Vivekananda College of Engineering & Technology, Puttur.
[A Unit of Vivekananda Vidyavardhaka Sangha Puttur ®]
Affiliated to VTU, Belagavi & Approved by AICTE New Delhi

CRM08	Rev 1.10	‹EC›	‹11/05/2022›

CONTINUOUS INTERNAL EVALUATION – 1

Dept:EC	Sem / Div:6 A&B	Sub:Microwave and Antennas	S Code:18EC63
Date:17/05/2022	Time: 9:30-11:00 am	Max Marks: 50	Elective:N

Note: Answer any 2 full questions, choosing one full question from each part.

QN	Questions	Marks	RBT	CO's
	PART A			
1 a	Define reflection co-efficient. Derive the equation for reflection co-efficient at the load end and at a distance 'd' from the load end.	9	L3	CO1
b	Explain mode of oscillation of a Reflex Klystron.	8	L2	CO1
c	A transmission line with a characteristic impedance 50+j0 ohm is terminated in an impedance of 25-j100ohm. Determine the VSWR and voltage reflection coefficient at the terminal load end of the line using Smith Chart.	8	L3	CO1
	OR			
2 a	Explain microwave system with a diagram.	7	L2	CO1
b	With a neat schematic diagram explain the working of reflex klystron.	9	L2	CO1
c	A transmission line has the following parameters: R=2ohm/m , G=0.5mmho/m, f=1GHz, L=8nH/m and C=0.23 PF. Calculate the characteristics impedance and propagation constant.	9	L3	CO1
	PART B			

3	a	Define voltage standing wave ratio. Derive the relationship between VSWR and reflection co-efficient.	8	L3	CO1
	b	Derive the equation for transmission co-efficient.	8	L3	CO1
	c	A Reflex Klystron is to be operated at 10GHz with dc beam voltage 300V, repeller space 0.1cm for $1\frac{3}{4}$ modes. Calculate P_{RFmax} and corresponding repeller voltage for a beam current of 20mA.	9	L3	CO1

<div align="center">OR</div>

4	a	What are the high frequency limitations of conventional vacuum tubes?	7	L2	CO1
	b	A certain transmission line has a characteristic impedance of 75+ j0.01ohm and is terminated in a load impedance of 75 +j50ohm. Compute: i) Reflection coefficient ii) The transmission coefficient.	8	L3	CO1
	c	Starting from fundamental, derive the expression for the voltage and current at any point on the transmission line	10	L3	CO1

Prepared by:Mahabaleshwara Bhat P   11/05/22

HOD

$\Gamma = 0.099 + j0.299$