

B.E. COMPUTER SCIENCE AND ENGINEERING FIRST YEAR SECOND SEMESTER -2018

Subject: **BASIC ELECTRONICS**

Time: 3hrs.

Full Marks: 100

Answer any five questions

1. How a p-n junction diode can act as a switch? Draw the circuit of a full wave Bridge rectifier and explain its operation. Calculate the efficiency and ripple factor of a full wave bridge rectifier. Also make a comparison between different rectifier circuits.

[4+5+8+3]

2. Explain with proper circuit that how clipping can be done at two independent levels of a sinusoidal wave. Explain the role of the reference voltage source. How this circuit is used to generate a square wave? How the slope of the transfer characteristics of the circuit can be controlled?

[8+4+4+4]

3. What is an ideal diode? Explain with a neat circuit the operation of a diode clamping. What happens at the output of the circuit when amplitude of input voltage suddenly changes? Draw its input output waveforms.

[2+8+6+4]

4. (a) How amplifiers can be classified? Make a comparison between Class A, class B, and class C amplifiers. Explain with a neat circuit the operation of a class A power amplifier.

(b) Draw a neat circuit of class B push pull amplifier and explain its operation. Mention some of its advantage and disadvantages. How drawbacks of this circuit can be overcome by using class B complementary symmetry push pull amplifier?

[(2+4+4)+(4+2+4)]

5. Draw a neat circuit of 2 stage R-C coupled amplifier and explain its operation. Draw its gain frequency response and explain why gain falls at low and high frequency region of operation?

[10+3+7]

6. Make a comparison between Bipolar Junction Transistor (BJT) and a Field Effect Transistor (FET). Draw the structure and explain the operation of an enhancement type p-channel MOSFET. What is complementary MOS and mention its application.

[5+8+7]

7. Draw the basic building blocks of a dc regulated power supply and explain the function of each block. Explain with a neat schematic the operation of a series voltage regulator

[Turn over

and make a comparison between a series voltage regulator and a shunt voltage regulator.

[6+10+4]

8. Write notes on any two of the following:

[10×2=20]

(a) 2 stage Transformer coupled amplifier.

(b) Operation of SCR and its turn off mechanism.

(c) Different types of Electronic displays.