

BE Theory Quiz # 02

Name: Shahmeer khan.

Student Id: 12113.

Class ID: 106228.

Quiz # 02;

The screenshot shows a Zoom meeting window. The main display area contains a circuit diagram and a quiz question. The circuit diagram is a series circuit with a DC voltage source $V_T = 20\text{ V}$ on the left. A resistor $R_1 = 4\ \Omega$ is in series with the voltage source. After R_1 , the circuit splits into two parallel branches. The first branch contains a resistor $R_2 = 12\ \Omega$. The second branch contains a load resistor R_L . The terminals of the load resistor are labeled A and B. To the left of the circuit diagram, there is a large red handwritten 'X' and the word 'Quiz' written in red. Below the circuit diagram, the text reads: '10-7 In Fig. 10-27, use the Thevenin equivalent circuit to calculate I_L and V_L for the following values of R_L ; $R_L = 3\ \Omega$, $R_L = 6\ \Omega$, and $R_L = 12\ \Omega$.' The right side of the Zoom window shows the 'Participants (29)' list with three visible participants: '12113 Shahmeer (Me)', 'Faculty_ FAISAL AHMED (Host)', and '10970 Abrar ul hassan'. Below the participants list are buttons for 'Raise Hand', 'yes', 'no', 'go slower', 'go faster', and 'more'. There are also buttons for 'Invite' and 'Unmute Me'. At the bottom of the Zoom window, there is a chat area with a message from 'Faculty_ FAISAL AHMED (Privately)' and a text input field. The Windows taskbar is visible at the bottom of the screen, showing the Start button, task view, and several application icons. The system clock in the bottom right corner shows '3:24 PM 2/15/2021'.

Solution;

BE Quiz #02.

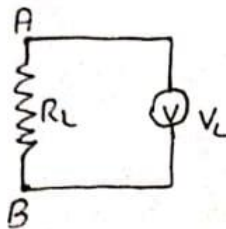
Name: Shahmeer Khan Student ID: 12215 Class ID: 106228

Solution:

∴ Using Thevenin equivalent circuit to calculate V_L . Where:

⊙ $R_L = 6\Omega$

⊙ $R_2 = 12\Omega$



⊙ ∴ R_1 and R_2 are in series combination.

⊙ ∴ Voltage drop on $R_1 = V_{R1} = \frac{4}{16} \times 20$

$\Rightarrow V_{R1} = 5V$

⊙ ∴ Voltage drop on $R_2 = V_{R2} = \frac{12}{16} \times 20$

$\Rightarrow V_{R2} = 15V$

⊙ ∴ R_2 and R_L are in parallel combination.

∴ voltage drop on R_L will be equals to voltage drop on R_2 .

∴ $V_{R2} = V_L$

$V_L = 15V$ Ans.