

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

00657

Term-End Examination

June, 2014

BIEL-026 : PCB DESIGN AND TESTING

Time : 2 hours

Maximum Marks : 70

*Note : Question no. 1 is compulsory. Answer any four
from the rest.*

1. Choose correct answer for questions (a) to (e) : $7 \times 2 = 14$
- (a) The thickness of the copper cladding on the laminated board material is always referred to by its
- (i) thickness per unit area
 - (ii) weight per unit area
 - (iii) energy per unit area
 - (iv) None
- (b) Three etching fluids in general use for P.C.B.'s are ferrite chloride, chromic acid and
- (i) ammonium sulphate
 - (ii) chlorine
 - (iii) ammonium persulphate
 - (iv) nitrate persulphate

- (c) The most common faults found on wave-soldering are missed joints, cracking and
 - (i) bridging
 - (ii) excess soldering
 - (iii) improper soldering
 - (iv) All the above
- (d) DIP stands for
 - (i) Do in-line package
 - (ii) Dimension in-line package
 - (iii) Data in-line package
 - (iv) Dual in-line package
- (e) Silicon resin boards are used mainly when low loss characteristics are required at
 - (i) low frequencies
 - (ii) high frequencies
 - (iii) medium frequencies
 - (iv) None of the above

Say true or false for questions (f) and (g) :

- (f) One great advantage of CAD for track routing is that the final output can be in the form of control tapes.
- (g) In general the artwork preparation takes 60% of time of layout sketch design.

- 2. (a) State the advantages of P.C.B.s. 7
- (b) Explain various P.C.B. materials used. 7
- 3. With neat block diagram explain a practical P.C.B. design flow. 14

4. Discuss briefly different etching methods used in PCB fabrication with reactions. 14
5. Define Soldering. What are all the equipments used in soldering ? Also explain the steps involved in soldering. 14
6. (a) Explain how PSpice can be used for simulating the P.C.B. circuit. 7
- (b) Discuss the steps for simulating a circuit design by using Multisim. 7
7. (a) Compare Artwork and Layout for PCB. 7
- (b) State the advantages of computer aided artwork over manual artwork. 7
8. Write short notes on any *four* of the following :
- $4 \times 3 \frac{1}{2} = 14$
- (a) IEEE symbols for any two passive components
- (b) Multilayer P.C.B.'s
- (c) Manual artwork
- (d) Proteus
- (e) Etching Solutions
- (f) Solderability
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