MANIPAL INSTITUTE OF TECHNOLOGY
Manipal University

FIFTH SEMESTER B.TECH (E & C) DEGREE END SEMESTER EXAMINATION
NOV/DEC 2015
SUBJECT: ELECTRONIC SYSTEM DESIGN (ECE- 327)

TIME: 3 HOURS   MAX. MARKS: 50

Instructions to candidates
- Answer **ANY FIVE** full questions.
- Missing data may be suitably assumed.

1A. Discuss conduction and convection type of heat transfer mechanisms with necessary equations.

1B. What are the primary mechanisms of electromagnetic couplings between various parts of an Electronic system?

1C. Discuss popcorn effect in surface mounting components.

(5+3+2)

2A. List the main steps in the production of double sided plated through-hole PCB's. Compare its merits and demerits with the single sided and multilayer PCB's.

2B. A two terminal network which has an unknown internal circuit is investigated by measuring its output Voltage when connected to different loads. It is found that when a resistance of 25Ω is connected, the output voltage is 2V and when the load of 400Ω is connected, the output Voltage is 8V. Determine the Thevenin's and Norton's Equivalent circuits of the circuit.

2C. Discuss the typical cleaning steps used for manufacturing PCB.

(5+3+2)

3A. Give the characterization chart of Microsoft product Development process. Compare its flow with Raychem corporation.

3B. With neat circuit diagram explain the working of instrumentation Amplifier.

3C. Draw the transfer characteristics of Operational trans conductance Amplifier (OTA).

(5+3+2)

4A. Discuss the Wireless mobile phone bacteria sensing system. Give the fabrication steps of micro sensor. Draw the Nyquist plots for concentration measurements.

4B. Explain the effects of various noise signals on analogue and digital circuits. Give the remedies to overcome it.

4C. Draw the internal circuit of a torch light. A 6V battery with a capacity of 2Ah is used to energize a torch light rated at 1.2W if the torch light is turned on how long it will last.

(5+3+2)

5A. Explain Czochralski method of crystal growing system. Compare its merits and demerits with other system.

5B. Discuss Electronic solders and their melting behavior graphically.

5C. Draw a cubic unit cell and identify <100> and <111> crystal planes.

(5+3+2)

6A. Discuss the laser soldering technique using a twin beam Nd: YAG laser soldering machine. Explain its need with other methods in surface mounting devices.

6B. Explain various inspection methods to detect the quality of system design.

6C. A coil is formed by winding 500 turns of wire onto a nonmagnetic toroid that has a mean circumference of 400mm and has a cross sectional area of 300 mm^2 .if the current in the coil is 6A, calculate the magnetic field strength within the coil and the magneto motive force.

<div align="right">(5+3+2)</div>