Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

MANIPAL

(A constituent unit of MAHE, Manipal)

V SEMESTER BTECH. (E & C) DEGREE END SEMESTER EXAMINATION
MARCH 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 conduction, convection and radiation in heat transfer with necessary equations. A surface area of $0.5m^2$, emissivity 0.8 and temperature of 150°C is placed in a large evacuated chamber whose walls are maintained at 25°C. calculate the rate at which radiation is emitted by the surface. Also find the net rate at which radiation is exchanged between the surface and the chamber walls.	**4M**
1B.	Discuss reverse engineering and redesign development process for a proto type xerox machine with block diagram. illustrate additional features for making it more user friendly with android version .	**3M**
1C.	Explain the cause and effects of electromagnetic interference over medical instruments. choose suitable methods to nullify EMI.	**3M**
2A.	Discuss flip chip packaging technics in IC manufacturing. give the design considerations. explain with diagrams the steps of wafer bumping technology for its internal connectivity.	**4M**
2B	Draw the artwork for a multilayer PCB. explain the process starting from circuit diagram.	**3M**
2C.	Discuss how noise is coupled from source to victim in electronic circuits. explain the methods used for noise elimination with necessary diagrams.	**3M**