Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech degree examinations (S), September 2020 (S1/S2 - 2015 Scheme)

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		Briefly explain any five applications of electronics in medical field.	(5)
2		In what respect is an LED different from an ordinary PN junction diode? State any three applications of LEDs.	(5)
3		With necessary circuit diagram and waveforms, explain the working of a half wave Rectifier.	(5)
4		Define the terms input offset current, CMRR and slew rate of an Op-Amp. Write the ideal values of these parameters.	(5)
5		What is the function of mixer in AM superheterodyne receiver? What is the significance of IF frequency in AM receiver?	(5)
6		Define modulation. What are the needs for modulation?	(5)
7		Explain any one of the light sources used in optical fibre communication.	(5)
8		What is meant by frequency reuse in cellular system?	(5)

PART B

Answer six questions, one full question from each module and carries 10 marks.

Module 1

9	a)	Write notes on specifications of a capacitor.		(4)
	b)	Explain the construction and working of relay. What are the different types of relays?		(6)
		OR		
10	a)	Explain the constructional details of i) Carbon composition fixed resistors ii) Carbon potentiometers		(6)
	b)	A carbon resister has colour code violet, green and brown. Find the range of resistance value.		(4)

Module 1I

11	a)	Explain the formation of depletion layer in a pn junction diode.	(5)

b) From the given parameters in a transistor circuit, compute the values of α, I_E and I_C : β = 100 and I_B= 20μA. (5)

OR

12 Draw the structure of a npn transistor showing the distribution of carries and explain its input and output characteristics in CE configuration. (10)

Module 1II

13 a) With necessary diagram explain the working of simple Zener voltage regulator. (5)

b) With the help of necessary diagram explain the working of RC coupled CE amplifier. (5)

OR

14 a) Compare the different types of feedback mechanisms? (4)

b) Why half-wave rectifiers are generally not used in power supply? With necessary diagram explain the working of centre-tap full wave rectifier. (6)

Module 1V

15 Draw the block diagram of digital storage oscilloscope explain the functions of each block. (10)

OR

16 a) Draw and explain the functional block diagram of Operational amplifier. (5)

b) Draw the circuit diagram of a non-inverting amplifier with a voltage gain of 2. (5)

Module V

17 a) Explain satellite communication with block diagram. (7)

b) What are the advantages of geostationary satellites? (3)

OR

18 a) Compare AM and FM with minimum of five points. (5)

b) A 5 kHz audio signal is used to frequency-modulate a 100MHz carrier causing a frequency deviation of 20kHz. Determine (i) modulation index and (ii) Bandwidth of FM signal. (5)

Module VI

19 a) Draw the functional block diagram of cellular communication system. (5)

b) Explain the different components in CCTV system. (5)

OR

20 a) With a block schematic explain the operation of a DTH receiver. (5)

b) What is meant by critical angle? What is its significance in optical fiber communication? (5)

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