Code No: **R32042** **R10** **Set No. 1**

III B.Tech II Semester Supplementary Examinations, April/May- 2019

MICROWAVE ENGINEERING

(Electronics and Communication Engineering)

Time: 3 hours **Max. Marks: 75**

Answer any FIVE Questions

All Questions carry equal marks

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1	a)	Derive the expression for resonant frequency of a rectangular waveguide.	[8M]
	b)	Describe the method of designating the modes of transmission in rectangular wave guides. What is dominant mode and why it is most often used in wave guides.	[7M]
2	a)	State the factors upon which the attenuation constants of a parallel strip line are dependent.	[7M]
	b)	Derive an expression for the attenuation factor of a microstrip line.	[8M]
3	a)	Explain the working principle of directional coupler and derive the expression for directivity and coupling coefficient.	[8M]
	b)	Explain for what purpose the posts and screws are used in waveguide.	[7M]
4	a)	What is a directional coupler? Derive the S matrix of a 4-port directional coupler.	[8M]
	b)	What are ferrites? What property do they have different from ordinary conductors and insulators?	[7M]
5	a)	Derive the expression for bunching parameter of reflex klystron.	[8M]
	b)	A reflex klystron operates at the peak of n=2 mode. The D.C. power inputs is 40mV.If 20% of the power delivered by the beam is dissipated in the cavity walls, find the power delivered to the load.	[7M]
6	a)	Explain the construction and working of 8 cavity cylindrical magnetron.	[9M]
	b)	Compare and contrast TWT and klystron amplifier.	[6M]
7	a)	Describe a non degenerative resistance parametric amplifier.	[8M]
	b)	What is TRAPATT diode? How it is better than IMPATT diode.	[7M]
8	a)	Give the measurement procedure for measuring Q factor of resonant cavity.	[8M]
	b)	Define VSWR. Describe the methods for measuring high and low VSWR.	[7M]

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