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B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

February / March 2023 Semester End Main Examinations

Programme: B.E. **Semester: V**
Branch: Electronics and Instrumentation Engineering **Duration: 3 hrs.**
Course Code: 19EI5PE2PT **Max Marks: 100**
Course: Product Design Technology **Date: 01.03.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

1 a) Describe the composition, cores and layers stack up for a basic PCB, multicore outer clad six-layer PCB. **10**

b) Elaborate on the functions of OrCAD Layout in the PCB Design Process. **10**

UNIT - II

2 a) Discuss the manual board routing /editing mode tools and other indicators and controls available in Layout. **10**

b) Explain the classification and Types of PCB depending on performance, fabrication and assembly types and on land pattern density levels. **10**

OR

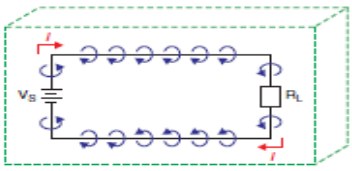
3 a) Bring out a summary of new project design flow and its options in OrCAD capture. Also, discuss the types of OrCAD libraries available. **10**

b) Describe the registration, break out and annular ring control tolerances and standard board panel sizes of PCB. **10**

UNIT - III

4 a) Describe the manual and reflow soldering process of mounting components on a PCB with neat schematic. **08**

b) **12**



Relate to diagram shown and deliberate how to provide a low-impedance return path for power and signal lines and reduces unwanted cross talk to nearby conductors.

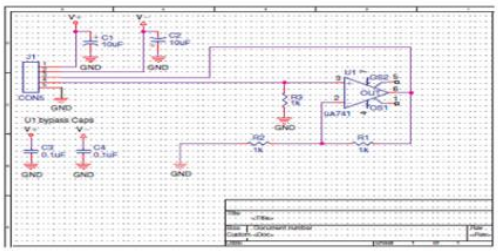
OR

5	a)	Discuss the guidelines for component placement and orientation guidelines.Also component spacing for integrated circuit through hole devices.	**12**
	b)	Suggest a solution to overcome the problem of digital noise being injected into analog circuitry through the supply planes.	**08**

UNIT - IV

6	a)	Explain the types of packing, pins types and their attributes when making parts in capture.	**10**
	b)	Describe the steps for basic footprint design process using layout.	**10**

UNIT - V

7	a)		**10**

For the analog circuit shown,discuss steps to set up the design in capture and generate a .MNL file for layout.

	b)	Discuss the steps for generating Bill of Materials for a given PCB design which is post processed using ORCAD.	**10**

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