

Daffodil International University Department of Computer Science and Engineering

Faculty of Science & Information Technology

Midterm Exam Examination, Fall 2020 @ DIU Blended Learning Center

Course Code: CSE224 (Day), Course Title: Electronic Devices and Circuits

Level: 2 Term: 2 Section: R-1

Instructor: FR Modality: Open Book Exam

Date: Sunday 11 November, 2020 Time: 02:00pm-06:00pm

Four hours (4:00) to support online open/case study based assessment Marks: 25

Directions:

- Students need to go through the CASE STUDY shown in this exam paper.
- Analyze and answer specific section based on your own thinking and work.
- Do not share as this will be treated as plagiarism by Blended Learning Center.
- **01.** a) What is PIV? Describe the I-V characteristics of the PN junction. **05**
 - b) Describe the Forward and Reverse Biasing of the PN junction.
- 02. a) What is semiconductor diode? Explain basic operation of half wave and full wave 3+3+4 rectifier with neat and clean sketch.
 - b) An a.c. supply of 230 V is applied to a half-wave rectifier circuit through a Transformer of turn ratio 20: 1. And the diode resistance is 10 ohm. Find (i) the output d.c. voltage and (ii) the peak inverse voltage (iii) Power consumption across the diode.

c)

- a. For the network of Fig. 2.119, determine the range of R_L and I_L that will result in V_{RL} being maintained at 10 V.
- b. Determine the maximum wattage rating of the diode.



- a) Describe the naming of the transistor.
- 03.
- b) What is ripple factor? A Zener diode has VZ = 12 V. The voltage across the load stays at 12 V as long as IZ is maintained between 200 mA and 2 A. Find the value of series resistance R so that E0 remains 12 V while input voltage Ei is free to vary between 20 V to 22 V.
- c) The four diodes used in a bridge rectifier circuit have forward resistances which may be considered constant at 10Ω and infinite reverse resistance. The alternating supply voltage is 230V r.m.s. and load resistance is 490 Ω . Calculate (i) dc load current and (ii) power dissipated in each diode (iii) dc output voltage (iv) PIV.