

Council for Technical Education and Vocational Training  
Office of the Controller of Examinations  
Sanothimi, Bhaktapur  
Regular/Back Exam-2078, Kartik/Mangsir

Program:	Diploma in IT/Computer Engineering	Full Marks: 80
Year/Part:	III/I (2016, 2018 New Course)	Pass Marks: 32
Subject:	Electronic Devices and Circuits	Time: 3 hrs.

*Candidates are required to give their answers in their own words as far as practicable.  
The figures in the margin indicate full marks.*

**Attempt Any Five questions.**

1. a) Define resistor and capacitor. Find the resistance value of following color code. [4+4]
  - i. Red, Green, Blue, Gold
  - ii. Yellow, Gray, Red, Silver
- b) Define extrinsic semiconductor device. Briefly explain how depletion region is formed and how barrier potential is developed in a junction diode. [2+6]
2. a) List out the different equivalent diode models with figure. Briefly explain about the VI characteristics of a PN junction diode in forward biased mode. [4+4]
- b) Explain the principle of operation of zener diode in the reverse breakdown region with clear diagram [8]
3. a) Define rectifier. Explain the working principle of half-wave rectifier with clear diagram. [2+6]
- b) Define BJT. Explain the input and output characteristics of CC configuration amplifier with necessary diagram. [2+6]
4. a) Explain the construction and working principle of N-channel MOSFET in detail. [8]
- b) Explain the characteristic of class A amplifier with clear diagram. [8]
5. a) Explain about LED and LDR in brief. [4+4]
- b) Explain the construction of SCR and its characteristics in detail. [4+4]
6. Write short notes on : **(Any Four)** [4x4]
  - a) Triode
  - b) Thermistor
  - c) UJT
  - d) Multi-vibrator
  - e) NPN Transistor
  - e) Types of Capacitor

**Good Luck !**