

Total No. of printed pages = 7

END SEMESTER EXAMINATION, NOVEMBER-2018

Semester – 5th

Subject Code : Et-508

PCB TECHNOLOGY

Full Marks – 70

Time – Three hours

The figures in the margin indicate full marks for the questions.

Instructions :

1. All questions of PART – A are compulsory.
2. Answer any *five* questions from PART – B.

PART – A

Marks – 25

1. Fill in the blanks : 1 × 10 = 10
 - (a) PCB is also called _____.
 - (b) PCB provides support for circuit components and interconnects the components _____.

[Turn over

- (c) The term single sided means that the insulating substrate contains circuit pattern only on _____ side.
 - (d) The double sided PCB are plated through holes and _____.
 - (e) The _____ camera is used when the artwork is of large size.
 - (f) In photo printing a _____ is used.
 - (g) The name of 'screen printing' is derived from printing through a _____.
 - (h) The photographic film consists of an _____ and base.
 - (i) The design and drafting consist of preparation of layout and preparation of _____.
 - (j) Corona is accomplished by loss of _____.
2. Write true or false : $1 \times 10 = 10$
- (a) A PCB consists of a sheet of a conducting material.

- (b) PCBs are classified according to their structure, number of layers and manufacturing techniques .
- (c) Special skill and tools are required for manufacturing MLBs.
- (d) The thickness of pre-preg varies from 17.5 mm to 70 mm.
- (e) A corona of reduction factor of 4 is most suitable.
- (f) The inking technique for generation of artwork of PCB is old, slow and cumbersome.
- (g) The dark room should be located in the PCB lab at a suitable place away from the direct sunlight.
- (h) A screen is used in screen printing.
- (i) There are four types of screen printing.
- (j) Corona can be reduced by increasing spacing between conductors.

3. Choose the correct answer : $1 \times 5 = 5$

(a) The dark room should be equipped with

(i) chemicals

(ii) photographic camera

(iii) oven for drying film

(iv) All of the above

(b) The mechanical properties of CCL are

(i) flexural strength

(ii) inflammability

(iii) bow and twist

(iv) All of the above

(c) The thickness of emulsion layer varies from

(i) 5-12 micro metres

(ii) 100-260 micro metres

(iii) 50-100 micro metres

(iv) None of the above

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(d) A camera of reduction factor is most suitable

(i) 4 (ii) 8

(iii) 12 (iv) 20

(e) In screen printing

(i) a screen is used

(ii) a laminator is used

(iii) a negative of artwork is used

(iv) All of the above.

PART - B

Marks - 45

4. (a) What are PCBs ? 2

(b) What are their uses ? 2

(c) Give a brief classification of PCB. 5

5. (a) Explain SSB (Single sided board) 3

(b) What are multilayer boards ? 3

(c) Mention few advantages of multi-layer boards. 3

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6. (a) What do you know about CCL (Copper clad laminates) ? 3

(b) What are the important ingredients of CCL (Copper clad laminates) ? 2

(c) Explain in brief the manufacturing technique of CCL (Copper clad laminates). 4

7. (a) What is an artwork in PCBs ? 2

(b) What are its importance ? 2

(c) Write short notes on artwork materials and tools. 5

8. (a) What is Photo processing ? Name the photographic material used in photographic film. 5

(b) Explain in brief the construction of film used in Photo processing. 4

9. (a) What do you mean by Photo printing ? 4

(b) Differentiate between Photo printing and Screen printing. 5

10. Name the various PCB fabrication methods and explain any one of them. 9

11. Enlist the etching technique and describe any two of them. 9

12. Draw a complete plan of a PCB lab. 9