**Question (1):** For the circuit shown in Figure (1), find ***the current through each resistance*** using ***Node Analysis*** (***10 marks)***



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| **Figure (1)** |

**Question (2):**

In the diagram in figure (**2**), $v\left(t\right)=5Sin\left(10t+15^{o}\right)volt$ and

 $i\left(t\right)=(1+j)$ Ampere. What is the type of the impedance of the **BOX**? Explain your answer. **(*5marks*)**

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|  | **Figure (2)** |

**Question (3):** A series **R-L** circuit connected with AC supply. If the magnitude of the inductive reactance was twice the value of pure element, ***find*** the ***power factor***.  **(*5marks*)**

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