PARUL UNIVERSITY
FACULTY OF APPLIED SCIENCE
B.Sc., Summer 2017-18 Examination

Semester: 3   Date: 26/05/2018
Subject Code: 11104201   Time: 10:30 am to 1:00 pm
Subject Name: Electronics   Total Marks: 60

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1. A) Essay type (Each of 04 marks)   **(08)**
   (a) Write a short note on Energy Bands in Solids
   (b) Explain Fermi level of intrinsic Semiconductor.

Q.1. B) Answer the following questions (Any two)
   (a) Short note (Each of 02 marks)   **(04)**
      1. Write a short note on Donor and Acceptor Impurity.
      2. Write a short note on Dependence of Fermi level on donor and acceptor concentration.
   (b) Explain Carrier density and Fermi level in extrinsic semiconductor.   **(04)**
   (c) Write a short note on Drift and Diffusion current.   **(04)**

Q.2. A) Answer the following questions.
   (a) Short note. (Each of 02 marks)   **(04)**
      1. Define the terms barrier potential and transition capacitance
      2. Write difference between zener and avalanche breakdown.
   (b) Write a short note on zener diode.   **(04)**

Q.2. B) Answer the following questions (Any two)
   (a) Short note/ Multiple choice questions.   (Each of 01 marks)   **(03)**
      1. Draw circuit symbol of zener diode.
      2. What is the unit of diode resistance?
      3. Write a full form of LED.
   (b) Explain load line.   **(03)**
   (c) Write a Short note on diode resistance.   **(03)**

Q.3. A) Essay type (Each of 04 marks)   **(08)**
   (a) Explain Forward bias of PN junction diode.
   (b) Derive the equation of current across PN Junction diode.

Q.3. B) Answer the following questions (Any two)
   (a) Short note (Each of 02 marks)   **(04)**
      1. What is the use of clamping circuit?
      2. Write at least two materials used for making LED.
   (b) Write a short note on Full wave Rectifier.   **(04)**
   (c) Write a Short note ripple factor and rectification efficiency.   **(04)**

Q.4. A) Answer the following questions.
   (a) Short note. (Each of 02 marks)   **(04)**
      1. Draw Circuit Symbol of AND logic gate and write its truth table
      2. Draw Circuit Symbol of XOR logic gate and write its truth table
   (b) Explain any one clipping circuit.   **(04)**

Q.4. B) Answer the following questions (Any two)
   (a) Short note. (Each of 01 marks)   **(03)**
      1. State De-Morgan Theorem.
      2. NOT gate also works as _____
      3. What do you mean by digital signal?
   (b) Explain Minterms and Maxterms   **(03)**
   (c) Write a short note on Sum of Products.   **(03)**