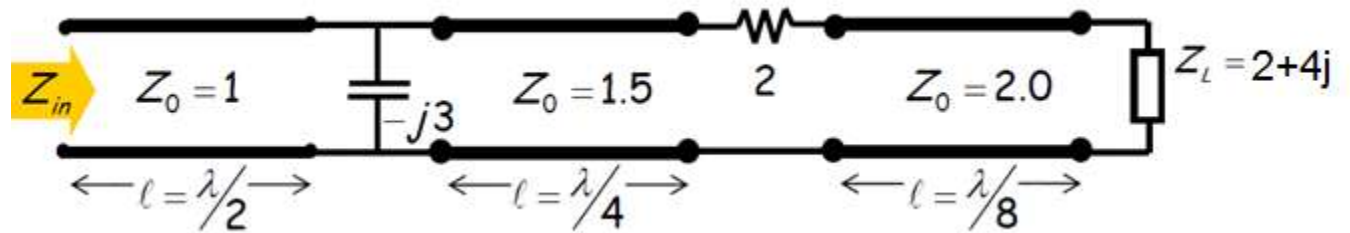Sample Paper 1

Derive an expression for Power along Transmission Line. And Discuss Some Special cases of Power with respect to $\Gamma_L$
(6)

**Q1- B)** Find Zin
(6)



Explain Quarter Wave Transformation. Use lambda by four transformer to match a 300 ohm line to a 75 load , such that there is no SWR and calculate the value of transformer
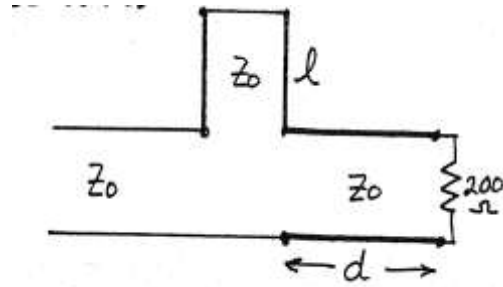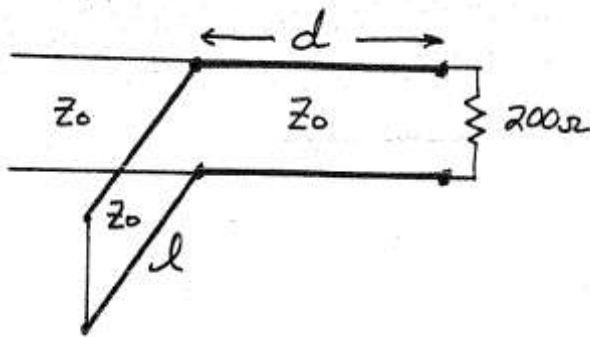(3)

For the Following circuit find
(6)
- The SWR fort load
- Reflection Coefficient at the load
- Transmission Coefficient at the load
- Input Impedance
- The distance of the of load to first voltage maxima
- The distance of load to first Minima
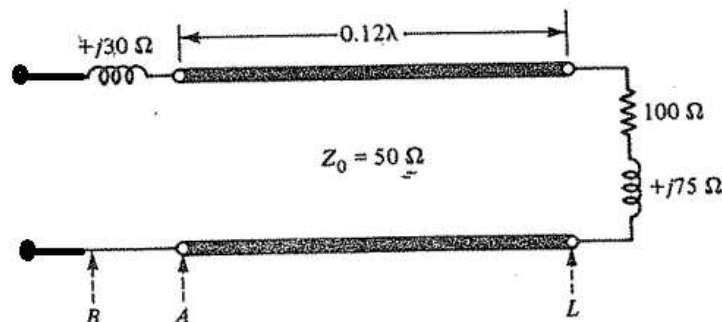


Find Two Solutions for each of the following cases for single stub where value of Zo=100 Ohm
(5+5)

Explain wave Guide in details, and compare them, with transmission Lines. Explain and derive expressions for wave guide while developing TEm and TMm Modes where m=1
**(8)**

Derive an Expression for Impedance matrix, and create a relation with Admittance Matrix **(5)**
A T-pad attenuator is required to reduce the level of an audio signal by 18dB while matching the impedance of the 600Ω network. Calculate the values of the three resistors required.
**(4)**

Draw Diagram of TWT and briefly describe TWT                                                    **(6)**
Explain Briefly                                                                                                       **(6)**
   a) Flanges
   b) Quarter Wave Transform

Develop and Expression for Transmission Line Input Impedance. Discuss Some Special cases of Input Impedance with respect to   load impedance and length of line
**(6)**
A 50 Ohm line is terminated in a 75 Ohm resistor, The input terminals are connected to output of a 30 OHM line . Both lines are 0.12 Lambda long
**(6)**

   a) Find Zin and Zo at the input of 30 Ohm Line
   b) Find SWR

 For the following Transmission line circuit. Find                                                   **(6)**
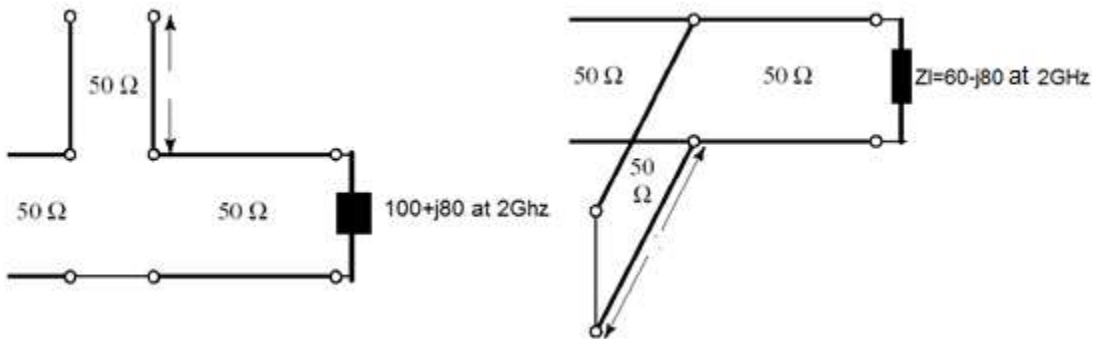
   • The SWR fort load
   • Reflection Coefficient at the  load
   • Transmission Coefficient at the load
   • Input Impedance

- The distance of the of load to first voltage maxima
- The distance of load to first Minima



$Z_{02} = 90\,\Omega$      $Z_{01} = 50\,\Omega$      20+5j

0.14 $\lambda$      0.25 $\lambda$

in      A      L
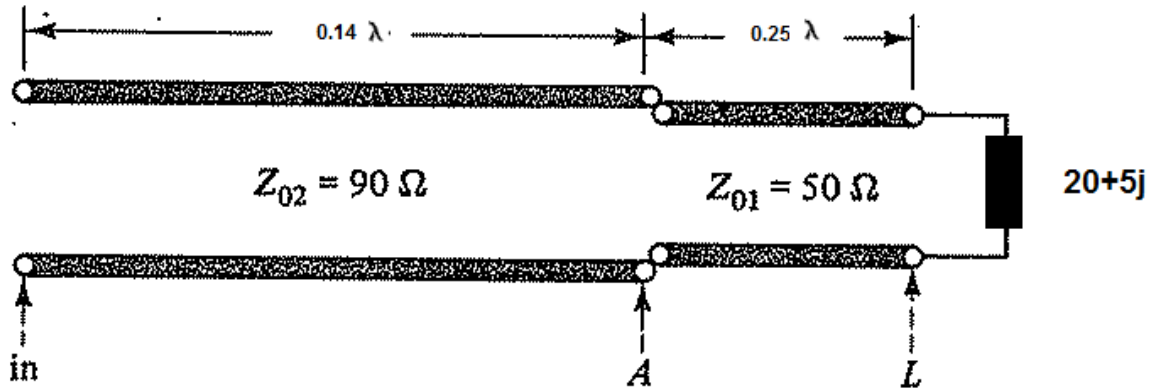
:Find two possible solutions for each stub , attached to Transmission line for impedance matching purposes
**(5+5)**



What are different type of Transmission Modes? Explain them      **(2)**

What do you mean by mode, and how it be interpreted graphically      **(3)**

Explain mathematically why does TEo do not exist where as TMo exist      **(6)**

Pi-pad attenuator circuit is required to reduce the level of an signal by 10dB while matching the impedance of a 75Ω network. Calculate the values of the three resistors required and Label a Pi pad Attenuator diagram as per the obtained values      **(4)**

Determine type of network represented by following port using admittance matrix      **(5)**
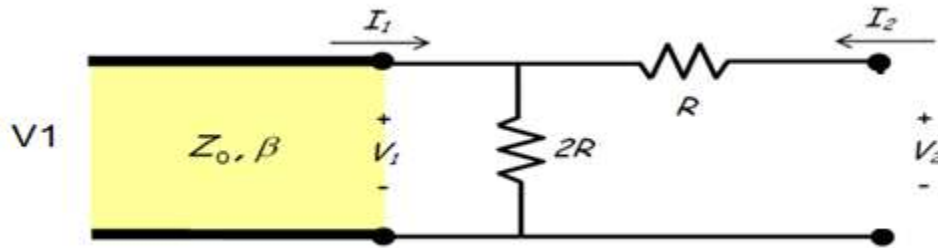
Draw Diagram of Magnetron and briefly describe it

**(6)** Explain Briefly
**(6)**

a) Co-axial Cable
b) Comparison Table for transmission line and Wave Guides

What are diodes . Explain Gunn diodes, PIN diodes and IMPATT Diodes and Tunnel diode . Explain their working at construction with diagram **(12)**

What are different method of exciting wave guides. Explain them **(8)**

What is microstrip line **(4)**

A 50 Ohm line is terminated in a 75 Ohm resistor, The input terminals are connected to output of a 30 OHM line . Both lines are 0.12 Lambda long. Using Smith chart , find

- The SWR fort load
- Reflection Coefficient at the load
- Transmission Coefficient at the load
- Input Impedance
- The distance of the of load to first voltage maxima
- The distance of load to first Minima

Define different type of networks on the basis of matrixes (4)

Make field patterns for TE and TM mode (8)

**Write detailed note on (8 marks each) * This question appeared in in Final term of Islamia university(8 marls Each)**

- **Microwave Attenuator**
- **Microwave Mixers**
- **Microwave Circulator**
- **Microwave Isolators**
- **Microwave Detectors**

**Class : I just received these above topics and I am working o their notes. They will be availbale by 9 : 00 PM on website  Mea while you prepare rest.**