

**PARUL UNIVERSITY**  
**FACULTY OF ENGINEERING & TECHNOLOGY**  
**M.Tech. Summer 2018 - 19 Examination**

**Semester: 2****Subject Code: 203212184****Subject Name: Hardware Board Design With PCB Routing****Date: 13/05/2019****Time: 10:30 AM TO 1:00 PM****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) Explain various versions of USB with its specifications. (05)  
B) Explain SPI interfacing with detail Pin description. (05)  
C) Discuss Advantages & Disadvantages of Printed circuit Board (PCB). (05)
- Q.2 Answer the following questions.** (Attempt any three) (Each five mark) (15)  
A) Discuss High Speed PCB Layout Techniques.  
B) Discuss FPGA Architecture.  
C) Explain various types of Passive Components.  
D) Discuss types of SMD components with specification.
- Q.3** A) Explain Concept of DFM & DFT in hardware board design. (07)  
B) Explain the Electronic product design cycle in details. (08)
- OR**
- B) What is a Ground Loop? Discuss Concept of Ground Loop. How Ground Loops be eliminated? (08)
- Q.4** A) Explain component selection process in board design flow. (07)
- OR**
- A) Design variable DC power supply of +12 V to -12 V without using IC packages. (07)  
B) Explain Process design flow for Gerber file generation in hardware board design. (08)