F S2030

Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIRST SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2018

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 Explain the different types of variable resistors? Mention their applications. (5)

2 What is meant by intrinsic and extrinsic semiconductors? How a P-type semiconductor is formed? (5)

3 Explain the working of Zener voltage regulator with a neat diagram. (5)

4 Draw the functional block diagram of an operational amplifier. List the parameters of an ideal Op-amp (5)

5 Write the expression of an AM and FM signal and explain the terms. (5)

6 Explain how modulation reduces antenna height. (5)

7 Discuss the major advantages of optical communication system. What are the sources and detectors used in optical fibre communication system? (5)

8 What is meant by a DTH system? What are the main features of DTH? (5)

PART B

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

Module 1

9 a) Write down the color code for a given resistor of 47-Kilo-ohms with a tolerance of 10%. (4)

b) Discuss on different types of transformers. (6)

OR

10 a) Give brief details of (5)

(i) Impact of electronics in industry

(ii) Medical electronics

b) Draw and explain the construction of a wet electrolytic capacitor. (5)

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, (5)

α=0.995 and I_E=10m A. Find I_B and I_C?

OR

12 Explain the working of LED and photodiode. Draw the necessary figures wherever applicable.. (10)

Module 1II

13 a) With necessary diagrams, explain the working of a centre-tapped full wave rectifier. (6)

b) Compare the ripple factor and efficiency of half-wave, centre-tapped and bridge rectifiers (4)

OR

14 a) Write the conditions for sustained oscillations. (2)

b) Draw the circuit diagram and explain the working of RC phase shift oscillator. Write the expression for its oscillation frequency. (8)

Module 1V

15 Explain the generation of various waveforms in a function generator. (10)

OR

16 a) Draw the circuit of a non-inverting amplifier and derive the expression for its voltage gain (7)

b) Design a non-inverting amplifier for a voltage gain of 11 (3)

Module V

17 a) What are the advantages and applications of satellite communication? (5)

b) Explain how the geo-stationary satellite covers full earth? Why are they called so? (5)

OR

18 With a neat block diagram, explain the principle and working of superheterodyne receiver. (10)

Module VI

19 a) Describe step-index multimode, step-index single mode and graded index multimode fibres. (5)

b) Explain cable TV network with its block diagram. (5)

OR

20 Draw and explain functional block diagram of cellular communication system. (10)

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