



BAEER-02-031110

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**BEECH**  
**(SEM II) THEORY EXAMINATION 2021-22**  
**BASIC ELECTRICAL ENGINEERING**

**Time: 3 Hours**

**Total Marks: 100**

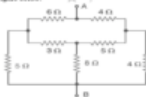
**Notes:**

- Attempt all Sections and Assume any missing data.
- Appropriate marks are allotted for each question, answer accordingly.

SECTION-A	Attempt ALL of the following Questions in brief	Marks (10*2=20) CO
Q21(a)	Draw the V-I characteristics for ideal voltage source and ideal current source.	1
Q21(b)	Why is linearity important in circuits?	1
Q21(c)	Why do we represent A.C. by sinusoidal wave-form?	1
Q21(d)	Why the average power consumed in purely inductive circuit is zero?	1
Q21(e)	What is the reason of load for negative voltage regulation in the transformer?	1
Q21(f)	Draw the phasor diagram for an ideal transformer on its load.	3
Q21(g)	What is the generated EMF in D.C. generator?	1
Q21(h)	Why synchronous motor is doubly excited?	1
Q21(i)	What are the common problems that occur during electrical installations?	1
Q21(j)	Write any two battery characteristics. Also, define any one.	1

SECTION-B	Attempt ANY THREE of the following Questions	Marks (3*10=30) CO
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Q22(a) Calculate equivalent resistance across terminals A and B using star-delta or delta-star conversion for the given figure below.



Q23 Consider the circuit shown in figure below and calculate the following:



- a. Determine the resonance frequency,  $\omega_0$ (rad/s) and  $f_0$ (Hz) of the each circuit.
- b. Find the Q of the circuit at resonance.
- c. Calculate the voltage across the circuit at resonance.
- d. Solve for currents through the inductor and the resistor at resonance.