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**Question Paper Code: 53502**

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2018

Third Semester

Electronics and Instrumentation Engineering

15UEI302 - ELECTRICAL AND ELECTRONIC MEASUREMENTS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. No eddy current and hysteresis losses occur in
  - (a) Electro-static instruments
  - (b) PMMC type instruments
  - (c) Moving iron instruments
  - (d) Electro-dynamometer instruments
2. The bridge method commonly used for finding mutual inductance is
  - (a) Heaviside Campbell bridge
  - (b) Schering bridge
  - (c) De Sauty bridge
  - (d) Wien bridge
3. In an electro-dynamometer type of wattmeter
  - (a) the current coil is fixed
  - (b) the pressure coil is fixed
  - (c) any of the two coils
  - (d) both the coils should be movable
4. In an electro-dynamometer type of wattmeter
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5. A potentiometer is basically a
  - (a) deflectional type instrument
  - (b) null type instrument
  - (c) deflectional as well as null type instrument
  - (d) a digital instrument
  
6. Current transformers and potential transformers are used to increase the ranges of
 

(a) DC ammeter and DC voltmeter	(b) AC ammeter and DC voltmeter
(c) AC ammeter and AC voltmeter	(d) DC ammeter and AC voltmeter
  
7. The resolution of a DVM with 4 digit
 

(a) 1/4	(b) 1/10	(c) 1/1000	(d) 1%
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8. In a ramp type DVM, the multi vibrator determines the rate at which the
 

(a) clock pulses are generated	(b) measurement cycles are initiated
(c) It oscillates	(d) Its amplitude varies
  
9. The advantage of F.M magnetic tape recording are
  - (a) it can record from d.c. to several KHz
  - (b) it is free from dropout effects
  - (c) it is independent of the amplitude variations and accurately
  - (d) all the above
  
10. X-Y recorders is the type of
 

(a) Graphic recorders	(b) Oscillosgraphic recorders
(c) Magnetic tape recorders	(d) Digital recorders

PART - B (5 x 2 = 10 Marks)

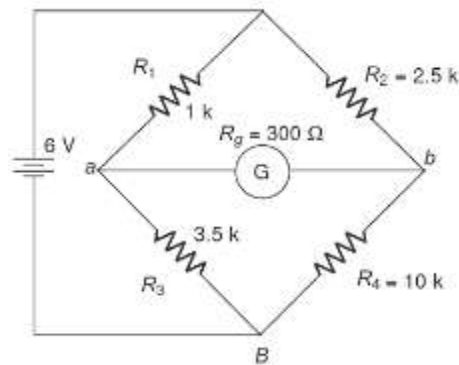
11. How a PMMC meter can be used as voltmeter and ammeter?
12. What is meant by creep adjustment in three phase energy meter?
13. Classify AC potentiometers. Also give its applications.
14. What are the advantages of digital instruments?
15. State the principle of sampling oscilloscope.

PART - C (5 x 16 = 80 Marks)

16. (a) Explain the working of Wein bridge with neat diagram. (16)

Or

- (b) (i) Explain the theory and working principle of Wheatstone's bridge. Derive an expression to find unknown resistance. (10)
- (ii) An unbalanced Wheatstone bridge is given in below figure. Calculate the current through the galvanometer. (6)



17. (a) With a neat diagram, explain the construction and working principle of dynamometer type Wattmeter. (16)

Or

- (b) (i) Elaborate the constructional details and principle of working of single phase induction type energy meter. (16)
- 18.(a) Describe the construction and working of a co-ordinate type AC potentiometer. How is it standardized? Explain how an unknown voltage can be measured with it. (16)

Or

- (b) List the types of Instrument transformer and brief any one of them in detail with construction and working. (16)
19. (a) Explain how the Q-meter can be used for the measurement of Q-factor and effective Resistance and discuss the source of error. (16)

Or

(b) With a neat block diagram explain the following:

(i) Dual slope integrating type DVM. (8)

(ii) Ramp type DVM. (8)

20. (a) With a neat block diagram, elaborate the construction and working principle of general purpose oscilloscope. (16)

Or

(b) Explain about X – Y recorders and describe its applications (16)

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