KUMARAGURU
college of technology
character is life

Register Number: …….

**B.E DEGREE EXAMINATIONS: JUNE 2015**

(Regulation 2013)

Second Semester

**ELECTRONICS AND INSTRUMENTATION ENGINEERING**

U13EIT201: Electronic Devices

**Time: Three Hours** **Maximum Marks: 100**

**Answer all the Questions:-**

**PART A (10 x 1 = 10 Marks)**

1. A pn junction is formed by……..
   a) The recombination of electrons and holes
   b) ionization
   c) the boundary of an p-type and an n-type material
   d) the collision of a proton and neutron
2. D.C resistance of a diode means …….. resistance.
3. Transistor is a……..
   a) Bipolar Device
   b) Unipolar Device
   c) Voltage Regulator
   d) Constant Voltage Source
4. In a CE transistor configuration, if $I_C$ = 25 mA, $I_B$ = 2 mA, $I_E$ is …….. mA.
5. The drain terminal in JFET is similar to ……..
   a) Emitter
   b) Collector
   c) Base
   d) Substrate
6. The relaxation oscillator using UJT which is meant for generating…….. waveform.
7. Light energy,W transmitted in photo diode is …….
   a) W = hf
   b) W = h/f
   c) W = $h^2$f
   d) W = f/h

8. Exit sign can be designed using ……..

9. A forward biased Zener diode behaves as a ……..

   a) Tunnel diode  b) Schottky diode

   c) no dioded properties  d) Ordinary diode

10. Thermistor uses…….. temperature coefficient.

**PART B (10 x 2 = 20 Marks)**

**(Not more than 40 words)**

11. What happens to the barrier potential when the temperature increases?
12. Define Recovery time.
13. What are the different configurations of BJT?
14. Derive the relationship between α and β of a transistor.
15. Define Transconductance.
16. What is a MOSFET?
17. State photo conductive effect.
18. List the three advantages of LCD.
19. What is tunnel diode?
20. Differentiate PUT and UJT.

**PART C (5 x 14 = 70 Marks)**

**(Not more than 400 words)**

**Q.No. 21 is Compulsory**

21. Explain the Input and Output characteristics of Common Emitter Configuration with neat diagram.

22. a) Describe the action of PN junction diode under forward bias and reverse bias condition.

**(OR)**

b) (i) Explain the transition capacitance $C_T$ and diffusion capacitance $C_D$ of a diode. (7)

(ii) Draw the Switching Characteristics of a PN junction diode and explain in detail. (7)

23. a) With the help of neat sketches and characteristic curves explain the operation of the JFET.

**(OR)**

b) Draw the equivalent circuit of UJT and explain its operation with the help of emitter characteristics.

24. a) (i) With output characteristics, explain how phototransistor responds to the incident light. (8)

(ii) Compare the working principle of LED with solar cell. (6)

**(OR)**

b) (i) Describe the operation of optocoupler. (8)

(ii) Write short notes on seven segment display. (6)

25. a) Draw the equivalent circuit of an SCR. Explain the characteristic curves of an SCR.

**(OR)**

b) Describe the characteristics of a zener diode and analyze its operation.

**********