



FACULTY OF ENGINEERING
B.E. 2/4 (EE/Inst.) I Semester (New) (Main) Examination, December 2011
ELECTRICAL MEASUREMENTS AND INSTRUMENTS

Time : 3 Hours]

[Max. Marks : 75

Note : Answer all questions from Part A. Answer any five questions from Part B.

PART – A

(25 Marks)

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| 1. What are the essentials of Indicating Instruments ? | 3 |
| 2. 'PMMC' instruments can not be used for A.C. measurements. Why ? | 2 |
| 3. What is meant by 'creeping error' in connection with energy meter ? How to rectify it ? | 3 |
| 4. What is the necessity of a synchroscope ? | 2 |
| 5. What is the function of Wagners earthing device ? | 2 |
| 6. What is meant by loss angle of an imperfect capacitor ? | 3 |
| 7. Distinguish between a Ballistic galvanometer and a flux meter. | 3 |
| 8. What is meant by leakage factor of a D.C. machine ? | 2 |
| 9. What is meant by standardisation of a D.C. potentiometer ? | 2 |
| 10. The secondary of a current transformer should not be left open while its primary is energised. Why ? | 3 |

PART – B

(5×10=50 Marks)

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| 11. Derive an expression for the deflecting torque of a moving Iron ammeter. Explain the scale shape. | 10 |
| 12. With the help of neat diagram, explain the working of a single phase induction type energy meter. Derive the expressions for driving torque and braking torque. | 10 |
| 13. a) With the help of neat diagram, explain the working of an electrical resonance type frequency meter. | 5 |
| b) With the help of neat diagram, explain the working of Weston type of synchroscope. | 5 |
| 14. With the help of neat diagram, explain the working of a Schering bridge. Draw the phasor diagram at balance. | 10 |
| 15. a) Explain the principle of Lloyd-Fischer square for measuring Iron loss. | 5 |
| b) Explain, how to obtain hysteresis loop using CRO. | 5 |
| 16. With the help of neat diagram, explain the working of an AC coordinate type potentiometer. | 10 |
| 17. What is meant by ratio and phase angle error of a current transformer ? Derive the necessary expressions for these errors. | 10 |