Minutia University
Faculty Of Engineering
Power Mechanic Dept
Course Title: Electrical and Electronic Measurements
Course Code:

Final Exam
Date: 4/ 1//2015
Degree: 90 mark
Time 180 mint

Answer the following questions:-

1-Explain the principle of operation for the analog electronic meter given in figure (1).

2-For the given analog meter of figure (1), Determine the meter reading if the input voltage E = 7.5 volt and the meter is put to its 10 volt range. The FET gate to source voltage is – 5 volt and Vp = +5 volt, take the swamping resistance 300 ohm and the coil resistance 700 ohm and meter full scale current is 1 mille ampere.

3-A permanent magnet moving coil instrument with full scale deflection of 50 micro ampere R meter is to be employed as a volt meter with range of 10 volt, 50 volt and 100 volt. Calculate the multiplier resistance for the meter circuit of figure (2) a and b.

4-An emitter follower volt meter circuit given in figure(3) has the following data :-Vcc =12 volt ,R coil = 600 ohm, R swamping = 400 ohm, the meter current is =2 mille ampere and the transistor current gain = 80 .Calculate the suitable to give full scale deflection when the input voltage to be measured is = b5 volt. What is the volt meter input resistance?

5-Draw the logic diagram for the scale of 16 counters and explain its function of operation Write the state table .Shaw how to convert this counter to another decimal counter.

6-Define the dual slop integrator digital volt meter and zero crossing detectors.

Sketch block diagram of the digital meter that uses dual slop integrator.

Note: Assume any required data.

Good Luck

Dr. AHMED MOBARKA

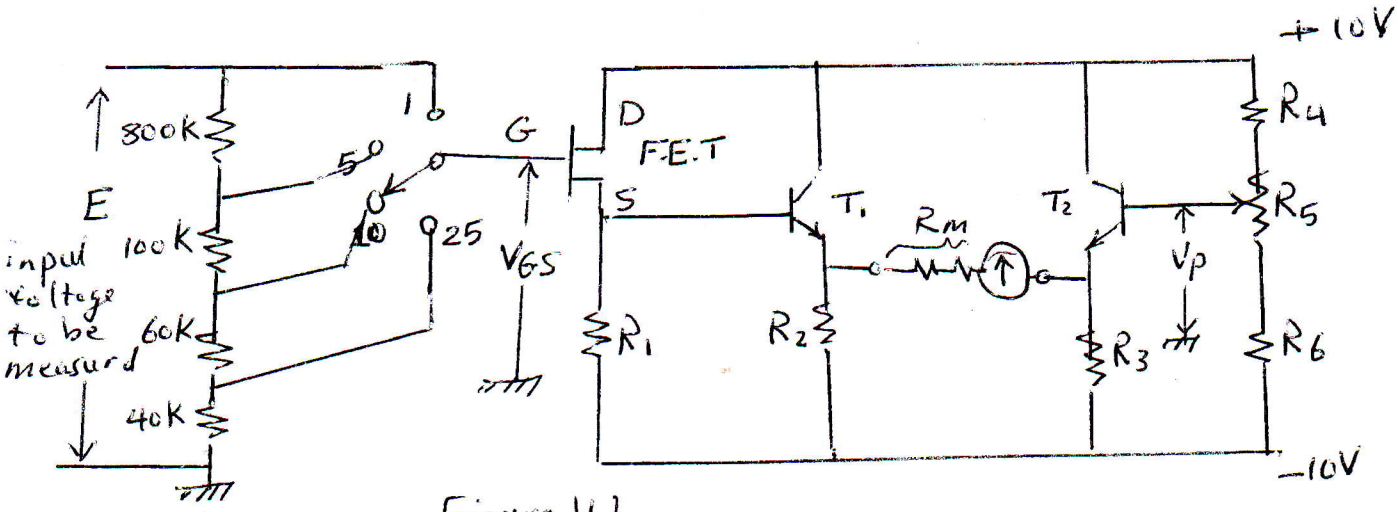
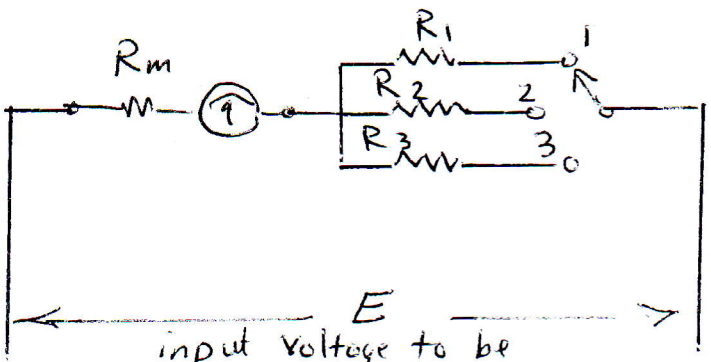
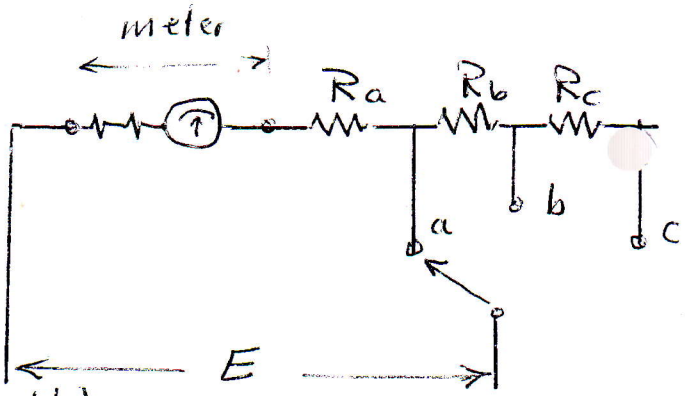


Figure (1)



(a)



(b)

Figure (2)

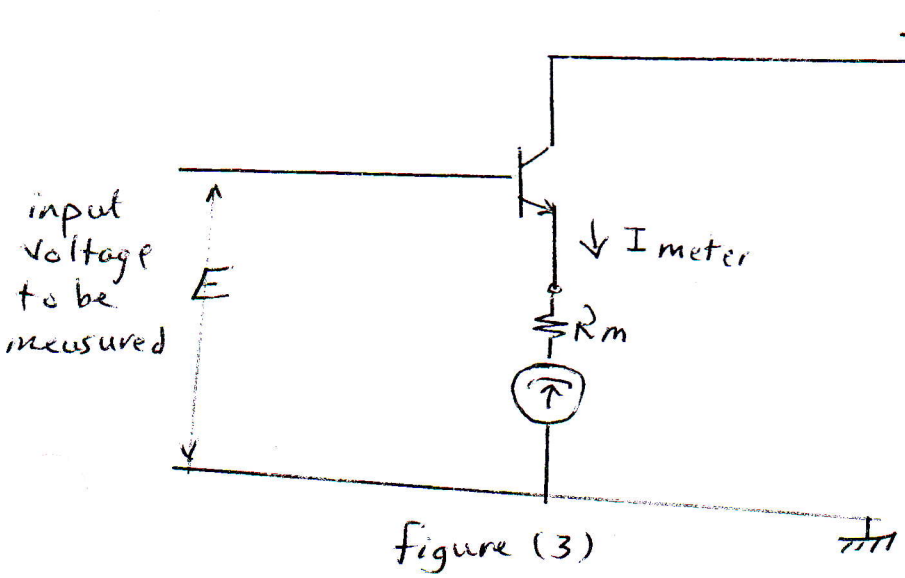


figure (3)