MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL (A constituent unit of MAHE, Manipal)

FOURTH SEMESTER B.Tech. DEGREE END SEMESTER EXAMINATION **APRIL 2018**

Reg. No.

SUBJECT: ELECTRONIC PRODUCT DESIGN AND PACKAGING (ECE - 3282)

TIME: 3 HOURS

Instructions to candidates

- Answer ALL questions. Missing data may be suitably assumed. •
- 1A. With the help of a neat diagram explain the steps involved in Product design process.
- Why is heat sink needed in electronic product design? Explain any two types of heat sink. 1B.
- 1C. Explain Industrial control panel design.

2A. What is aesthetics and ergonomics? What are their roles in product design? Explain in detail.

- 2B. Explain different parameters to be considered while designing a heat sink.
- For a given system if T_c max=95°C, T_a=25°C and power dissipation is 100W. What is the thermal 2C. resistance? Also draw the thermal circuit for a system with heat sink.

(5+3+2)

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- 3A. What is product detailing? What are the different tools and techniques used for product detailing?
- Explain the TAB packaging in detail with neat diagram? 3B.
- 3C. What are the advantages and disadvantages of C4 bonding method?
- Briefly explain different levels of packaging techniques. 4A.
- 4B. Write a note on ribbon cables along with their configurations.
- What is Shielding? What are near and far fields? 4C.
- With neat block diagram, explain the chip making process from wafer to testing. 5A.
- 5B. With necessary diagrams, explain two methods of noise coupling.
- 5C. What is digital noise? List the sources of digital noise.

ECE - 3282

(5+3+2)



MAX. MARKS: 50