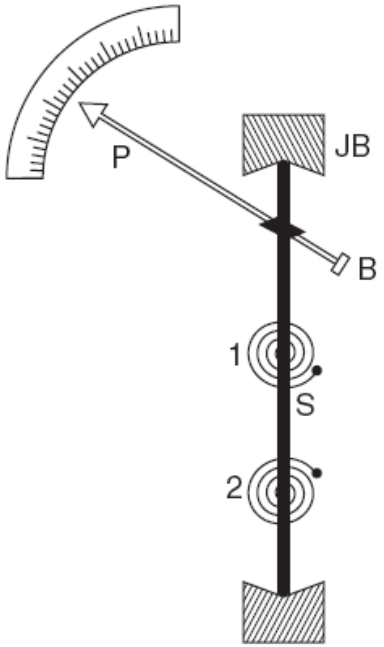
Controlling torque are used to keep the pointer of the instrument in one position and return back if its OFF

Gravity Control



P = Pointer
S = Spindle
L = Balance weight
M = Control weight
e = Angle of deflection

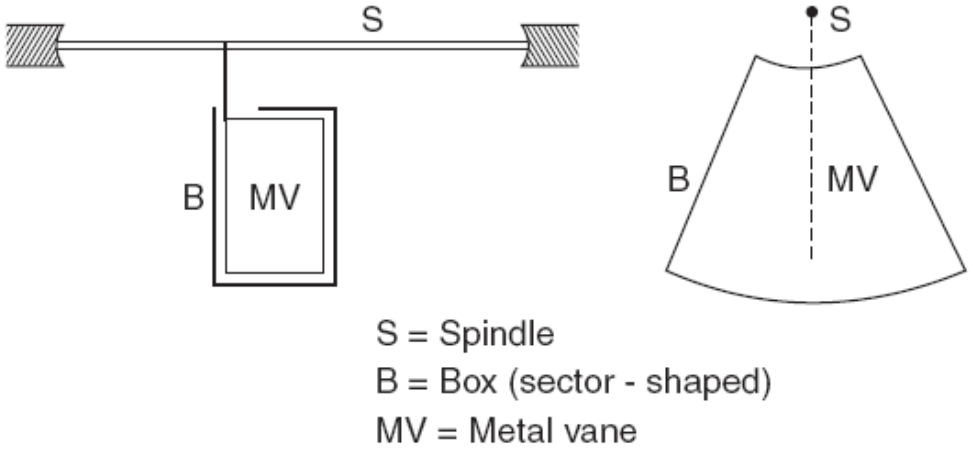
Spring control



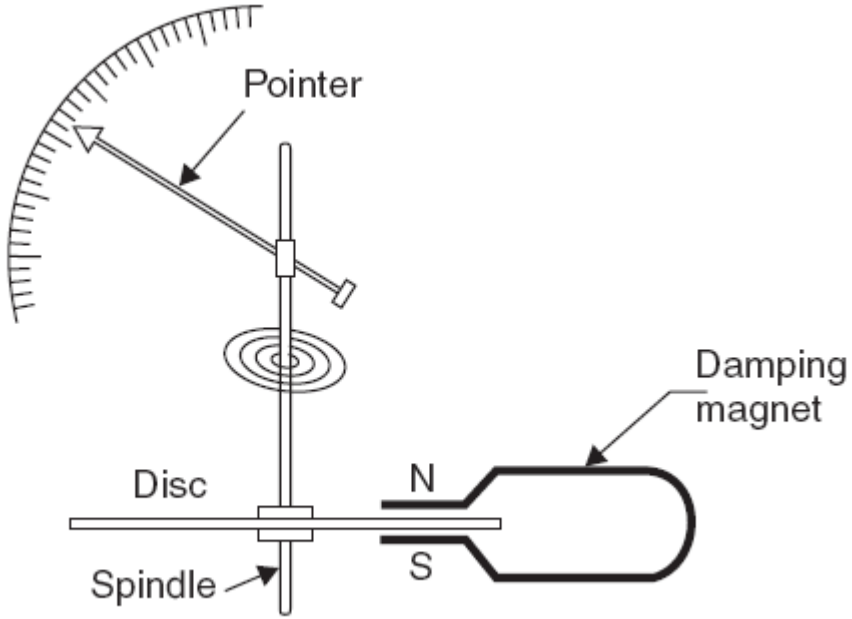
P = Pointer
B = Balance weight
S = Spindle
JB = Jewelled bearing
1,2 = Springs

DAMPING TORQUE

It is used to reduced the oscillations of pointer and also to reach the rest position of the pointer



Air Damping



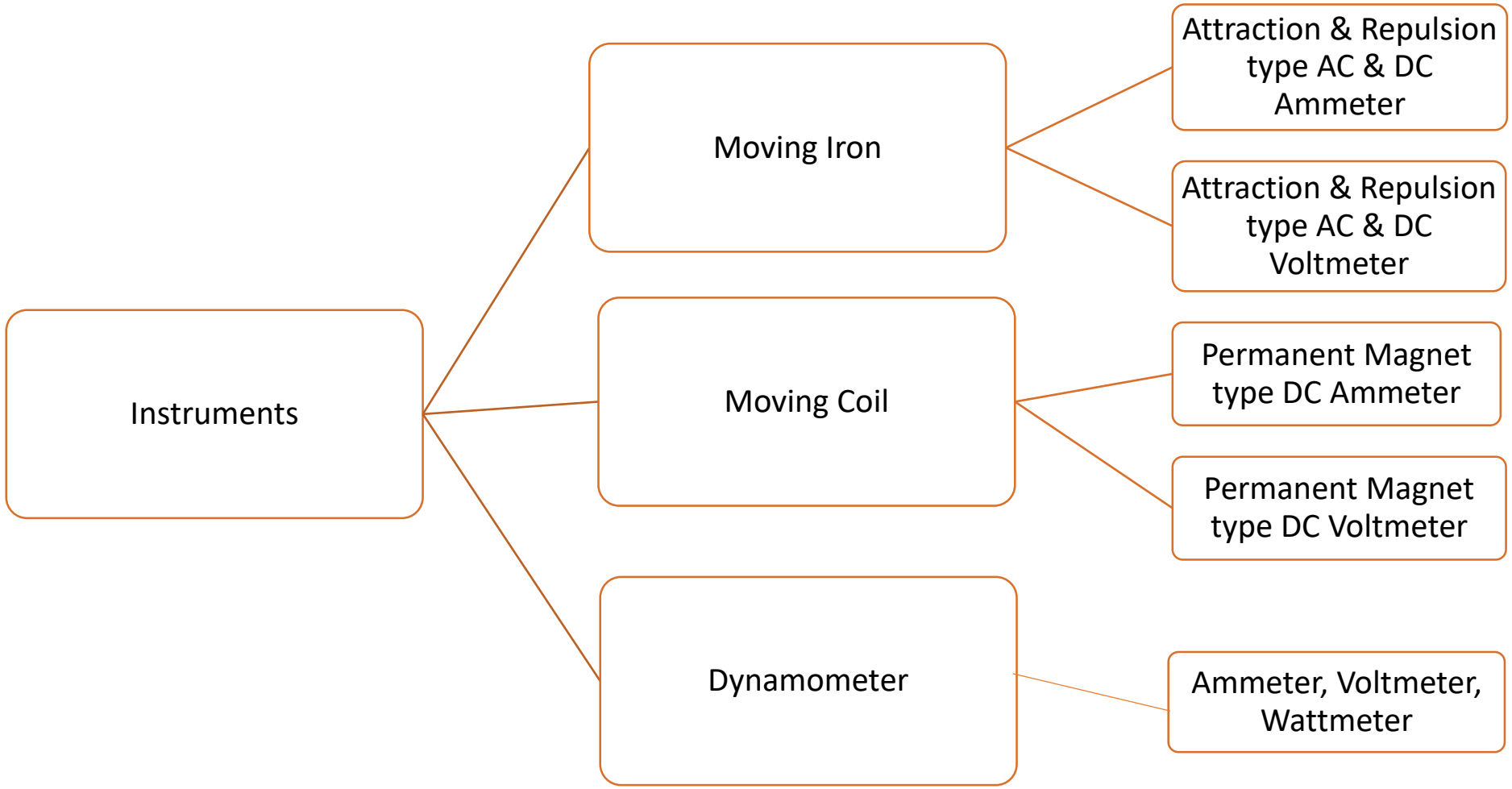
Eddy current damping

ASSESSMENT 1

1._____is used mainly for the deflecting torque makes the pointer moves from zero position to the final position.

2. Damping is used to reduce the _____of pointer and also to reach the rest position of the pointer

TYPES OF INSTRUMENT



IQ

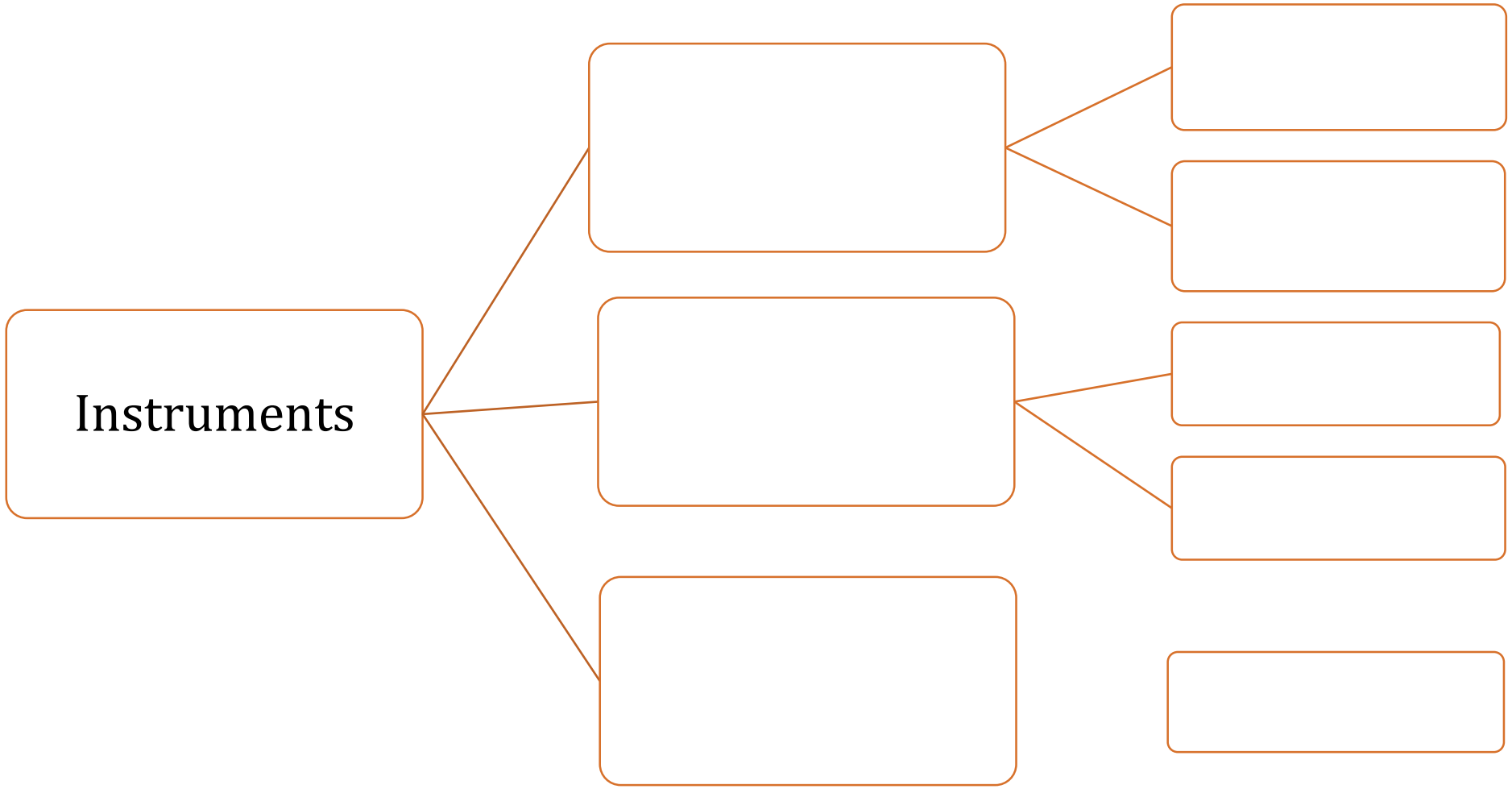
Guess the Instrument name !!

APPLICATIONS

- Electric Motor Industries
- Electric Lift Industries
- Electric Fan Industries
- Television Industries
- Educational Institutions
- TNEB

Assessment 2

- Fill the blocks



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THANK YOU