Rajiv Gandhi Institute of Petroleum Technology

Department of Electronics Engineering

Subject: Electronics Engineering Work Practices   **Maximum Marks:** 30

Note: All questions are compulsory. Be precise while answering the questions.

Pb.1. Draw the circuit diagram of AC to regulated DC power converter where, the input will be 230 V AC and output should be 9V DC. What are the components (with values) employ here, define? Show the waveform at each and every step of the circuit.   …… **5 Marks**

Pb.2. For the network shown in figure 1.   …… **5 Marks**

a. Determine the range of R_L and I_L that will result in V_{RL} being maintained at 10 V.

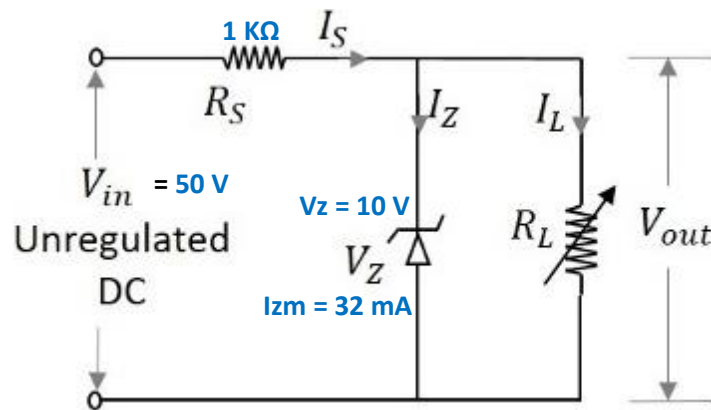**b.** Determine the maximum wattage ranging of Zener Diode.

Figure 1

Pb.3. Determine Vo waveform for the network shown in Figure 2. Treat diode as an Ideal diode.
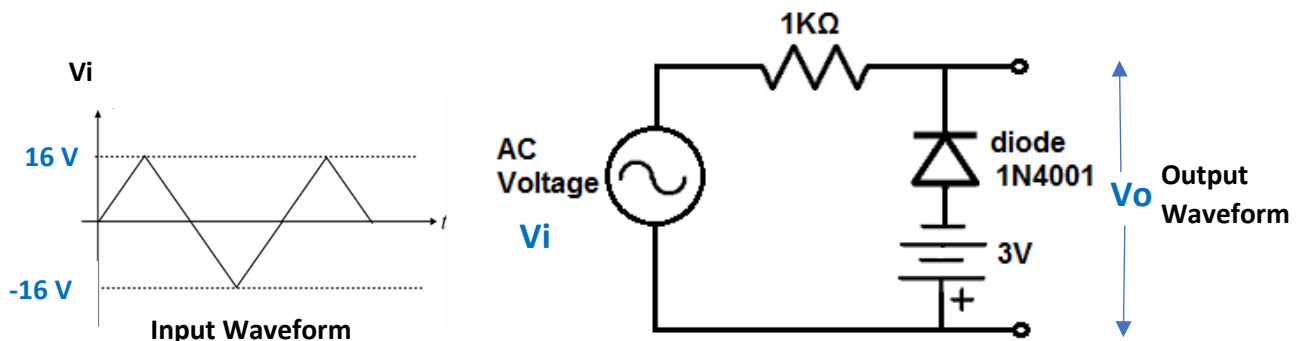
…… **5 Marks**

Figure 2

Pb.4. Describe the charging and discharging phenomena of parallel plate capacitor. What is the relation between capacitance and parallel plate area?   …… **4 Marks**

Pb.5. There are some multiple-choice questions. Only one option is correct. Each question has equal marks. …… **6** Marks

    a. An ideal ammeter has ………… resistance
       1. Low
       2. Infinite
       3. Zero
       4. High

    b. A voltmeter should have ………. resistance
       1. Zero
       2. Very high
       3. Very low
       4. None of the above

    c. Two multimeters A and B have sensitivities of 10 kΩ/V and 30 kΩ/V respectively. Then ……………
       1. Multimeter A is more sensitive
       2. Multimeter B is more sensitive
       3. Both are equally sensitive
       4. None of the above

    d. What do you mean by 4 and ½ display?
       1. Four digits will display 0 to 9 and one digit which is at MSB (most significant bit) will display 0 or 1.
       2. Four digits will display 0 to 9 and one digit which is at LSB (least significant bit) will display 0 or 1.
       3. Four digits will display 0 to 1 and one digit which is at MSB (most significant bit) will display 0 or 9.
       4. Four digits will display 0 to 1 and one digit which is at LSB (most significant bit) will display 0 or 9.

    e. There are four capacitors (C_1, C_2, C_3, and C_4) connected in series. What is the value of overall capacitance?
       1. $C_T = C_1 + C_2 + C_3 + C_4$
       2. $C_T = 1/((1/C_1) + (1/C_2) + (1/C_3) + (1/C_4))$
       3. $C_T = (1/C_1) + (1/C_2) + (1/C_3) + (1/C_4)$
       4. $C_T = 1/(C_1 + C_2 + C_3 + C_4)$

    f. Maximum allowable current for any resistance setting is calculated as:
       1. Imax = $\sqrt{P/R}$, Where P = Power and R = Resistance
       2. Imax = $1/\sqrt{PxR}$, Where P = Power and R = Resistance
       3. Imax = $\sqrt{R/P}$, Where P = Power and R = Resistance
       4. Imax = $1/\sqrt{P/R}$, Where P = Power and R = Resistance

Pb.6. Define PN Junction Diode. Draw its V-I characteristics and define its equivalent circuit.

…… **5** Marks