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Mid-Term Examinations – November 2021

Programme	: B.Tech (CSE) [BHL,BCE,BEC,BCY]	Semester	: Fall 2021-22
Course	: Electric Circuits and Systems	Code	: EEE1001
Faculty	: Dr. Praveen Kumar Shukla	Slot/ Class No.	: F11+ F12+F13/0071
Time	: 1 ½ hours	Max. Marks	: 50

Answer all the Questions

- | Q.No. | Sub. Sec. | Question Description | Marks |
|-------|-----------|---|-------|
| 1 | (a) | Solve the given network circuit Fig.1 by using Nodal analysis to find V_0 ? | 5 |

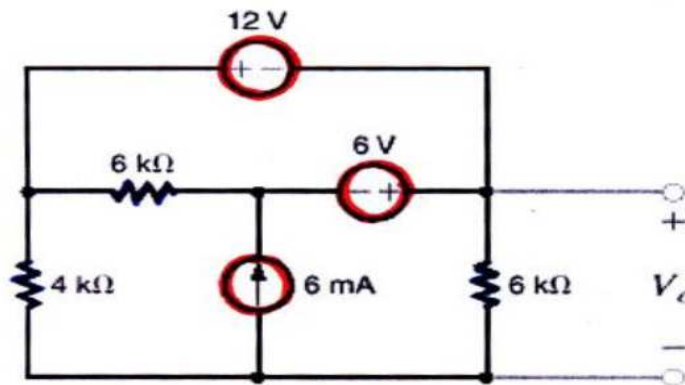


Fig.1

- (b) Find the value of R_L for maximum power transfer in the circuit of below Fig.2. Find the maximum power?

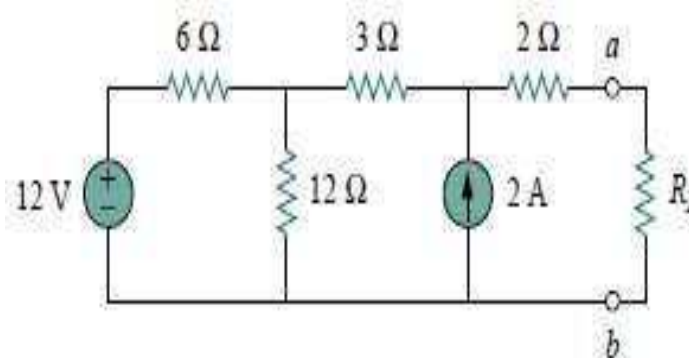


Fig.2

- 2 A series RLC circuit has a resonance frequency of 1 kHz and a quality factor $Q = 50$. If R and L are doubled and C is kept same, the new Q of the circuit is?

10

- 3 The drain of an n – channel MOSFET is shorted to the gate so that $V_{GS} = V_{DS}$. The threshold voltage (V_T) of MOSFET is 1 V. If the drain current (I_D) is 1 mA for $V_{GS} = 2$ V, then for $V_G = 3$ V, I_D is **10**
- 4 Describe the BJT common base configuration by using input and output characteristics. **10**
- 5 Implement the XOR logic gate by using 2:1 Mux with truth table. **10**

