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**SARDAR PATEL UNIVERSITY**

B.Sc. (1<sup>ST</sup> SEM.) EXAMINATION - 2013

25<sup>th</sup> November 2013

14:30 - 16:30

Instrumentation (Vocational)

25<sup>TH</sup> November-2013

US01CINV01 (Basic Electronic Instruments)

Max Marks: 70

Q-1 Each question below gives a multiple choice of answers. Choose the most appropriate one. [10]

- 1 \_\_\_\_\_ is used to convert one form of energy into another form of energy.  
(A) Transducer (C) both (A) and (B)  
(B) Transmitter (D) None of the above
- 2 The value of resistor is \_\_\_\_\_, having color band sequence is green, blue, green and silver.  
(A)  $56 \times 10^3 \Omega \pm 10\%$  (C)  $5.6 \times 10^3 \Omega \pm 10\%$   
(B)  $56 \times 10^5 \Omega \pm 10\%$  (D) None of the above
- 3 Air core coil has \_\_\_\_\_ flux density  
(A) infinite (C) high  
(B) low (D) None of the above
- 4 Limitation of Ayrton shunt is as the range increases the meter resistance \_\_\_\_\_.  
(A) increase (C) constant  
(B) decrease (D) None of the above
- 5 \_\_\_\_\_ Damping is considered as best damping.  
(A) Over (C) Critical  
(B) Under (D) None of the above
- 6 Thermistors are \_\_\_\_\_ coefficient of temperature.  
(A) negative (C) both (A) and (B)  
(B) positive (D) None of the above
- 7 Which type of resistor has wattage rating up to 200W?  
(A) Metal film (C) Thick film  
(B) Thin film (D) None of the above
- 8 Which type of reactance is used to pass the DC signal and block the AC signal?  
(A) Inductive (C) capacitive  
(B) Resistive (D) None of the above
- 9 Sensitivity of DC current meter depends on \_\_\_\_\_.  
(A) Resistance of coil (C) Inductance of coil  
(B) Applied voltage (D) None of the above
- 10 As the frequency increases the inductive reactance \_\_\_\_\_.  
(A) increases (C) decrease  
(B) constant (D) None of the above

Conti...

- Q-2 Short answer type question. (attempt any TEN) [20]**
- 1 Define Mutual induction.
  - 2 Define active and passive components.
  - 3 Draw the variable inductance symbol for tapped coil and slider contact coil.
  - 4 What is the LDR? Draw its characteristics.
  - 5 Which factors depends on motion of the moving coil in a magnetic field?
  - 6 Write an expression for torque produced by the coil and explain it.
  - 7 List use of variable resistance.
  - 8 Define voltmeter sensitivity.
  - 9 Draw the circuit of multirange voltmeter.
  - 10 Write uses of moving coil galvanometer.
  - 11 Explain why eddy current is less in ferrite core coil.
  - 12 Write the precautions for using an ammeter.
- Q-3 [A] Enlist the fixed type resistor and explain any three. [06]**  
**[B] Explain parallel and series connection of resistor. [04]**
- OR**
- [C] Explain Wheatstone bridge working and derive an expression for unknown resistance. [06]**  
**[D] Write a note on thermistors. [04]**
- Q-4 [A] Enlist fixed type inductor and explain any two. [07]**  
**[B] Explain capacitive reactance. [03]**
- OR**
- [C] Define capacitance of capacitor? Explain Ceramic and Electrolytic capacitor in detail. [07]**  
**[D] Write a note on choke coils. [03]**
- Q-5 [A] Explain construction and working of Pivoted type galvanometer. [06]**  
**[B] Explain Temperature compensation in PMMC movements. [04]**
- OR**
- [C] Discuss Deflection torque and Dynamic behavior of galvanometer. [06]**  
**[D] Discuss damping mechanism used in PMMC movements. [04]**
- Q-6 [A] Explain how the PMMC galvanometer is converted in to current. [05]**  
**[B] A 1mA PMMC movement with an internal resistance of 100 ohm is converted in to 0-100mA ammeter. Calculate the value of shunt resistance. [05]**
- OR**
- [C] Explain how the PMMC galvanometer is converted in to voltage. [05]**  
**[D] Write a note on Multimeter. [05]**

*xm. L...*