

01055

**DIPLOMA - VIEP - ELECTRONICS &  
COMMUNICATION ENGINEERING - III SEM  
(DECVI) / ADVANCED LEVEL CERTIFICATE  
COURSE IN ELECTRONICS &  
COMMUNICATION ENGINEERING (ACECVI)**

**Term-End Examination**

**June, 2012**

**BIEL-026 : Dip - ECE PCB Design & Testing**

*Time : 2 hours*

*Maximum Marks : 70*

*Note : (i) Attempt five questions in all. Question 1 is compulsory.*

*(ii) All question carry equal marks.*

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1. (a) The total time spent in layout design and art work preparation is 40% of layout sketch design. [True / False] **2x7=14**
- (b) The fundamental rule for any circuit is  $W_{ground} < W_{supply} < W_{signal}$  [True/ False]
- (c) A rough approximation for the capacitance is  $C = 0.886 \epsilon_r \frac{A}{b}$  [PF] [True/ False]
- (d) It is good practice to utilise the board area not more than 95% and to provide at least 5% area for later modification. [True/ False].
- (e) Underetching can be minimised by keeping the etching time as long as possible. [ True/ False ].

- (f) The corrosiveness of cupric chloride is
- (i) Low
  - (ii) High
  - (iii) Medium
  - (iv) None
- (g) The advantage of using solder mask :
- (i) Avoid solder bridging
  - (ii) Repair work easy
  - (iii) No need to verify compatability
  - (iv) None
2. (a) Explain the board size constraints in the design of PCB. **7x2=14**
- (b) Explain the layout sketching with 'Puppets'.
3. (a) What are the various types of PCB materials ? Explain. **7x2=14**
- (b) Explain the mechanical and electrical consideration in the layout check of PCB.
4. With the help of block diagram explain the layout and artwork generation process. Also give the limitation for manual designing. **14**
5. Explain the underetching and Over hang with the help of diagram. Also define etch factor. **14**

6. (a) Explain the process of mass soldering used in PCB design. 7x2=14  
(b) What are the disadvantages of using a solder mask ?
7. Explain the PSPICE and Multi sim software used to simulate the circuit of PCB. 14
8. Write short notes on *any four* : 3.5x4=14
- (a) Simulink
  - (b) Package density
  - (c) Inductance of PCB conductors
  - (d) Mass soldering
  - (e) Solder bath test
  - (f) Optimising Ethant Economy.
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