Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S1,S2(S,FE) Examination May 2021 (2015 Scheme)

Course Code: BE101-04

Course Name: INTRODUCTION TO ELECTRONICS ENGINEERING

Max. Marks: 100 Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks Marks

1 Explain the use of resistors in electronic circuits. List the specifications of a resistor. (5)

2 Write the diode equation and explain each term. Explain the effect of temperature in diodes. (5)

3 Compare the performance of CB, CE and CC configurations of a transistor. (5)

4 Explain the working of a UJT. (5)

5 Draw the circuit of a voltage doubler and explain its working. (5)

6 With a block diagram explain the working of an SMPS. (5)

7 What are Lissajous patterns? How the frequency and phase difference can be measured with Lissajous patterns? (5)

8 How the leads of a transistor can be identified by using a multimeter? (5)

PART B

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

MODULE I

9 a) Explain the construction and working of an electrolytic capacitor. (6)

b) Compute the value of capacitors coded as 103 and 4K. (4)

OR

10 a) Describe the working of an electromechanical relay. (6)

b) List the applications of various types of transformers. (4)

MODULE II

11 Draw the V-I characteristics of a diode and explain its working during forward and reverse biased conditions. (10)

OR

12 a) Differentiate between zener and avalanche breakdown. (5)

b) Explain the working of a Varactor diode. List its applications. (5)

MODULE III

13 Find the values of resistances R_1, R_2, Rc, Re for a voltage divider biasing circuit. Given Vcc=10V, Ic=1mA , β=100 and V_{CE}=50% of Vcc (10)

OR

14 Explain the input and output characteristics of an NPN transistor in common emitter configuration. (10)

MODULE IV

15 With a neat sketch explain the working and drain characteristics of an N-channel depletion type MOSFET. (10)

OR

16 Draw the structure of an SCR and explain its V-I characteristics. (10)

MODULE V

17 Draw the circuit and explain the working of a bridge rectifier. Derive the Irms, Idc and ripple factor of a bridge rectifier. (10)

OR

18 Explain the working of a negative clamping circuit. Draw a circuit to clamp a given 10Vpp sine wave negatively by -4V and also draw its input and output waveforms. (10)

MODULE VI

19 Draw the block diagram of a Digital Storage Oscilloscope. Explain how amplitude and frequency can be measured using a CRO. (10)

OR

20 a) Draw and explain the block diagram of a generalised instrumentation system. (6)

b) Define any four performance parameters of an instrument. (4)

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