



# [Question Bank]

LAB:

MICROWAVE ENGINEERING

Code: ECE-451

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Subject Teacher:

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Semester VII<sup>th</sup>

**This booklet Includes:**

- List of Equipments
- List of Softwares
- List of Experiments
- lab Manual
- Question Bank

## ECE 451 MICROWAVE ENGG. LAB

## Quiz Questions

**Exp-1 and 2 : To study the microwave bench and microwave component.**

1. What is microwave engineering?
2. Define S-matrix and its properties
3. Write the application of microwave engineering?
4. Why is S-matrix used in MW analysis?
5. What are advantages of ABCD matrix?
6. What are the junctions?
7. What are non-reciprocal devices?
8. What is the application of reflex system?
9. What is the purpose of slow wave structures used in TWT amp?
10. Give examples of two port junction
11. What is microwave?
12. What are the properties of microwave?
13. What are the merits and demerits of microwave?
14. What are the reasons for using microwave in communication?
15. What is velocity of microwave?
16. What is microwave system?
17. What is terminated line?
18. What is dominant mode?
19. What is microwave junction?
20. What is E plane tee?
21. What is H plane tee?
22. What is magic tee?
23. What is the use of waveguide corners, bends and twists?
24. What is waveguide twist?

25. What is directional coupler?
26. What is microwave isolator?
27. What is non-reciprocal device?
28. What is cavity resonator?
29. What is the need of quality factor?
30. What is the function of i/p and o/p matching junctions?
31. What is zero property of S-matrix?
32. What is S-matrix for E-plane tee?
33. What is unitary property?
34. Differentiate between fixed and variable attenuator?
35. What is crystal mount detector?
36. What is power meter?
37. What is slotted line section?
38. What is reflex klystron?

### **EXP-3 Study of characteristics of klystron tube and to determine its frequency range**

1. What is reflex klystron tube?
2. What are performance parameters of reflex klystron tube?
3. What is velocity modulation?
4. How frequency can be measured on frequency meter?
5. What is the role of repeller voltage?
6. What is the transit time of reflex klystron?
7. What is the frequency of reflex klystron?
8. How efficient is reflex klystron?
9. What are the modes of reflex klystron?
10. Why reflex klystron is used in labs?

**Exp-4 To study the isolator**

1. What is the faraday law of rotation?
2. What is the function of isolator?
3. What are the different ferrite devices?
4. What is S-matrix of an isolator?
5. What are S-parameters of an isolator?
6. What are the applications of isolator?
7. How isolator works?
8. Construction of isolator?
9. What are the isolation losses?
10. What is the need of isolator on microwave benches?

**Exp-5 To find the directivity and coupling factor of directional coupler**

1. What is directional coupler?
2. What is directivity?
3. What is coupling factor?
4. What is S-matrix of directional coupler?
5. Construction of directional coupler?
6. Working of directional coupler?
7. What is the frequency range of directional coupler?
8. What are the applications of directional coupler?
9. What is the need of using directional coupler?
10. What are the coupling losses?

### Exp-6 To determine the freq and wavelength in rectangular waveguide working on $TE_{10}$ mode

1. What is the effect of open and short termination on experiment?
2. Why slotted line section is used in this experiment?
3. How wavelength can be measured?
4. Which mode is used in rectangular waveguide?
5. Which mode is used in circular waveguide?
6. what is the value of beam current
7. What is guided wavelength?
8. Which band is used for freq meter in microwave bench?
9. How freq can be measured on freq meter?
10. How freq is measured on CRO?
11. What is a diff between TE and TM mode?
12. What is the frequency range of frequency meter?

### Exp- 7 To study Magic Tee

1. What is magic tee?
2. Construction of magic tee?
3. Working of magic tee?
4. Why magic tee is named so?
5. What is S-matrix for magic tee?
6. What is perfectly matched function?
7. What are the applications of magic tee?
8. What is need of using magic tee?
9. What happened if ports of magic tee are not perfectly matched?
10. What is the diff between hybrid and magic tee?

11. Why magic tee is named so?

**Exp.8 To determine the standing wave ratio and reflection coefficient.**

1. What is VSWR?
2. What is the role of slotted line section in this experiment?
3. What is the value of VSWR at open circuit?
4. What is the value of VSWR at short circuit?
5. What is the value of VSWR at matched termination?
6. How VSWR can be calculated?
7. How slotted line section works?
8. How VSWR can be calculated on CRO?
9. How SWR can be measured using SWR meter?
10. What is reflection coefficient?

