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**Question Paper Code: 50429**

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

Second Semester

Electronics and Communication Engineering

15UEC209 - BASIC ELECTRONIC MEASUREMENTS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (5 x 1 = 5 Marks)

- Moving iron instruments can be used without much error upto a frequency of  
(a) 50 Hz      (b) 100 Hz      (c) 1000 Hz      (d) 1500 Hz
- Mention the essential torques in indicating instruments  
(a) Deflecting torque      (b) Controlling torque  
(c) Damping torque      (d) All the above
- The basic law for electromagnetic torque equation can be expressed as  
(a)  $T=BIN$       (b)  $T=BAN$       (c)  $T=BAIN$       (d)  $T=IN$
- In a CRO which of the following is not a part of electron gun  
(a) Cathode      (b) Grid      (c) Accelerating anode      (d) X - Y plates
- For measuring high value of capacitor and low value of inductor one will use  
(a) Series connection Q-meter      (b) Parallel connection Q-meter  
(c) Direct connection Q-meter      (d) All the above

PART - B (5 x 3 = 15 Marks)

- Define precision and accuracy. Explain the difference between them.
- Define voltmeter sensitivity.

8. Explain the basic principle of Maxwell Bridge.
9. What are Lissajous figures? On what factor shape of the figures depends?
10. Distinguish between square and pulse wave generators.

PART - C (5 x 16 = 80 Marks)

11. (a) Classify and explain various types of errors in measurement. (16)

Or

- (b) Give the block schematic of a general measuring system and explain the same. (16)

12. (a) Explain the constructional details and difference between Ohmmeter series type and shunt type. (16)

Or

- (b) List out the type of voltmeter and explain in detail about the working principle of PMMC instrument. (16)

13. (a) Draw and explain the Anderson's bridge with neat diagram and derive the expression for unknown inductance. (16)

Or

- (b) Describe the circuit of Kelvin's bridge used for measurement of low resistance. Derive the conditions for balance. (16)

14. (a) Draw the block diagram of general purpose CRO and explain its working. (16)

Or

- (b) Sketch the basic block diagram for a digital storage oscilloscope and explain the operation. (16)

15. (a) How a spectrum analyzer can be used to operate and measure VHF? Draw the block diagram. (16)

Or

- (b) Explain the functional block diagram of function generator and mention its features. (16)