Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

V SEMESTER BTECH. (E & C) DEGREE END SEMESTER EXAMINATION
DECEMBER 2021-JANUARY 2022
SUBJECT: ELECTRONIC PRODUCT DESIGN AND PACKAGING (ECE -4303)

TIME: 75 minutes **MAX. MARKS: 20M**

Instructions to candidates

- Answer **ALL** questions.
- Missing data may be suitably assumed.

Q. No.	Questions	Marks
1A.	Discuss different modes of heat transfer with necessary equations. A silicon chip has a thermal conductivity(k=150W/m.K). and width of W=5mm on a side and of thickness t=1mm. The chip is mounted in a substrate such that its side and back surfaces are insulated while the front surfaces is exposed to a coolant. If 4W power is being dissipated in the circuit mounted on the back surface of the chip what is the steady state temperature difference between back and front surfaces	**4M**
1B.	Develop an electronic product with its block diagram. Explain the implications of skipping a particular stage in the product development. Frame the objectives and explain the methodology.	**3M**
1C.	Explain different types of Electromagnetic interferences and its effects over the Electronic circuits. Choose suitable methods to reduce the effects of EMI.	**3M**
2A.	Discuss different levels of electronic packaging. Give the design considerations with the packaging materials	**4M**
2B	Develop a flow chart for a multi-layer PCB with 4 layers. Explain plating and grounding track in PCB with diagrams	**3M**
2C.	Classify different types of noise and explain its effect in electronic signal processing. Explain the methods used for noise elimination.	**3M**