Mid Examination -Electrical and Electronics Measurements

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* Required

Accuracy of rectifier type instruments is waveform dependent because... 1 point

- (a)form factor is waveform dependent
- (b)form factor is independent of waveform
- (c)form factor of rectifier element is waveform dependent
- (d)form factor is sometimes waveform dependent

Clear selection

In basic emitter follower voltmeter the voltage gain is .. 1 point

- (a)adjustable by adjusting emitter resistance
- (b)adjustable by adjusting excitation voltage
- (c)approximately unity only
- (d)dependent on base emitter junction voltage drop

Clear selection

The most economical RMS responding electronic voltmeter can be designed using.. 1 point

- (a) nonlinear behavior of PN junction diode
- (b) linear behavior of Sampling register
- (c) linear behavior of electrostatic instrument
- (d) nonlinear behavior of inductor coil

Quasi RMS detector utilizes 1 point

- (a) Peak detector and average detector together
- (b) peak detector only
- (c) average detector only
- (d) temperature detector

Normally analogue instruments are designed for slightly less than the critical damping in order that 1 point

- (a)pointer reaches final deflection slowly.
- (b)pointer reaches final deflection without oscillations
- (c)pointer reaches final deflection and come to zero immediately
- (d)pointer reaches final deflection quickly even under elevated ambient temperature

The arm of a four arm bridge a,b,c,d supplied with sinusoidal voltage, have the following values: arm ab: A resistance of 200 ohm in parallel with a capacitance 1 uF, arm bc: 400 ohm resistance, arm cd: 1000 ohm resistance, arm da: A resistance R2 in series with a 2 uF capacitance. Determine the value of R2? 1 point

- (a) 1000 ohm
- (b) 600 ohm
- (c) 400 ohm
- (d) 398 ohm

Clear selection

A 1 mA Ammeter has a resistance of 100 Ω. It is to be converted to a 10A ammeter. The value of shunt resistance required is ... 1 point

- (a)0.1 Ω
- (b)0.01 Ω
- (c)0.001 Ω
- (d)1.0 Ω

Clear selection

In electrodynamic wattmeter, the error due to pressure coil inductance increases with.. 1 point

- (a)increase in humidity
- (b)increase in frequency
- (c)increase in atmospheric pressure
- (d)decrease in frequency

Clear selection

Which of the following method takes help of wheatstone bridge for measuring high resistance 1 point

- (a)Direct Deflection Method
- (b)Loss of Charge Method
- (c)Megger circuit
- (d)Mega Ohm Bridge Method

Clear selection

In which of the following bridge, the shielding is difficult 1 point

- (a) Aderson's Bridge
- (b) Maxwell's inductance Bridge
- (c) Hay's Bridge
- (d) Owen's Bridge

Clear selection

A bridge circuit works at a frequency of 2kHz. The following can be used as detectors for detection of null conditions in the bridge 1 point

- (a) Vibration galvanometer and headphones
- (b) Headphones and tunable amplifiers
- (c) Vibration galvanometer and tunable amplifiers
- (d) Vibration galvanometer, headphones and tunable amplifiers

Clear selection

When the localizing ground fault with the help of loop tests, the resistance of the fault: 1 point

- (a) affects the balance conditions
- (b) affects the value of cable resistance
- (c) affects the sensitivity of the bridge
- (d) all the above

Clear selection

If the resistance Rx is very large, then time for an appreciable fall in voltage (V) is _____in Loss of charge method. 1 point

- (a) Small
- (b) zero
- (c) large
- (d) None of the above

Clear selection

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A four arm ac bridge a,b,c,d has the following impedances Arm ab: Z1=200∠60^(0) Ω Arm ad: Z2=400∠0^(0) Ω Arm bc: Z3=300∠0^(0) Ω Arm cd: Z4=600∠60^(0) Ω Is it possible to balance the bridge under above conditions?? 1 point

- ○ YES
- ◉ NO

Clear selection

True RMS reading voltmeter uses two thermocouples in order ... 1 point

- ○ (a)to increase measurement sensitivity
- ○ (b)that it acts as averaging between two measurement instances
- ○ (c)that it acts as averaging between two measurements spots
- ◉ (d)compensate for nonlinear behavior of measuring thermocouple

Clear selection

Wagner's Earth Device are used in a.c bridge circuits for; 1 point

- (a) Eliminating the effect of earth capacitances
- (b) Eliminating the effect of inter-component capacitances
- (c) Eliminating the effect of stray electrostatic fields
- (d) Shielding the bridge elements

Clear selection

In VHF oscilloscope where sampling technique is employed.. 1 point

- (a) single shot phenomena can never be displayed
- (b) single shot phenomena can be displayed easily
- (c)single shot phenomena can be displayed occasionally
- (d)Single shot phenomena can be displayed if the delay line is shorted

In varley loop test the faulty and sound cables are identical with 0.4 ohm/ km. The ratio arms are set at 25 ohm and 30 ohm. The values of variable resistance connected to faulty cable are 15 ohm and 10 ohm at 2 positions of the switch. Determine the length of each cable ?? 1 point

- (a) 12.5 km
- (b) 6.25 km
- (c)15.625 km
- (d) 5.682 km

Clear selection

In varley loop test the faulty and sound cables are identical with 0.4 ohm/ km. The ratio arms are set at 25 ohm and 30 ohm. The values of variable resistance connected to faulty cable are 15 ohm and 10 ohm at 2 positions of the switch. Determine Fault Distance from test end ?? 1 point

- (a) 5.682 km
- (b)12.5 km
- (c) 6.25 km
- (d) 15.625 km

Clear selection

In D'Sauty's bridge (unmodified form) it is: 1 point

- (a) Possible to obtain balance even if both the capacitors are imperfect
- (b) Possible to obtain balance if one of the capacitors are perfect
- (c) Possible to obtain the balance only if both the capacitors are perfect
- (d) All the above

Clear selection

What is the condition for maximum sensitivity of wheatstone bridge ? 1 point

- (a) P/(P+Q)=R/(R+S)
- (b) R=S
- (c) R=0
- (d) S=0

Clear selection

Balancing weights are added to the moving system in order to bring... 1 point

- (a)weight of the moving system to optimum level
- (b)center of gravity of moving system on axis of rotation
- (c)center of gravity of moving system away from axis of rotation
- (d)weight of the moving system to maximum level

Clear selection

The equations under balance conditions for bridge are:R1=[(R2 R3)/R4]-[r1] and L1=(CR3/R4) [r(R2+R4)+R2 R4],Where R1 and L1 are respectively unknown resistance and inductance. In order to achieve converging balance 1 point

- (a) R2 and R4 should be chosen as variables
- (b) r and r1 should be chosen as variables
- (c) R2 and r1 should be chosen as variables
- (d) r and R4 should be chosen as variables

Clear selection

The supply voltage (E) in maxwell's inductance and capacitance bridge is lead by an angle (alpha) with 1 point

- (a) Ic
- (b) I2
- (c) E2
- (d) I1

Why we always rotate the generator handle at high speed in Megger 1 point

- (a) To avoid the error in measurement
- (b) To generate constant voltage
- (c) Both A&B
- (d) None of the above

Student 's Name *

Your answer

High torque to weight ratio is desirable in analogue indicating instruments to ensure ... 1 point

- (a)high friction loss
- (b)low friction loss
- (c)low hysteresis loss
- (d)high hysteresis loss

Clear selection

In wattmeter for high load current, pressure coil is connected to the load side since... 1 point

- (a)power loss in current coil is large compared to that in pressure coil
- (b)power loss in pressure coil is large compared to power consumed by the load
- (c)it is convenient for connections
- (d)power loss in pressure coil is small compared to power consumed by load

The accuracy of RMS responding voltmeter for measuring highly nonlinear waveform is limited by 1 point

- (a)input impedance of amplifiers
- (b)input capacitance of amplifiers
- (c)transconductance of amplifiers
- (d)the bandwidth of the amplifiers

A 35 Mhz oscilloscope has a displayed rise time of 18 nsec then signal rise time will be.. 1 point

- (a)50 nsec
- (b)15 nsec
- (c)9 nsec
- (d)35 nsec

In compensated wattmeter current passing through compensating coil is... 1 point

- (a)equal to current coil current
- (b)equal to 100 μA
- (c)equal to pressure coil current
- (d)equal to load current

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