1521/104 1601/106
1522/104 1602/106
TRADE PRACTICE I
June/July 2017
Time: 8 hours

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205/P0/5097

THE KENYA NATIONAL EXAMINATIONS COUNCIL

CRAFT CERTIFICATE IN ELECTRICAL AND ELECTRONIC TECHNOLOGY
(POWER OPTION)
(TELECOMMUNICATION OPTION)

MODULE I

TRADE PRACTICE I

8 hours

INSTRUCTIONS TO CANDIDATES

*Each candidate will carry out **ALL** the exercises as directed by the examiner.*
Performance of each candidate will be assessed during and at the end of every exercise.
Candidates will dismantle their own work.
*No circuit should be connected to **POWER** without approval of the examiner*
All dimensions are in millimeters
All electrical installations must be carried out in accordance with relevant regulations and practice.
*All questions are **COMPULSORY**.*

This paper consists of 5 printed pages.

Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

1. Figure 1 shows a domestic PV solar installation system layout. The solar module and its equipment are pre-installed.

(a) Draw a wiring diagram
(b) Complete the wiring of the control gear in correct sequence
(c) Using PVC sheathed wiring system, install the circuit such that;
  (i) Two lamps L_1 and L_2 are controlled by two-two way switches S_1 and S_2 from the A.C supply.
  (ii) Lamp L_3 is controlled by a switch S_3 from the D.C. supply.
  (iii) The socket is wired from the C.C.U.
(d) Carry out continuity and insulations tests. (25 marks)

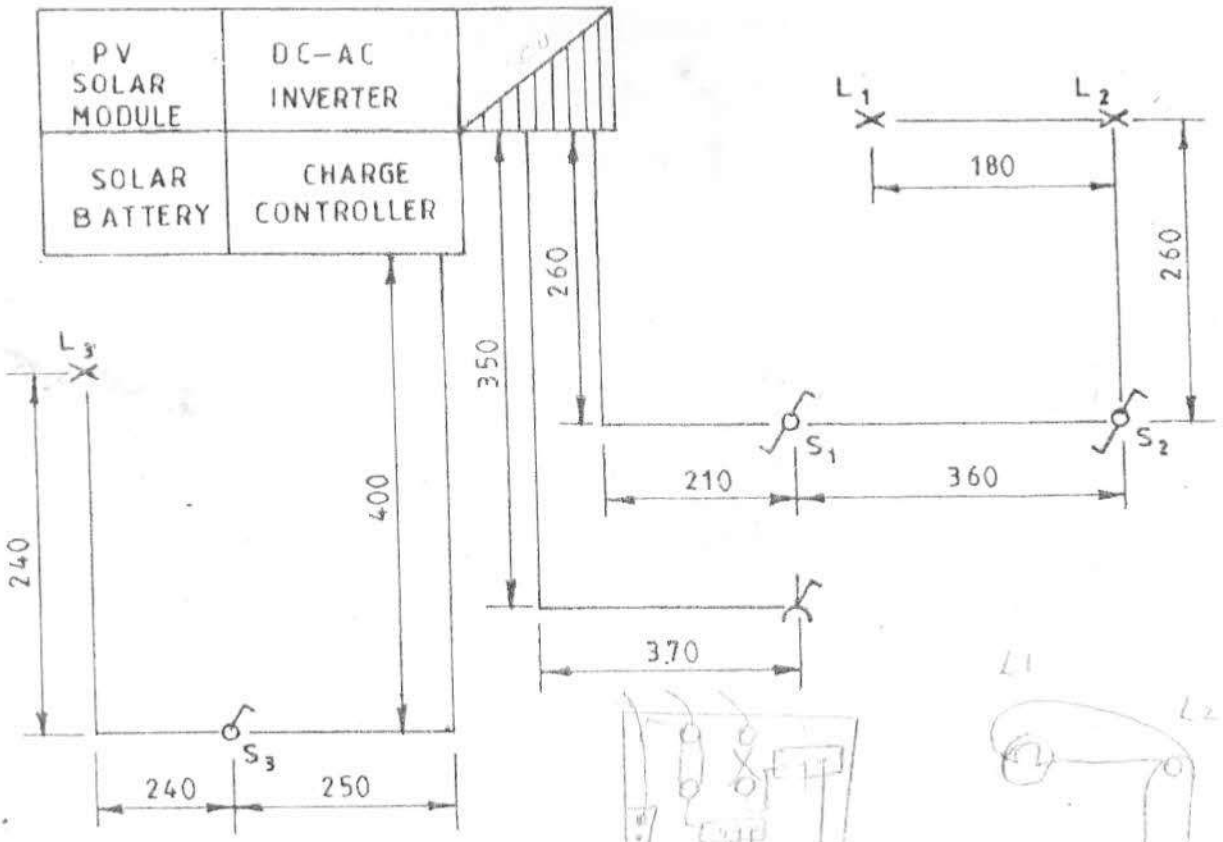


Fig. 1

2. Figure 2 shows the layout of control gear/equipment at consumers' intake point and two final circuits. The control gear and consumer units are pre-installed

(a) Draw a wiring diagram of the installation
(b) Complete the wiring of control gear at the consumer's intake point.
(c) Using PVC mini-trunking wiring system, install the:
  (i) Lighting circuit such that switch S_1 controls lamp L_1 and switch S_2 control lamp L_2.
  (ii) Cooker control unit
  (iii) Water heater switch

(d) Carry out the following tests:

  (i) Polarity
  (ii) Insulation resistance (25 marks)

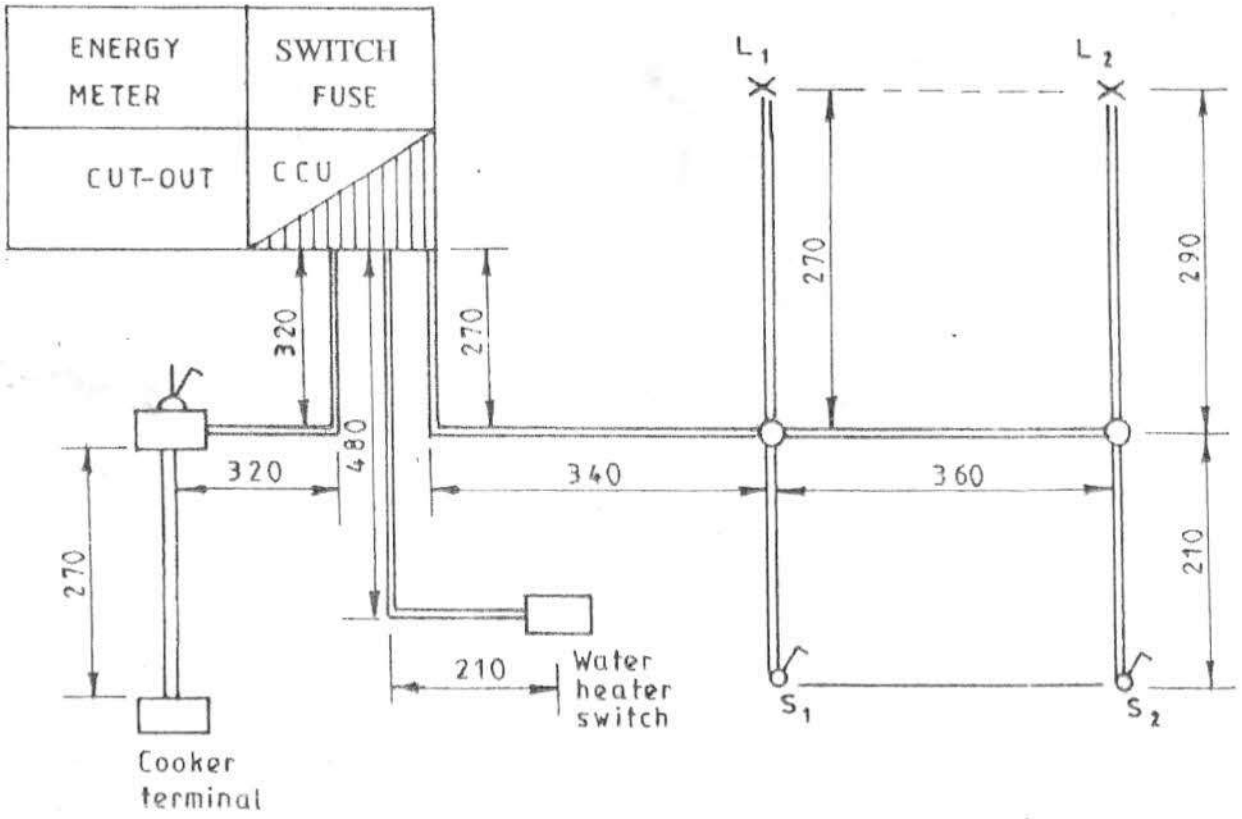
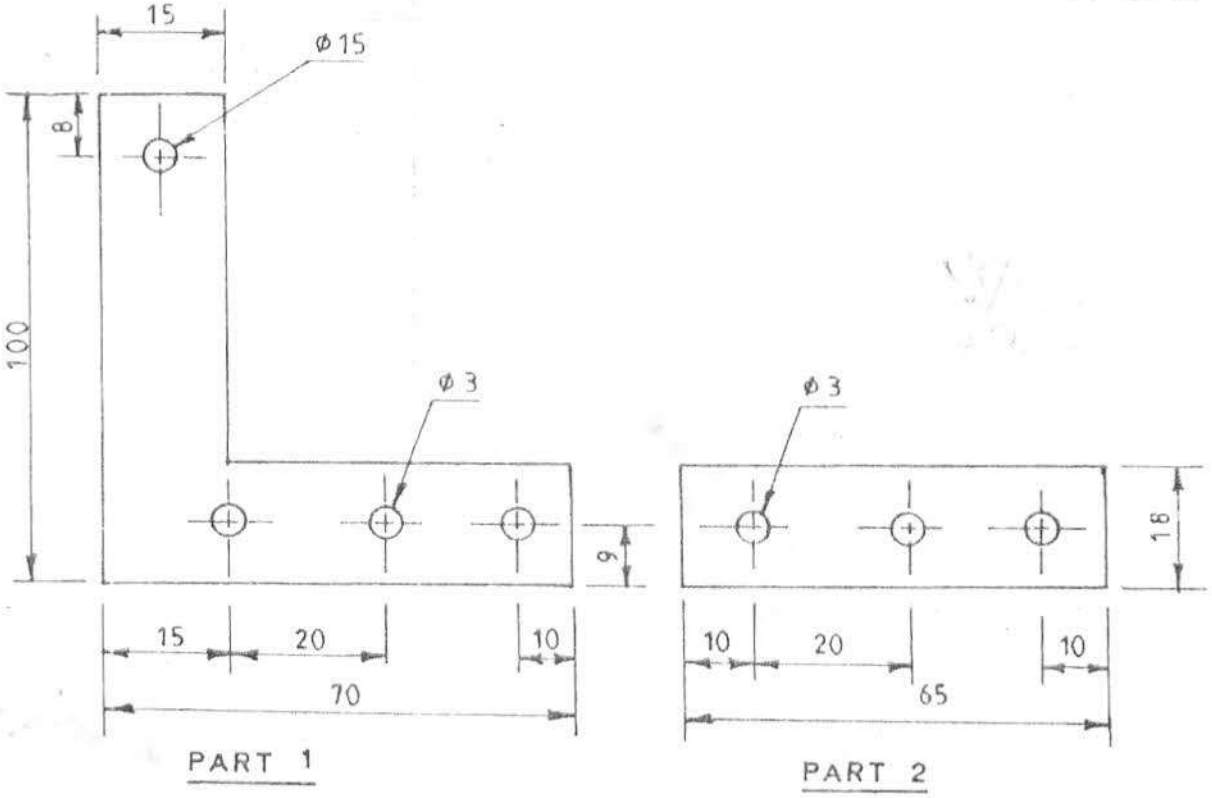


Fig. 2

3. Using the equipment, tools and materials provided, fabricate the engineering try-square shown in Figure 3. (25 marks)



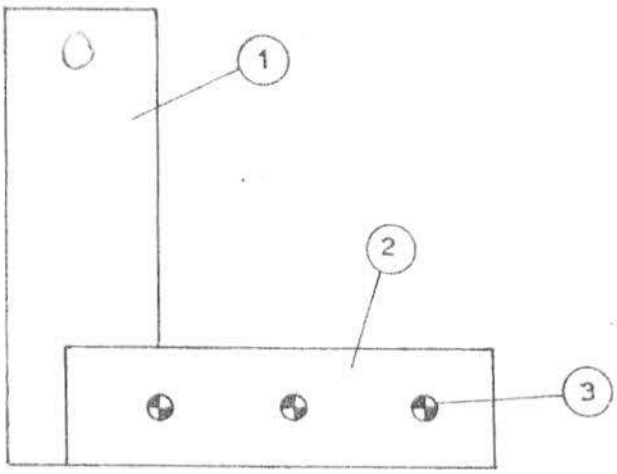


Fig. 3

	MATERIALS CUTTING LIST					
1	105 × 75 × 3 M.S. 1OFF	3	RIVET	ø3	3
2	70 × 20 × 6 M.S. 2OFF	2	STOCK	70×20×6	2
3	ø3 RIVETS 3OFF	1	BLADE	105×75×3	1
		PART No.	DESCRIPTION	MAT'L	No. OFF

4. Figure 4 shows a transistor series voltage regulator.

(a) Using the components and equipment provided, mount and solder the circuit on a 40 mm x 50 mm printed circuit board. Leave a margin of 5 mm.

(b) Adjust the input voltage from the d.c. power supply until V_{in} = + 15 V exactly.

(c) Measure the voltages at test points TP-1 to TP-3. Tabulate the results in table. 1.

(25 marks)

Table 1

Test points	TP-1	TP-2	TP-3
Voltage (V)			

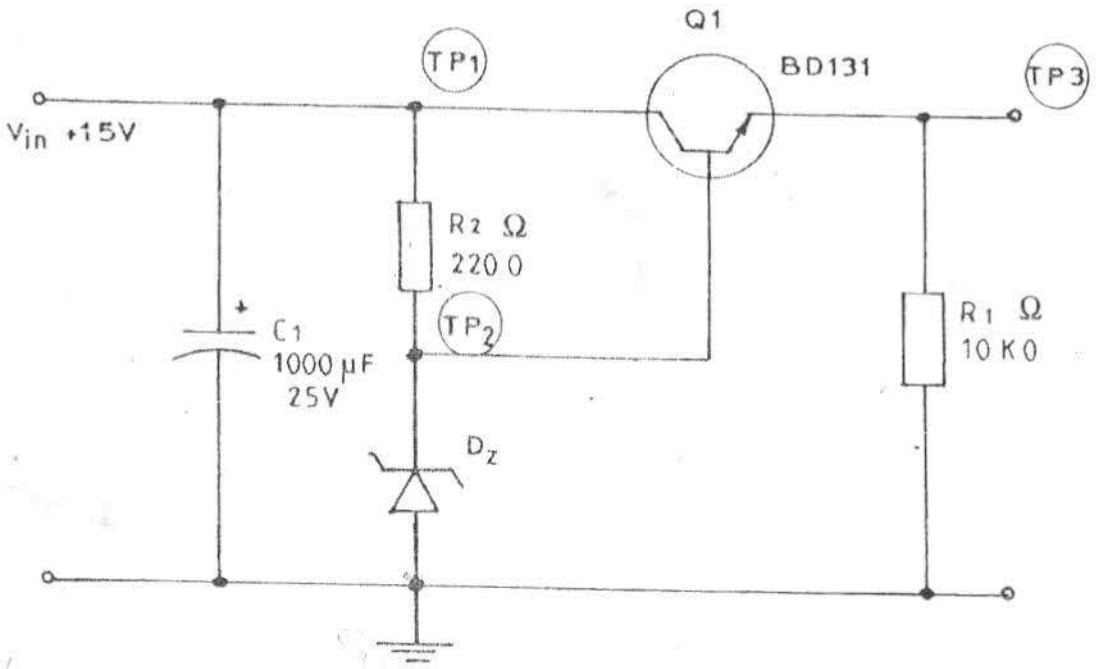


Fig 4

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