



R17 Regulation

Subject code: 1E2AE

TKR COLLEGE OF ENGINEERING AND TECHNOLOGY

(Autonomous, Accredited by NAAC with 'A+' Grade)

B.Tech I Year II Semester Supplementary Examinations, January 2024

Basic Electrical and Electronics Engineering

(Common to CE & ME)

Maximum Marks: 70

Date: 31.01.2024 Duration: 3 hours

- Note:
1. This question paper contains two parts A and B.
 2. Part A is compulsory which carries 20 marks. Answer all questions in Part A.
 3. Part B consists of 5 Units. Answer any one full question from each unit which carries 10M.
 4. Each question carries 10 marks and may have a, b, c, d as sub questions.

Part-A

All the following questions carry equal marks (10x2M=20 Marks)

- 1 Define Voltage and Current.
- 2 State Kirchoff's Voltage law.
- 3 State Norton's theorem.
- 4 What is Q-factor?
- 5 Define Semiconductor.
- 6 Write the applications of zener diode.
- 7 Define Rectifiers.
- 8 What is the function of filter?
- 9 Define the Amplifier.
- 10 Define the transconductance (gm).

Part-B

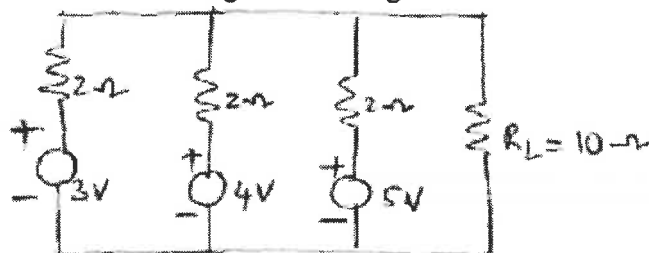
Answer All the following questions. (10MX 5=50Marks)

- 11 An Impedance $z_1 = (6 + j8)\Omega$ is connected in series with a parallel combination of impedances $z_2 = (10 + j6)\Omega$, $z_3 = (8 - j10)\Omega$ and is connected to a 200V, 100Hz supply. Find the total active power, reactive power and power factor of the circuit. [10M]

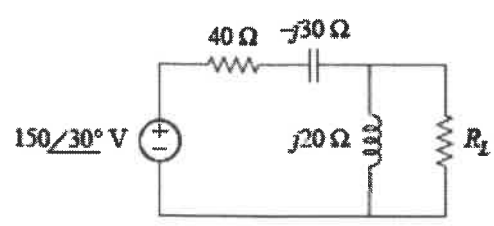
OR

- 12 Derive an expression for power in a single phase circuit contains R, C elements in series across sinusoidal voltage. [10M]

- 13 Calculate the load current in the following circuit using Millman's Theorem. [10M]



OR

14	Find the value of R_L that will absorb the maximum average power for the circuit shown in Figure 2. Calculate that power. [10M]
 <p style="text-align: center;">Figure: 2</p>	
15	Explain the V-I characteristics of P-N junction diode and its applications. [10M]
OR	
16	Explain SCR operation with V-I Characteristic. [10M]
17	Explain Full wave rectifier with neat diagrams. [10M]
OR	
18	Explain the Bridge rectifier with neat diagram. [10M]
19	Determine the h-parameters from the characteristics of BJT in CB configuration. [10M]
OR	
20	Draw the h-parameter equivalent circuit of BJT in CC configuration. Derive expressions for Z_i . [10M]