

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, 6th October 2010 p.m.

Instructions

1. This paper consists of six (6) questions.
2. Answer question number 1 and any other three (3) questions.
3. Question number 1 carries 40 marks while the other questions carry 20 marks each.
4. 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 4 printed pages.

Handwritten signature/initials

1. Draw the views from the directions indicated by the arrows S and T and plan view of the Figure 1. All drawings should be drawn clearly in a standard paper format.

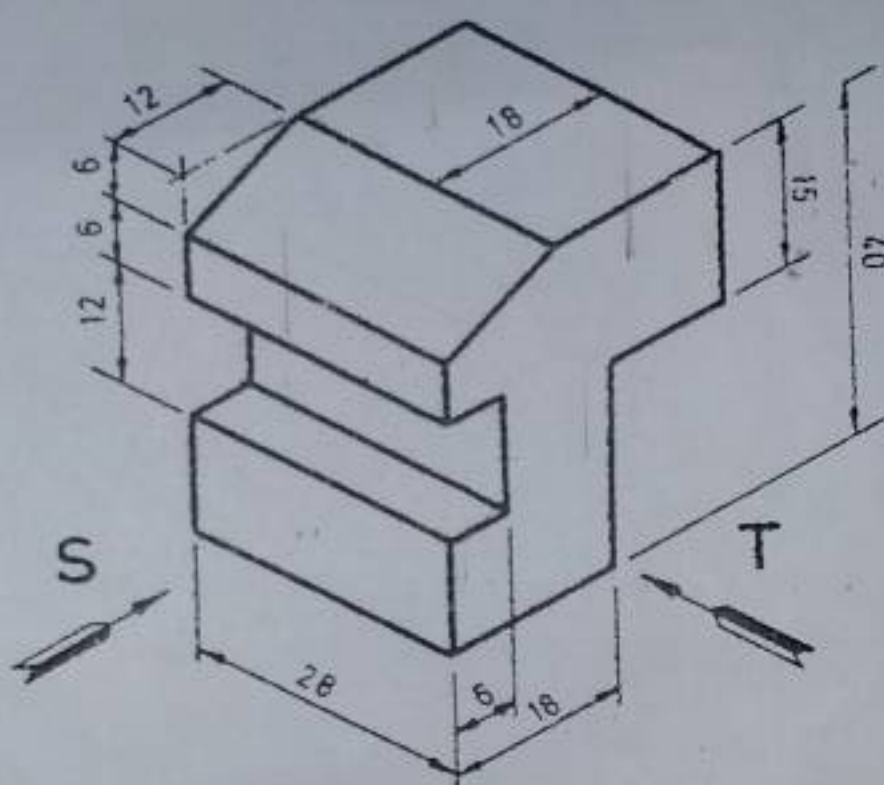


Figure 1

2. Draw a single line diagram of the distribution network for a room with the following circuits.
- Sauna heating (resistive heater) 7.5 kW, protected by 3 x 16 A, 5 x 1.5 mm², 6 m long.
 - Water heater 2.1 kW, protected by 1 x 16 A, 3 x 1.5 mm², 8 m long.
 - Socket outlets 3.3 kW, protected by 1 x 10 A, 3 x 1.5 mm², 10 m long.
 - Lighting installation 2.2 kW protected by 1 x 10 A, 3 x 1.5 mm², 10 m long.
- All cables are copper laid under plaster and protection is by miniature circuit breaker.

3. Study Figure 2 and then draw its block diagram.

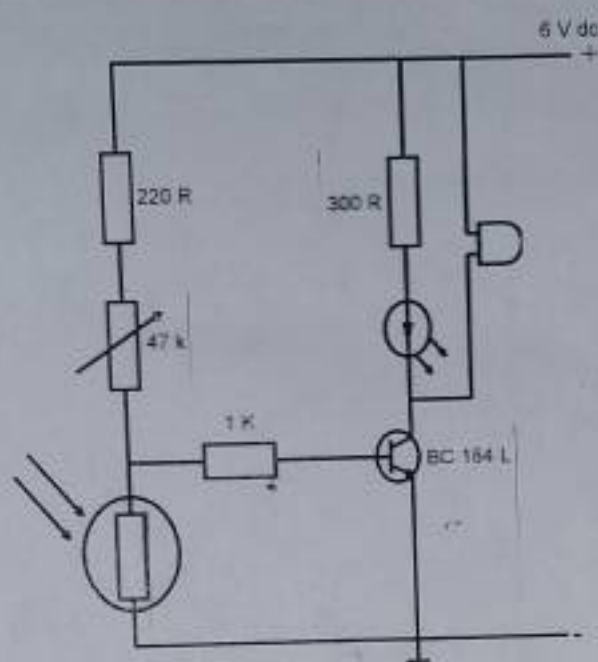


Figure 2

4. (a) Define the following terms
- Coherent or assembled representation
 - Decomposed or detached representation
 - Plan of installation
 - Electrical diagram
 - Electronic diagram
- (b) Sketch the symbols for the following electrical accessories and equipment.
- Spot light
 - Light fitting with two separate current paths
 - Resistive heater
 - Line protection circuit breaker
 - Single phase a.c energy meter



5. (a) What is the basic function of a printed circuit board?
(b) Name three (3) types of printed circuit boards.
(c) List five (5) steps in manufacturing a printed circuit board.
6. Sketch the correct symbols for the following electronic components.
- (i) NPN Transistor
 - (ii) XOR gate
 - (iii) NOR gate
 - (iv) Zener diode
 - (v) Inverter
 - (vi) AND gate
 - (vii) Buffer
 - (viii) Triac

