



C14-EC-505

4631

BOARD DIPLOMA EXAMINATION, (C-14)

MARCH / APRIL - 2019

DECE - V SEMESTER EXAMINATION

**ELECTRONIC PRODUCT DESIGN & QUALITY
ASSURANCE**

Time : 3 Hours]

[Total Marks : 80

PART - A

3×10=30

Instructions :

- (1) Answer **ALL** questions.
- (2) Each question carries **THREE** marks.
- (3) Answer should be brief and straight to the point and shall not exceed five simple sentences.

- 1 Classify the electronic product.
- 2 List the types of power supply protection devices.
- 3 Compute reliability of component when the time of operation equals the mean time to failure (MTTF).
- 4 Define Parasitic Capacitance.
- 5 Describe two types of high speed EMI reduction methods in PCB design.
- 6 List the signal Integrity issues.
- 7 What are the applications of Logic Analyzer.
- 8 Define Random Testing.
- 9 Define the concept of Environmental Testing.
- 10 What are the contents of test report and manuals.

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PART - B**10×5=50**

- Instructions :**
- (1) Answer any **FIVE** questions.
 - (2) Each question carries **TEN** marks.
 - (3) Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer.

- 11** Explain the Ergonomics and Aesthetic consideration of pilot production. **5+5**
- 12** Explain the variation of failure rate of a component using bath tub curve.
- 13** Describe the component mounting considerations of a PCB.
- 14** (a) Explain the recommendation for decoupling or bypassing. **6+4**
(b) A parallel plate capacitor has capacitance $c = (\epsilon_0 \epsilon_r A) / d$. Find the area(A) required to form a capacitance of 2.2pf if 'd' of the plate separate is 1.6 mm and 'er' for PCB laminate is about 6.
- 15** Explain the use of Digital Storage Oscilloscope in testing.
- 16** Explain about Temperature Cycling.
- 17** Explain UL Certification of Industrial Electronic Products.
- 18** Explain the details of Service Manual.