Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIRST SEMESTER B.TECH DEGREE EXAMINATION(S), DECEMBER 2019

Course Code: EC100

Course Name: BASICS OF ELECTRONICS ENGINEERING

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries5 marks. Marks

1		Discuss any *two* colour coding scheme of capacitors. Find the capacitance value for 2M2.	(5)
2		Explain doping concentration and size of three layers in a transistor with neat diagram.	(5)
3		Draw the diagram of an RC coupled CE amplifier and describe the role of the different capacitors.	(5)
4		Draw the block diagram of a function generator and specify the function of each block?	(5)
5		Compare AM and FM.	(5)
6		Define modulation index and write down the expression for modulation index and total power in AM signal.	(5)
7		Define critical angle and total internal reflection with diagrams.	(5)
8		Explain the basic block diagram of DTH system.	(5)

PART B

Answer six questions,one full question from each module and carries10marks.

Module 1

9	a)	What is a variable capacitor? Explain the construction of any 2 types of variable capacitors.	(6)
	b)	The average value of a resistor required is 82kΩ.What will be the sequence of the colour band when tolerance would be 10%?	(4)

OR

10	a)	What are passive components? Mention at least three components with symbol.	(4)
	b)	Explain with diagram, the operation of an electromagnetic relay	(6)

Module 1I

11	a)	Sketch the input and output characteristics of common emitter transistor configuration and explain briefly.	(5)
	b)	Derive the relation between α and β for a transistor. For an npn transistor, α=0.995 and I_E=10m A. Find I_B and I_C?	(5)

OR

12 Briefly explain

i) LED (10)

ii) Photo diode

iii) Solar cell

Module 1II

13 a) Explain the working of a Bridge rectifier with relevant waveforms (7)

b) What is PIV? What are its values for Half wave and Centre tapped Rectifiers? (3)

OR

14 What is a Barkhausen criterion? Explain the working of a RC phase shift Oscillator? (10)

Module 1V

15 a) What are universal gates ? Why they are called so ? (4)

b) Explain the working of digital multimeter with a block diagram (6)

OR

16 a) Draw and explain the functional block diagram of operational amplifier (6)

b) Draw the circuit diagram and derive the gain of a non-inverting amplifier. (4)

Module V

17 a) Explain how the geo-stationary satellite covers full earth? Mention its applications. (6)

b) List out the major merits of satellite communication. (4)

OR

18 a) What are the needs of modulation in a communication system. (6)

b) Draw the spectrum of AM signal with a sinusoidal input (4)

Module VI

19 Explain the working of cable TV distribution system. (10)

OR

20 Explain optical fibre communication system with block diagram. What are the different types of optical fibre cables used in optical communication? (10)

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