DORSET INSTITUTE OF HIGHER EDUCATION

In Conjunction with

INSTITUTE OF CIRCUIT TECHNOLOGY

ADVANCED PRINTED CIRCUIT TECHNIQUES EXAMINATION

DESIGN, ARTWORK AND PHOTOGRAPHY

Answer FIVE Questions

Date: Friday, 16th May, 1980

\$ 10

Time: 9.30 a.m. - 12.00 noon

(a) In designing a board layout, what features govern the choice of plug and socket or edge connector?

(b) Explain the use of via holes and their production.

- (c) What width between tracks should be provided to more or less avoid cross-talk?
- (d) What is the optimum size pad on a 14-layer multi layer board for use with a hole of 0.032" diameter?
- (e) What is the minimum track width usable on a typical digital logic board?
- 2. Describe the basic features of the following items used in production of automated artwork:-
 - (a) Digitiser (b) Computer
 - (c) Visual Display Unit GRAPPICS T
 (d) Photo plotter

(Only details of how the item is involved in artwork production are required).

3. What response characteristics are needed for film for a Printed Circuit Master? Give detailed explanation of each desired characteristic.

What trade-offs have to be made in choosing a photographic process for high volume production at an economic cost?

4. Describe the basic features essential in a process camera.

Outline two methods of finding the focal length of a process lens.

State the standard equations, showing how u and v are related to magnification.

From the above, find the values of u and v when using an 18" lens to give a 20% (1/5 x original size) image.

- 1 -

Design, Artwork and Photography exam.

5. What are the major controls required for successful operation of the following Dry Film processes:-

- 2 -

- (a) lamination
- (b) exposure

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(c) developing

Detail the safety considerations involved with Dry Film Photoprinting.

6. Discuss the important features of the following items involved in screen printing:-

(a) mesh size
(b) mesh material
(c) frame
(d) printing machine

Give three important applications of screen printing in P.C.B. production, stating the typical widths and thicknesses of lines which can be provided by this method.

- 7. Compare and contrast manual and fully automated art work production techniques in as many ways as possible.
- 8. Compare and contrast screen-printing and photo-mechanical printing when applied to the production of P.T.H. boards. Take into account all stages involved in board production where either method may find application.

INSTITUTE OF CIRCUIT TECHNOLOGY DORSET INSTITUTE OF HIGHER EDUCATION DEPARTMENT OF SCIENCE AND MATHEMATICS

EXAMINATION RESULTS

ADVANCED PRINTED CIRCUIT TECHNIQUES COURSE (DESIGN, ARTWORK AND PHOTOGRAPHY) MAY, 1980

40% - Pass 60% - Credit 80% - Distinction * Prize awarded

NAME OF STUDENT

GRADE '

BARRY, J.G. BYRNE, E.J. * FLORY, J.R. HARKIN, L. HOLE, K.M. RICHARDS, J.D. ROSE, G.W.

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