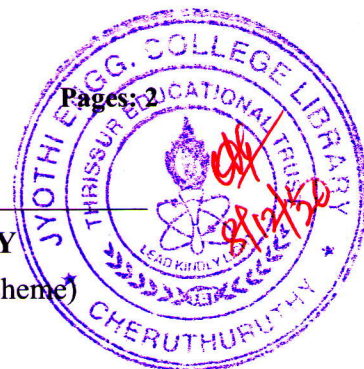


F2



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 carries 5 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 resistor has colour code violet, green and brown. Find the range of resistance value. | (4) |

Module 11

- | | | |
|----|---------------------------------------------------------------------|-----|
| 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 : $\beta = 100$ and $I_B = 20\mu A$. (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 III

- 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 IV

- 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)
