

4<sup>TH</sup> SEM. / ELECT & ETC/ ELECTRICAL/ 2023(S)  
TH-3 ELECTRICAL MEASUREMENT & INSTRUMENTATION

Full Marks: 80

Time- 3 Hrs

Answer any five Questions including Q No.1& 2  
Figures in the right hand margin indicates marks

1. Answer All questions 2 x 10
  - a. Define accuracy and tolerance.
  - b. Write two differences between a moving coil and moving iron instrument.
  - c. Write down any two types of errors in a dynamometer type watt meters.
  - d. State two applications of megger.
  - e. Why holes are drilled on the opposite sides of the disc of an energy meter?
  - f. Define transducer.
  - g. State two applications of LVDT.
  - h. What is hall effect?
  - i. What are the main parts of cathode ray tube?
  - j. Define tachometer and state the types. 6 x 5
2.
  - a. Give a brief classification of measuring instruments. Also state the essential features of indicating instruments.
  - b. Write down the working principle of PMMC instruments and its advantages.
  - c. Write down the errors in dynamometer watt meters.
  - d. Give a brief classification of transducers.
  - e. State the applications of thermistors.
  - f. What is piezoelectric transducer? List the advantages of piezoelectric transducer.
  - g. State the applications of potentiometers.
3. Describe about the working of 1-phase induction type energy meter with suitable diagram. 10
4. Explain the principle of operation and working of Dynamometer type single phase power factor meters. 10
5. Explain how the measurement of inductance is done by Maxwell's Bridge method? 10
6. Explain with a neat diagram about the linear variable differential transformer. 10
7. Draw the block diagram oscilloscope and explain its principle of operation. 10