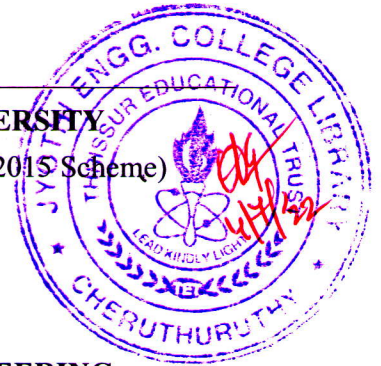


Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
 B.Tech S1 (S,FE) S2(S) / S2 (FE) Examination May 2022 (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 | Define active and passive components with examples. | (5) |
| 2 | Explain the principle of working of an npn transistor. | (5) |
| 3 | With the help of a block diagram, explain the working of a public address system. | (5) |
| 4 | Draw and explain the functional block diagram of an operational amplifier. | (5) |
| 5 | Draw the block diagram of a basic communication system and explain each component. | (5) |
| 6 | Describe AM modulation and also give the frequency band for an AM wave. | (5) |
| 7 | Describe the basic principle and block diagram of a cable TV system. | (5) |
| 8 | Explain the concept of frequency reuse in cellular communication system. | (5) |

PART B

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

MODULE I

- | | | |
|---|---|-----|
| 9 | a) What is the basic working principle of a transformer? List different types of transformers and their applications. | (6) |
| | b) Write any four industrial applications of Electronics. | (4) |

OR

- | | | |
|----|--|-----|
| 10 | a) Distinguish different types of inductors based on their construction. | (5) |
| | b) Explain the working of an electromechanical relay. | (5) |

MODULE II

- | | | |
|----|--|------|
| 11 | Draw and explain the forward bias and reverse bias characteristics of a PN junction diode. | (10) |
|----|--|------|

OR

- | | | |
|----|---|------|
| 12 | Explain the input and output characteristics of a common emitter configuration. | (10) |
|----|---|------|

MODULE III

- 13 a) Explain with the help of neat diagrams, the working of a full wave bridge rectifier. (5)
b) Demonstrate how Zener diode works as a voltage regulator. (5)

OR

- 14 Draw the circuit diagram of a single stage RC coupled amplifier and explain its working. (10)

MODULE IV

- 15 a) How NAND gate can be used to realize OR gates? (5)
b) Explain the working of an inverting operational amplifier. (5)

OR

- 16 With the help of a block diagram, explain the operation of a DSO. (10)

MODULE V

- 17 a) Draw the block schematics of a super heterodyne receiver and explain its working. (5)
b) Define modulation index. Explain the need for modulation. (5)

OR

- 18 a) Explain frequency modulation scheme and write its frequency band. (5)
b) What are geostationary satellites? List its advantages. (5)

MODULE VI

- 19 a) With a neat diagram, explain cellular communication system. (5)
b) Briefly explain the working principle of a Cable TV system. (5)

OR

- 20 a) Describe the block schematic of an optical communication system and list its advantages. (5)
b) Draw and explain the block schematic of a DTH system. (5)
