C.U.SHAH UNIVERSITY Summer Examination-2019

Subject Name: Microwave Communication: Electronics and Technology

Subject Code: 5SC)4MCT1	Branch: M.Sc. (Physics)		
Semester: 4	Date: 18/04/2019	Time: 02:30 To 05:30	Marks: 70	

Instructions:

- (1) Use of Programmable calculator and any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

SECTION – I

Q-1 Attempt the Following questionsa. Write full name of VSWR.

- **b.** What is TE or TH wave?
- **c.** Write types of magnetron.
- d. Give range of microwave region in EM spectrum.
- e. What is IMPATT diode is used for?
- **f.** What is magic tee?
- **g.** What is MESFET?

Q-2Attempt all questions(14)(a)Explain reflex klystron in detail. Write it's construction, working and
applications.8(b)Draw basic structure of travelling wave tube (TWT). Explain it's operation.6

OR

Q-2Attempt all questions(14)(a)What is PIN diode? Explain it's construction and working. List it's applications.8



(07)

Q-3	(a)	Attempt all questions	(14)
	(a)		
		Define: waveguide. Write basic features. Explain different modes of propagation.	5
	(b)	Explain rectangular waveguide in detail. Write formula for cut off wavelength.	5
	(c)	Explain circular waveguide. Write expression for cut off wavelength and applications.	4
		OR	
Q-3	(a)	Derive transmission line equation.	8
	(b)	What are standing waves? Derive expression for voltage standing wave ratio S.	6
Q-4		SECTION – II Attempt the Following questions	(07)
	a.	Write full names of UHF and VHF.	
	b.	Explain critical frequency.	
	c.	Draw the symbol of PIN diode.	
	d.	Define: skip distance	
	e.	Write frequency range of UHF and VHF bands.	
	f.	Write names of different layers of ionosphere.	
	g.	What is ground wave propagation?	

(b) Explain sky wave propagation mechanism. Derive expression for maximum8 usable frequency.



			OR	
Q-5	(a)	Explain tropospheric	propagation.	4
	(b)	Explain below paran	neters of antenna,	6
		I.	Isotropic radiator	
		II.	Directional radiator.	
		III.	Power density.	
	(c)	What is antenna? Expla	in it's radiation mechanism.	4
Q-6		Attempt all questions		(14)
	(a)	Derive relation betwe	en directivity and effective area of antennas.	6
	(b)	What is loop antenna resistance and direction	? Derive expressions for it's radiated power, radiance vity.	8
			OR	
Q-6	(a)	Attempt all Question What is half wave dip draw figure.	ns bole antenna? Write expression for directivity,	4
	(b)	Explain: Horn antenn	a	4
	(c)	Explain: 1.attenuator	r	6

2.flangers

