Electronics and Electrical Communication Engineering Department

Electronic measurements	Year:2nd

Sheet (1)

Q1. An a.c voltmeter uses half wave rectifier and the basic meter with full scale deflection current of 1mA and the meter resistance of200Ω. Calculate the multiplier resistance for a 20 V r.m.s range on the voltmeter.

Q2. An a.c voltmeter uses a full wave rectifier and the basic meter with full scale deflection current of 2mA and the meter resistance of 500 Ω. Calculate the multiplier resistance for a 10 V r.m.s range on the voltmeter.

Q3. a sawtooth waveform shown in the fig 1.1 is applied to the average responding voltmeter. The scale is calibrated in terms of the r.m.s value of purely sinusoidal waveform. Caculate the form factor of sawtooth wave and the error in the meter reading.

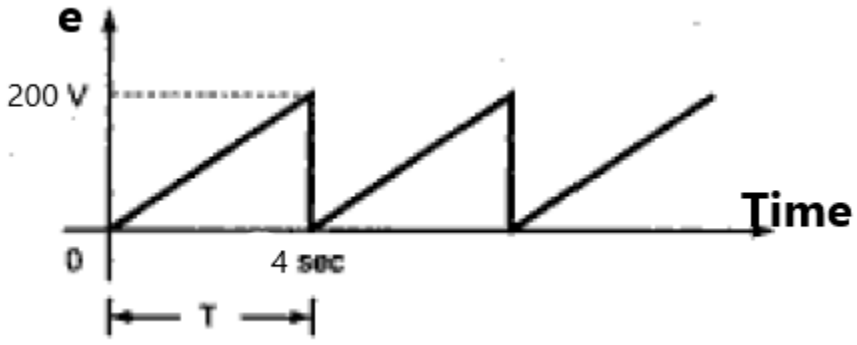

Fig1.1

Q4. The fig 1.2 shows a sawtooth waveform, applied to the average responding meter . The scale is calibrated in terms of the r.m.s value of sinusoidal quantity . Calculate the percentage error in the reading.

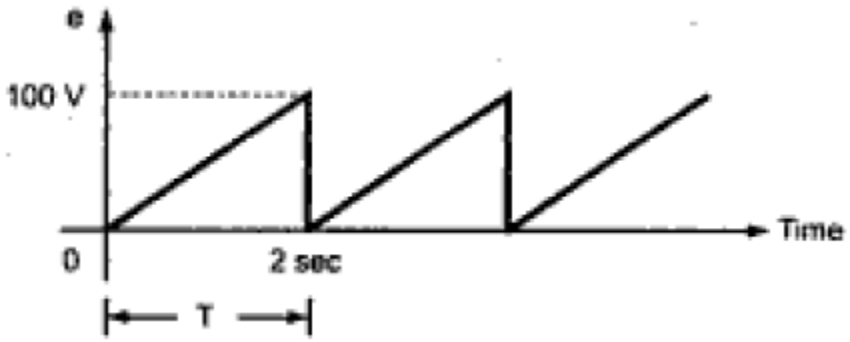

Fig1.2

Q5. A 25mA full scale current meter with an internal resistance of 100 Ω is available for constracting an a.c voltmeter with a voltage range of a200V r.m.s. The meter uses the bridge configuration for the rectifier of the instrument, if each diode has a forward resistance of 500 Ω and infinite reverse resistance. Calculate the value of the series resistance ,to limit the current to the rated value at the rated voltage.

Q6. Design the input resistance divider for practical FET voltmeter to give thefull scale deflection at 1 V D.C. The desired ranges are 1 V, 30 V, 50 V and 100 V. the input resistance is 9 M2.

Q7. Design the input resistance divider for FET voltmeter to give full scaledeflection at 1V. The desired ranges are 100, 30, 3 and 1 V.

Best Wishes

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