

II B. Tech II Semester Supplementary Examinations, April - 2021
ELECTRICAL MEASUREMENTS
 (Electrical and Electronics Engineering)

Time: 3 hours

Max. Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answer **ALL** the question in **Part-A**
 3. Answer any **FOUR** Questions from **Part-B**

PART -A

1. a) The length, width and thickness of the control spring of an instrument are 410 mm, 0.63 mm and 0.08mm. The young's modulus of the spring material is 110 GN/mm. Determine the torque exerted by the spring when it is turned through 80° . (3M)
- b) The power input to a 3-phase induction motor is read by two watt-meters. The readings are 920 W and 300 W. Calculate the power factor of the motor. (3M)
- c) What are the practical difficulties in ac potentiometers? (2M)
- d) How leakage errors are minimized in ac bridge circuits. (2M)
- e) Mention few precautions in Magnetic Testing. (2M)
- f) Explain briefly the following characteristics of digital meters: (i) Resolution and (ii) Sensitivity. (2M)

PART -B

2. a) With the help of neat diagrams explain the working principle of repulsion type moving iron instrument. (7M)
- b) Explain in detail about the construction and working principle of a PMMC meter type of instrument. (7M)
3. a) Explain in detail about the construction and principle of operation of a dynamometer type wattmeter. (7M)
- b) A 50A, 230V meter on full load test makes 61 revolutions in 37s. If the normal disc speed is 520 revolutions per kWh, find the percentage error. (7M)
4. a) Describe with the help of a diagram the principle and working of one form of D.C. potentiometer. (7M)
- b) Explain how D.C. potentiometer is standardized and also discuss briefly various applications. (7M)
5. a) Explain briefly how a Wheatstone bridge is used for measurement of resistance. (7M)
- b) Explain how inductance can be measured by using a Maxwell bridge. (7M)
6. a) Explain the method of determination of magnetizing force H. (7M)
- b) Explain the method of reversals for experimental determination of magnetic specimen. (7M)
7. a) Explain briefly how the following measurements can be made with the use of CRO: frequency, phase angle, and voltage. (7M)
- b) What is Digital frequency meter and briefly discuss its applications. (7M)

