

Maximum: 100 Marks

## SEVENTH SEMESTER B.TECH. (ENGINEERING) EXAMINATION, JUNE 2010

EC 04 702—MICROWAVE DEVICES AND COMMUNICAT

(2004 Admissions)

Time: Three Hours

 $[4 \times 15 = 60 \text{ markel}]$ 

Answer all questions.

I. (a) What are the different types of directional couplers?

block schematic the terminal transmitters of a terrestrial microwave

- (b) What are the characteristics of standard rectangular waveguides?
- (c) What is the principle of working of cross field tubes?
- (d) What are the different types of re-entrant cavities available?
- (e) Explain the operating principle of read diode.
- (f) Differentiate between microwave transistors and TED's.
- (g) Explain the concept of fading.
- (h) What is meant by LOS propagation and over the Horizon propagation?

 $(8 \times 5 = 40 \text{ marks})$ 

II. (a) Explain the working of different circular cavity resonators and derive the expression for resonant frequency of each type.

(15 marks)

Or

(b) Derive the  $\text{TE}_{mn}$  and field equations for a rectangular waveguide.

(15 marks)

III. (a) With neat diagram explain the velocity modulation process in a two cavity Klystron.

(15 marks)

Or

(b) With neat schematic diagram explain the operation of cylindrical magnetron and derive the Hull cut-off voltage equation.

(15 marks)

IV. (a) Explain the working of:

(i) LSA diode.

(5 marks)

(ii) IMPATT diode.

(5 marks)

(iii) Cd Te diode.

(5 marks)

Or

(b) Explain the different modes of operation of Gunn diode with neat diagrams.

(15 marks)

Turn over

	xplain with neat block schematic the terminal transmitters of a terrestrial ommunication system.	mic	rowave
	SEVENTH SEMESTER B.TECH. (ENGINEERING) CRESE	(15	marks)
	xplain the link analysis of setellite communication and derive the expression udget equation.	for	power-
un : 100 Marks	Maximu Maximu Answer all questions.		
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	What are the characteristics of standard rectangular waveguides?		
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$5 = 40  \mathrm{marks})$	× 8)		
expression for	Explain the working of different circular cavity resonators and derive the resonant frequency of each type.		II (
(15 marks)			
(15 marks)	Derive the TE and field equations for a rectangular waveguide.		
ystron	With neat diegram explain the velocity modulation process in a two cavity Ely	(a)	Ш
(15 marks)			
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and derive the	With nest schematic diagram explain the operation of cylindrical magnetron if till cut-off voltage equation.		
(15 marks)			
	Explain the working of :		.V1
(5 marks)	(i) LSA diode.		
(5 marks)	short TRAMI (ii)		
(5 marks)	(iii) Cd Te diode.		
	40		
(15 marks)	Explain the different modes of operation of Gunn diode with neat diagrams.		