Roll No:

PRESIDENCY UNIVERSITY, BENGALURU
SCHOOL OF ENGINEERING

Max Marks: 40 | Max Time: 120 Mins | Weightage: 40 %

END SEMESTER EXAMINATION

AY I Semester 2017-18 | Course: **ECE 211 Transmission Lines and Waveguides** | 21 DEC 2017

Instructions:

i. Write legibly
ii. Scientific and non programmable calculators are permitted

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Part A

1. What is stub impedance matching? What are the important reasons for impedance matching? (05 Marks)

2. Explain single stub impedance matching with neat diagram? (05 Marks)

Part B

3. What is termination? What are the characteristics of termination? (05 Marks)

4. What is the use of attenuator in microwave communication? Give the design equations for T-type and π-type attenuator? (05 Marks)

Part C

5. What are phase shifters? What are its applications and major parameters? (05 Marks)

6. Explain directional coupler and magic-tee with sketches? (06 Marks)

7. What is Faraday rotation? What are the devices employing Faraday rotation? (04 Marks)

8. With neat sketches, explain circulator in microwave communication? (05 Marks)

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Max Marks: 20 | Max Time: 60 Mins | Weightage: 20 %

TEST 2

I Semester AY 2017-2018 Course: **ECE 211 Transmission Lines and Waveguides** 25 OCT 2017

Instructions:

i. Write legibly
ii. Scientific and non programmable calculators are permitted

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Part A

1. Find voltage across 4Ω resistor as shown in Fig.1? (02 Marks)

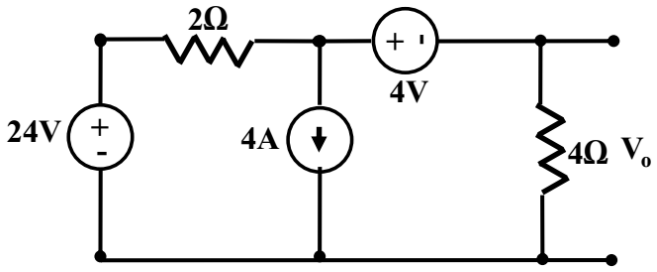

Fig.1

2. State and explain Foster's reactance theorem? (03 Marks)

Part B

3. Write scattering matrix for N-port microwave circuit? (02 Marks)

4. What is the use of transmission matrix? Write the transmission matrix for two microwave circuits connected in cascade (03 Marks)

Part C

5. What are the decomposition rules of signal flow graph? (02 Marks)

6. How do you construct Smith chart? Give the necessary equations? (04 Marks)

7. Determine the input impedance of a 300Ω line, wavelength is (3/4) and terminated in a 100Ω resistance using Smith chart. Also find K (04 Marks)

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TEST 1

I Semester 2017-2018 Course: **ECE 211 Transmission Lines and Waveguides** 20 SEPT 2017

Instructions:

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Part A

1. What is transmission line? Draw the structure of co-axial and parallel plate transmission line? (03 Marks)

2. Discuss the condition for distortion less transmission line? (02 Marks)

Part B

3. Derive the equation for voltage across capacitor when transmission line is terminated by capacitor? (05 Marks)

Part C

4. Discuss the condition for impedance for open circuited and short circuited transmission line? (04 Marks)

5. Two perfectly conducting planes are separated by 10cm in air. When TM_2 mode is excited for a frequency of 5GHz, determine (i) cut-off frequency (ii) cut-off wavelength (iii) phase constant (iv) phase velocity (v) group velocity (vi) characteristic wave impedance Z_{OTM} (06 Marks)