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18C14

B. Tech. EXAMINATION, 2021

(Third Semester)

(C Scheme) (Main Only)

(EE)

EE207C

MEASUREMENTS AND INSTRUMENTATION

Time : 2½ Hours] [*Maximum Marks : 75*

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Four* questions in all. All questions carry equal marks.

1. (a) Define the systematic errors. Describe the three types of errors within the systematic errors and suggest their remedies for each.

(b) What is the root cause of random errors ? And its remedies, if any.

2. (a) What is the need of calibration of instrument ? How to distinguish between absolute and secondary instrument ?

(b) If deflecting torque is proportional to the measured, comment upon nature of the scale of a spring-controlled instrument.

3. (a) Compare and contrast gravity control *versus* spring control.

(b) Draw the constructional details of combined attraction–repulsion type M.I. instruments and explain its operation.

4. (a) Derive torque equation for electrodynamometer instrument and comment upon the shape of its scale.

   (b) Derive torque equation of PMMC instrument.

5. (a) Describe the operating principle of induction type wattmeter.

   (b) Is the principle of induction type wattmeter is same as induction type energy meter ? If yes, than state the same.

6. (a) Discuss the construction and working of rotating field type single-phase power factor meter. How its working is different from that of three-phase rotating field type p.f meter ?

   (b) Why electrodynamic resonance type frequency meter does not require mechanism for controlling torque ?

7. (a) What are the problems associated with measurement of high resistance ? How are these tackled ?

   (b) Describe the construction and working of megger.

8. (a) Discuss the working of Anderson bridge. Derive balance equation, draw its phasor diagram.

   (b) Write a short note on owen's bridge.