JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY-2008

II B.TECH II SEMESTER SUPPLIMENTARY EXAMINATIONS
BASIC ELECTRONICS
(METALLURGY & MATERIAL TECHNOLOGY)

AUG/SEP 2008

TIME:3HOUR
MARK:80

ANSWER ANY FIVE QUESTIONS ALL QUESTIONS CARRY EQUAL MARKS.

MARK [16*5=80]

1. (a) Explain how the diode works as a switch.

(b) With the help of neat circuit diagram explain the operation of bridge rectifier. Giv two advantages of the bridge rectifier over full wave rectifier with centre tapped transformer.

2. (a) Draw a simple transistor amplifier circuit and explain the working of it.

(b) Draw the equivalent diagram of SCR with two transistors and hence explain the operation of SCR.

3. (a) CE configuration is supposed to be versatile configuration among the three configurations. Give reasons. What is the special feature of CC configuration?

(b) Define positive feed back. What is the relation between Af (gain with feed back) and A(gain without feed back).

4. (a) Draw the block diagram of timer system. Briefly explain the constituents of industrial timing circuits.

(b) Briefly explain all types of resistance welding.

5. (a) Explain the theory of induction heating by taking an example of cylindrical metal piece. Draw the Graph showing the variation of eddy current density with distance from the metal surface.

(b) Discuss different types of losses observed in dielectric heating.

6. (a) Explain magnetic deflection system employed for deflecting the beam in C R O. Derive the expression for magnetic deflection sensitivity.

(b) Explain the need of coating the screen with fluorescent materials and list different fluorescent materials commonly used.

7. (a) Explain clearly with neat sketch the working principle of potentiometric type accelerometer.

(b) How platinum resistance thermometer can be used to measure the temperature.

8. (a) Give the methods of generating ultrasonic waves and explain any one of the method.

(b) Give the necessary block diagram and explain the working of pulsed echo ultrasonic flow detector.