

(Time: 3 Hours)

[Total Marks: 80]

- N.B:** (1) Question No.1 is compulsory.  
 (2) Solves any three out of remaining question.  
 (3) Assume suitable data if necessary.

- Q.1** Solve any Four
- a. State the phases of new product development. 05
  - b. What are the metrics in software designing? 05
  - c. What is shielding? Explain with neat diagram. 05
  - d. State clearly the limitations and advantages of the Spiral model in EPD. 05
  - e. What is the difference between active and passive component. 05
- Q.2**
- a. Design the front panel of a function generator by taking care of ergonomics and aesthetic design considerations. 10
  - b. Explain the concept of coupling and cohesion. 10
- Q.3**
- a. Explain the V Cycle model with all the steps and proper justification. 10
  - b. What is the need of PCB testing? Explain the following methods of PCB testing in details:- 10
    - i) In-circuit testing
    - ii) Functional testing
    - iii) Boundary scan testing
    - iv) Complex board testing
- Q.4**
- a. What is the role of characterization in case of debugging and troubleshooting? 10
  - b. Explain how mapping of functions to hardware is done in architectural design. 10
- Q.5**
- a. Write the checklist for developing effective Manuals for the international Market. 10
  - b. How to handle EMI/EMC issues in an Electronic Product? 05
  - c. Explain the need of ESD Protection in PCB Designing. 05
- Write short note on (any four)
- Q.6**
- a. Different grounding methodologies 05
  - b. Need of Prototyping 05
  - c. Black box testing and white box testing 05
  - d. Different types of termination methods used in PCB designing 05
  - e. Different software models with advantage and disadvantage 05

\*\*\*\*\*