Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Third Semester B.Tech Degree (S,FE) Examination December 2020 (2015 Scheme)

Course Code: EC209

Course Name: ANALOG ELECTRONICS (MC)

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 5marks. Marks

1		Explain the load line concept of a diode.	(5)
2		Make a short note on the operating point of BJT.	(5)
3		Distinguish the different types of MOSFET.	(5)
4		Write a short note on Darlington pair.	(5)
5		Explain the operation of a Colpitts oscillator with the help of a diagram.	(5)
6		Describe the operation of a monostable multivibrator using transistors.	(5)
7		Draw the functional diagram of 555 timer IC.	(5)
8		Discuss the working of a UJT as an oscillator.	(5)

PART B

Answer any three questions, each carries 10 marks.

9	a)	Explain the working of any one of the clamping circuits with suitable diagrams.	(5)
	b)	Derive the equation for the ripple factor of a full wave rectifier.	(5)
10	a)	Why do gain falls at low frequencies and high frequencies in the amplifiers?	(5)
	b)	What are cascaded amplifiers?	(5)
11	a)	What are the effects of a negative feedback?	(4)
	b)	Describe the drain characteristics of JFET.	(6)
12		Explain briefly the principle of Class AB amplifier with the help of suitable diagrams.	(10)
13	a)	Draw h parameter model of BJT and derive the expressions for voltage gain and current gain.	(7)
	b)	Why is biasing required in transistors?	(3)

PART C

Answer any two questions, each carries 15 marks.

14	a)	With the help of a circuit diagram derive the frequency of oscillation for Hartley oscillator.	(7)
	b)	State the Barkhausen criteria for oscillations.	(3)
	c)	Explain in detail about the operation of astable multivibrator using transistors.	(5)

15 a) Write a short note on the different classifications of oscillators. (5)

b) Derive frequency of oscillation for RC phase shift oscillator with the help of a circuit diagram. (10)

16 a) Explain the concept of offline UPS. (5)

b) Write in brief about astable multivibrator using 555 timer IC. (10)

17 a) Write in detail about the operation of a SMPS. (5)

b) Explain the principle of PLL in detail. (5)

c) Discuss in detail about the lock range and capture range. (5)

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