BE 8251-BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

QUESTION BANK WITH ANSWERS

UNIT-1 ELECTRICAL CIRCUITS & MEASUREMENTS

PART-A:

1. **State ohm's law.(N/D-2016)**

   The potential difference across any two ends of a conductor is directly proportional to the current flowing between the two ends provided the temperature of the conductor remains constant.

2. **Compare moving coil and moving iron instruments.(N/D-2016)**

S.No	M.C Instruments	M.I Instruments
1	More accurate	Less accurate
2	Uniform scale	Non-uniform scale (scale cramped at beginning and finishing)
3	Eddy current damping is used	Air friction damping is used
4	Controlling torque is provided by spring	Controlling torque is provided by gravity or spring

3. **List the operating forces present in indicating instruments.(M/J-2016)**

   In an indicating instrument, it is essential that the moving system is acted upon by three distinct torque (or forces) for satisfactory working. There torques are:

   1. A deflecting or operating torque, Td
   2. A controlling torque, Tc
   3. A damping torque, Tv.

4. **State ohm's law and its limitations.(N/D-2015)**

   Ohm's law:

   The potential difference across any two ends of a conductor is directly proportional to the current flowing between the two ends provided the temperature of the conductor remains constant.

   Limitation of **Ohm's Law**:

   The limitations of Ohm's law are explained as follows: This law cannot be applied to unilateral networks. A unilateral network has unilateral elements like diode, transistors, etc., which do not have same voltage current relation for both directions of current.

5. **Mention the errors in moving coil instruments.(N/D-2015)**

   The errors that usually occur in PMMC instruments are

   1. The frictional error.
   2. Temperature error.

3. The error owing weakening of permanent magnet.
4. Stray magnetic field error.
5. Thermo-electric error.
6. Observational error.

6. Mention the errors in moving iron instruments. (A/M-2015)

- Hysteresis error
- Temperature error
- Stray magnetic field error
- Frequency error
- Eddy current error

7. State kirchoff's voltage law. (A/M-2015)

KVL states that the algebraic sum of voltages in a closed path is zero.

8. Define power factor.(A/M-2017)

The ratio of the actual electrical power dissipated by an AC circuit to the product of the r.m.s. values of current and voltage.

9. What is the main difference between moving coil and moving iron instruments?(N/D-2016-2008 reg)

M.C Instruments	M.I Instruments
1. MC type instruments are more accurate.	1. MI type are less accurate than MC type.
2. Manufacturing cost is high.	2. Cheap in cost.
3. Reading scale is uniformly distributed.	3. Non-uniform scale (scale cramped at beginning and finishing)
4. Very sensitive in construction & for input.	4. Robust in construction.
5. Low power consumption	5. Slightly high power consumption.
6. Eddy current damping is used.	6. Air friction damping is used.
7. Can be used only for D.C measurements.	7. Can be used for A.C as well as for D.C measurements

10. Define RMS value.(M/J-16)

The effective value of an alternating current is that value of steady ,direct current which produces the same heat as that produced by the alternating current when passed which produces the same heat as that produced by the alternating current when passed through the same resistance for the same interval of time.

PART-B:

1. **For the given circuit, determine the current in 5Ω resistor.(N/D-16)**