Code No: EE406 **OR**

II B.Tech.(CCC) Supplimentary Examinations, December 2008
ELECTRICAL MEASUREMENTS
(Electrical & Electronic Engineering)

Time: 3 hours **Max Marks: 100**

Answer any FIVE Questions
All Questions carry equal marks

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1. Write short notes on following:
   (a) Resonance type frequency meter.
   (b) Advantages and disadvantages of Moving Iron power factor meter. [10+10]

2. (a) Derive the expression for ratio and phase angle error of a potential transformer.
   (b) A potential transformer, ratio of 1000/100V, has the following constants: [12+8]

   primary resistance = 94.5Ω
   Secondary resistance=0.86Ω
   primary reactance = 66.2Ω
   Total equivalent reactance referred to primary = 110Ω
   magnetizing current = 0.02A at 0.4 power factor Calculate:
   i. Phase angle error at no load.
   ii. load in VA at unity power factor at which the phase angle will be zero.

3. (a) Explain the operation of any one type of AC potentiometer.
   (b) Explain clearly how such a potentiometer can be employed for measurement of unknown inductance and unknown capacitance. [10+10]

4. (a) Explain the various sources of errors and methods to reduce them in bridge circuits.
   (b) A sheet of bakelite 4.5mm thick is tested at 50Hz between electrodes 0.12m in diameter. The shearing bridge employs a standard air capacitor C_2 of 106PF capacitance. A non reactive resistance R_4 of $1000/\pi\Omega$ in parallel with a variable capacitor C_4, and a non-reactive variable resistance R_3. Balance is obtained with $C_4 = 0.5\Omega F$ and $R_2 = 260\Omega$. Calculate the capacitance of the capacitor. [10+10]

5. Write short notes on the following:
   (a) Shunted flux meter
   (b) Hibberts Magnetic standard and its applications. [10+10]

6. (a) What are electrostatic instruments? What is the basic principle over which they operate?
   (b) Discuss the working of a repulsion type electrostatic instrument with a neat sketch. [10+10]

OR

7. Draw the neat sketch of Electromagnetic flow meter. Explain how do you measure the flow of slurries with the help of above meter? [20]

8. (a) Explain the following ;
    i. Accuracy
    ii. Error
    iii. Linearity
    iv. Precision
   (b) Discuss main differences between accuracy and precision.
   (c) Explain about peak responding voltmeter. [10+5+5]

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