Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh semester B.Tech examinations (S), September 2020

Course Code: EC461

Course Name: MICROWAVE DEVICES ANDCIRCUITS

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks. Marks

1 a) What are TRAPATT diodes? Explain elaborately their principle of operation with neat diagram. (10)

b) What are the limitations of conventional solid state devices at microwaves (5)

2 a) Discuss in detail the physical structure of MESFET and explain its principle of operation. (10)

b) Write a short note on one port negative resistance oscillator (5)

3 a) Explain in detail Various modes of operation of Gunn Oscillators (8)

b) Derive the expression for available power gain of microwave amplifier (7)

PART B

Answer any two full questions, each carries 15 marks.

4 a) Explain in detail the concept of matching with lumped elements. (10)

b) Write a short note on S matrix (5)

5 a) Explain the steps in designing a composite filter. Also write down the equations and draw the circuit for designing a composite low pass filter. (10)

b) Discuss the significance of k-β diagram in filter characteristics (5)

6 a) Explain the principle of single stub tuning (7)

b) Design a low pass constant K filter using image parameter method. (8)

PART C

Answer any two full questions, each carries 20 marks.

7 a) Explain the fabrication technique involved in Monolithic Microwave Integrated circuits. (10)

b) Discuss briefly about slot line. (6)

c) List down the advantages of planar transmission line. (4)

8 a) Classify switches based on characteristics. Explain the basic configuration of PIN diode switches. (12)

	b)	Explain the configuration of distributed ferrite circulators.	(4)
	c)	Write a short note on inductors.	(4)
9	a)	Differentiate strip line and microstrip line.	(6)
	b)	Explain attenuators with neat diagram.	(10)
	c)	Write a short note on hybrid MIC.	(4)

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