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## MANIPAL INSTITUTE OF TECHNOLOGY Manipal University



## FOURTH SEMESTER B. Tech. (E & C) DEGREE END SEMESTER EXAMINATION MAY/JUNE 2016

## **SUBJECT: Electronic product design and packaging (ECE - 3282) TIME: 3 HOURS** MAX. MARKS: 50 Instructions to candidates Answer ALL questions. • Missing data may be suitably assumed. 1A. Explain with neat block diagram, Product Planning Process? 1B. What is ergonomics? Draw and Explain the chart of ergonomics? 1C. Define reliability in product design and its types? With neat graph explain failure rate curve? (5+3+2)2A. With neat diagrams, explain important parameters to be considered while designing a heat sink? 2B. What is the significance of TIM in connection to heat sinks? Briefly explain any two TIM? What is liquid cooling Explain with diagrams? State disadvantages associated with it? 2C. (5+3+2)3A. Explain different levels of packaging techniques briefly? Describe the chip making process from wafer to testing with neat block diagram? 3B. 3C. What is electronic packaging? List its major functions? (5+3+2)4A. What do you mean by design for electromagnetic compatibility? Explain? 4B. Explain noise path with neat block diagram? 4C. What is noise in electronic systems? How can they be grouped? What is grounding? Explain different ground systems with suitable expressions and diagrams. 5A. Mention their advantages and disadvantages? Explain the TAB packaging in detail with neat diagram? 5B. 5C. What are the advantages and disadvantages of C4 bounding method?