

**THE UNITED REPUBLIC OF TANZANIA  
NATIONAL EXAMINATIONS COUNCIL  
CERTIFICATE OF SECONDARY EDUCATION EXAMINATION**

**084**

**ELECTRICAL DRAUGHTING  
(For Both School and Private Candidates)**

**Time: 3 Hours**

**Wednesday November 03, 2004 p.m.**

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***Instructions***

1. This paper consists of six questions.
2. Answer question number 1 and three others.
3. Question one (1) carries 40 marks and the rest 20 marks each.
4. Electronic calculators are not allowed in the examination room.
5. Cellular phones are not allowed in the examination room.
6. Write your Examination Number on every page of your answer booklet(s).

*This paper consists of 3 printed pages.*

1. Draw full size in third angle orthographic projection, the following views of the details shown in Figure 1 below.

- (a) Front elevation in direction of arrow T.
- (b) End elevation in direction of arrow S.
- (c) Plan view projected from view (a).

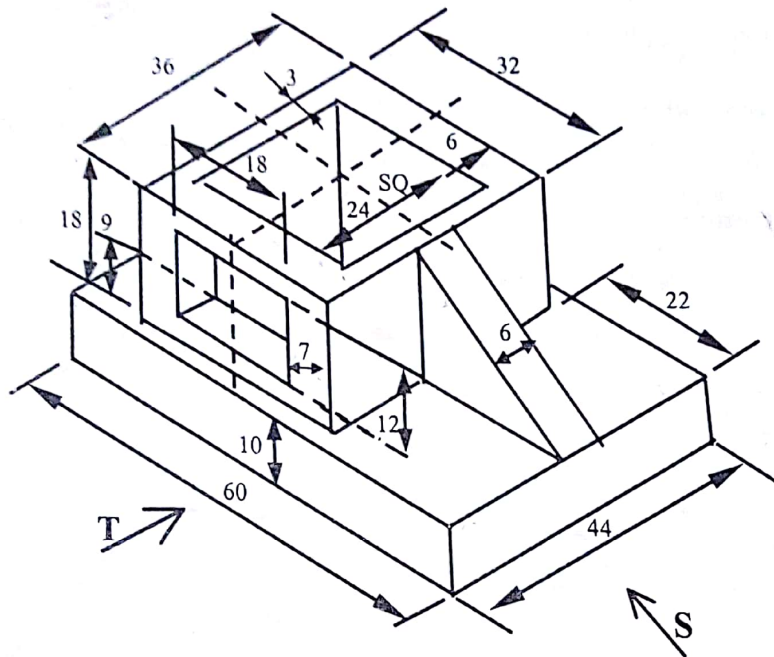


Fig. 1

- ✓ ② (a) List **three (3)** types of printed circuit boards (PCB).
- (b) State **two (2)** steps for manufacturing a PCB board.
- (c) Write down **three (3)** types of drawings used to manufacture a printed circuit board.

3. Sketch the symbols for the following electrical accessories:

- (a) Socket-outlet with earth.
- (b) One-way one-gang switch.
- (c) Two-way one-gang switch.
- (d) Junction box.
- (e) Incandescent lamp.

30 4.

(a)

Write down the hardness number codes for the following pencil hardness categories indicated in brackets :

- (i) Hard (five number codes).
- (ii) Medium (five number codes).
- (iii) Soft (six number codes).

(b)

State the category of pencil used for:

- (i) Lettering.
- (ii) Construction lines.
- (iii) Drafting.
- (iv) Drawing.

5.

The sketch shown below (Fig. 2) is a one-line diagram for a two-station control lighting scheme. Draw the functional diagram for the scheme.

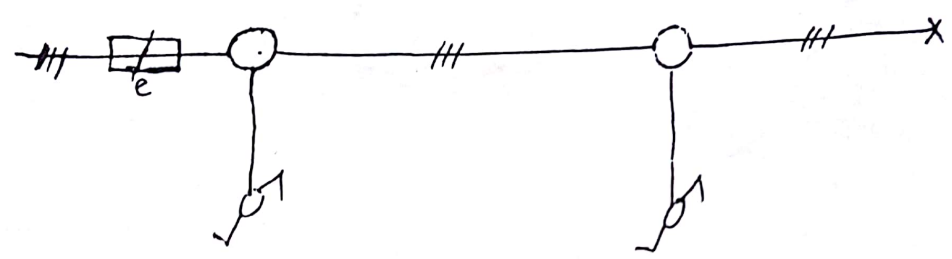


Fig. 2

6.

Give the description of each symbol shown in the table:

SYMBOL	DESCRIPTION
_____	
≡ ≡	
—○—	
≡ ≡	
≡ ≡	
≡ ≡	
—○—	