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| **Scheme of Valuation/Answer Key**  (Scheme of evaluation (marks in brackets) and answers of problems/key) | | | | | |
| **APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  FIFTH SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018 | | | | | |
| **Course Code: AE303** | | | | | |
| **Course Name: ELECTRICAL MEASUREMENTS AND MEASURING INSTRUMENTS** | | | | | |
| Max. Marks: 100 | | |  | Duration: 3 Hours | |
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| **PART A** | | | | | |
|  |  | ***Answer any two full questions, each carries 15 marks.*** | | | Marks |
| 1 | a) | Absolute error- 2marks  Relative error-2 marks | | | (4) |
|  | b) | Sum:  180±5 (1 mark)  180±2.8% (2 marks)  Difference:  20±5(1 mark)  20±25%(2 marks) | | | (6) |
|  | c) | Range -2 marks Span- 2 marks Example-1 mark | | | (5) |
| 2 | a) | P= I^2\*R= 82mW(2 marks)  Error in R= ±10% (1 mark)  Error in I= ±2% (1 mark)  Error in I^2= 2\* (±2%) = ±4% (1 mark)  Error in P=±14% (3 marks) | | | (8) |
|  | b) | Shaded pole-3.5 marks, Two pole method- 3.5 | | | (7) |
| 3 |  | Repulsion type- 7.5 marks  Attraction type- 7.5 marks | | | (15) |
| **PART B** | | | | | |
| ***Answer any two full questions, each carries 15 marks.*** | | | | | |
| 4 | a) | Wheatstone bridge method- 7.5 marks  Carey Foster bridge method- 7.5 marks | | | (15) |
| 5 | a) | Maxwell’s Inductance bridge – 7 marks  Maxwell Inductance Capacitance bridge – 8 marks. | | | (15) |
| 6 | a) | Circuit- 2 marks, Explanation- 3 marks. Derivation and equations- 2 marks | | | (7) |
|  | b) | Circuit and phasor diagram- 4 marks,  Explanation with equations- 4marks | | | (8) |
| **PART C** | | | | | |
| ***Answer any two full questions, each carries 20 marks.*** | | | | | |
| 7 | a) | LCD- 8 marks  Comparison or advantage over LED- 2 marks | | | (10) |
|  | b) | Diagram- 3 marks Explanation- 7 marks | | | (10) |
| 8 | a) | Block diagram- 3 marks. Working with waveforms and other diagrams- 7 marks | | | (10) |
|  | b) | fr= 0.25 Hz (1 mark) , fh=fs/2=10 kHz(2 marks)  Dynamic range, Rd= 20 log (2^n)= 20 log10 210= 20\*3= 60 db (2marks) | | | (5) |
|  | c) | Explanation- 2 marks, torque equations and diagrams -3marks | | | (5) |
| 9 | a) | Diagram-4 marks , Explanation- 6 marks | | | (10) |
|  | b) | Diagram-4 marks , Explanation- 6 marks | | | (10) |
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