



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

Faculty of Engineering

DEPARTMENT OF BUILDING AND CIVIL ENGINEERING

CERTIFICATE TECHNICIAN I
(CTI 09)

WORKSHOP TECHNOLOGY

FINAL EXAMINATION

SERIES: APRIL/MAY 2010

TIME: 3 HOURS

Instructions to Candidates:

You should have the following for this examination:

- Answer Booklet
- Calculator

This paper consists of **THREE** sections **A, B** and **C**.

Answer **ONE** question from each Section and any other **TWO** questions from either Section. Do not answer more than two questions from one section.

All questions carry equal marks.

Maximum marks for part of question are as shown.

SECTION A: CARPENTRY/JOINERY

- Q.1 (a) What is a back saw? Sketch one and state its use. (5 marks)
- (b) Gouges are of two main kinds. Sketch and describe their particular uses. (6 marks)
- (c) Name **TWO** hardwoods and softwoods stating their uses. (5 marks)
- (d) By means of sketches, show the difference between;
- (i) Heart shake
 - (ii) Star shake (4 marks)
- Q.2 (a) With the aid of sketches, show **TWO** types of;
- (i) widening joints
 - (ii) framing joints
 - (iii) lengthening joints (12 marks)
- (b) Make a neat sketch of a tool you would use to countersink a hole for a countersunk head wood screw. (4 marks)
- (c) Sketch **TWO** types of wood screw heads. (4 marks)
- Q.3 (a) With the aid of sketches describe the following nails;
- (i) Round wire nail
 - (ii) Oval wire nail
 - (iii) Clout nail
 - (iv) Panel pin (8 marks)
- (b) State the uses of the nails named in 3(a) above. (4 marks)
- (c) Show by sketches the following **FOUR** methods of nailing;
- (i) Parallel
 - (ii) Dovetail
 - (iii) Secret
 - (iv) Clenched. (8 marks)

SECTION B: MASONRY

- Q.4 (a) Differentiate between masonry and brickwork. (4 marks)
- (b) Explain the difference between a hollow and cellular concrete blocks. (6 marks)
- (c) Make a neat sketch of a clay brick and show the following:
- (i) Stretcher face
 - (ii) Header face
 - (iii) Frog (4 marks)
- (d) With the aid of sketches describe a brick hammer and brick trowel. (6 marks)
- Q.5 (a) State **TWO** advantages and disadvantages of blockwork over brickwork. (4 marks)
- (b) What are the **FOUR** purposes of a bond in brickwork? (8 marks)
- (c) Give the difference between plastering and rendering. (4 marks)
- (d) Name any **FOUR** requirements of a good mortar. (4 marks)
- Q.6 (a) With the aid of well labeled sketches describe an independent scaffolding showing the spacings and a method of tying into the building. (12 marks)
- (b) Describe the following scaffold fittings;
- (i) Double coupler
 - (ii) Swivel coupler
 - (iii) Base plate
 - (iv) Reveal pin. (8 marks)

SECTION C: PLUMBING

- Q.7 (a) List typical examples of defects found on the following tools:
- (i) Cold Chisel
 - (ii) Hammer
 - (iii) File
- (6 marks)
- (b) List **FOUR** safety rules in regard to a Tidy site and workshop. (4 marks)
- (c) Outline two basic principals of accident prevention. (4 marks)
- (d) List **FOUR** Plumbing working gear. (4 marks)
- (e) Explain safety measures to be taken when storing pipes in for plumbing works. (2 marks)
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- Q.8 (a) Give one plumbing hand tool for each of the following events:
- (i) Measuring
 - (ii) Marking
 - (iii) Cutting
 - (iv) Forming
 - (v) Fastening
 - (vi) Holding.
- (6 marks)
- (b) List **FOUR** examples of plumbing tools classified as power tools. (4 marks)
- (c) Explain step by step procedure for preparation of an arc welding task. (5 marks)
- (d) State the function of each of the following Materials used in Plumbing:
- (i) Elbow
 - (ii) Nipple
 - (iii) Socket
 - (iv) Reducing Bush
 - (v) Union.
- (5 marks)