

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

174

CARPENTRY AND JOINERY
(For Both School and Private Candidates)

Time: 3 Hours

Tuesday, 11th October 2011 p.m.

Instructions

1. This paper consists of sections A, B and C.
2. Answer all the questions in sections A and B, and two (2) questions from section C.
3. Calculators are **not** allowed in the examination room.
4. Cellular phones are **not** allowed in the examination room.
5. Write your Examination Number on every page of your answer booklet(s).



This paper consists of 6 printed pages

SECTION A (20 Marks)

Answer all questions in this section.

1. For each of the items (i) – (x), choose the correct answer from among the given alternatives and write its letter beside the item number.

- (i) The major difference between softwood and hardwood plant is that
A softwood is broad leaved while hardwood is not
B softwood shades leaves in winter while hardwood does not
C softwood does not shade leaves in cold weather while hardwood does
D hardwood does shade leaves in winter but have resinous pockets
E the roots of softwood do not go deep in the ground.
- (ii) Mortice and tenon joints are used to
A join stiles and rails in doors and windows
B join floor binders and girders
C join a rafter to the tie beam
D disconnect the ceiling joist from the roof joist
E strengthen a timber stair.
- (iii) The following are ingredients of animal glue
A Soluble albumin of beef blood
B Heads, skin and bones.
C Hides and hooves of animals.
D Skin, bones and muscles.
E Skull, horns and animal tears.
- (iv) Which of the following is not one of the main operations that can be carried out on a circular saw?
A Mitring and bevel cutting.
B Ripping and cross cutting wood.
C Shaping straight edges and cutting moldings.
D Making grooves, dadoes and rebates.
E Cutting curves and irregular sawing.
- (v) The structural feature of a solid core flush door is
A strips of wood glued together.
B a framework of stiles, and rails.
C battens and ledges.
D a skeleton of honey combed structure.
E a hardwood rectangular frame.
- (vi) "Centering" is a term used to describe
A the construction of central point on an arch
B temporary support used to the loose bricks in the construction of arches
C temporary support used to the wall that shows signs of bulging or falling
D the central brick at the highest point of an arch
E the setting of central point in the construction of curved structures.

- (vii) Figure 1 is showing part of an opening through a timber floor. Which among the labeled joints is a trimming joint?

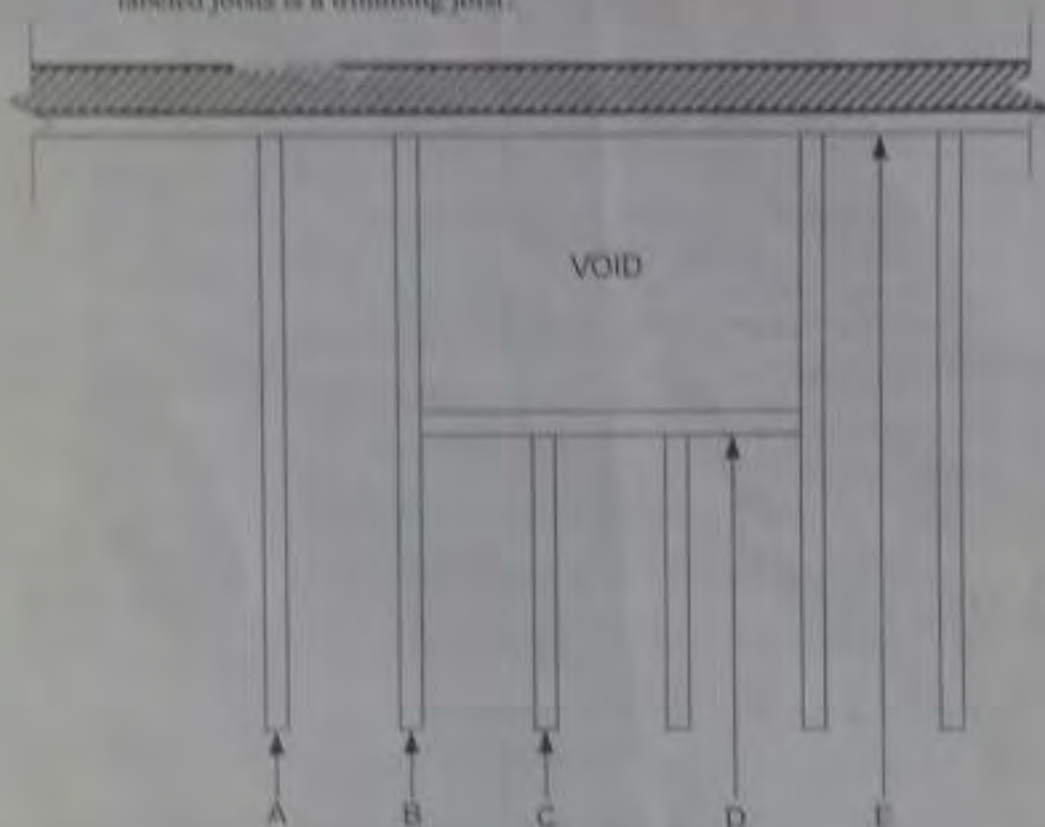


Figure 1

- (viii) A baluster is used to
- prevent people falling off the stair
 - support the handrail in a balustrade
 - support the newel post in a staircase
 - join the stringer to newel post in a balustrade
 - support the steps on underside the stair.
- (ix) Overhead costs are
- excess costs in the estimation of woodwork.
 - costs of paying labour and running the machines
 - unforeseen costs that may arise after the work is in progress
 - costs added in an estimate to cover for the expected profit
 - costs included in an estimate to cover for office running costs.
- (x) What is "standard" in scaffolds?
- A standard member provided to support the scaffold structure.
 - Diagonal members used to increase stability of the scaffold
 - Members held in the wall on which a platform is raised
 - Vertical members on which the putlogs and ledgers are fixed
 - Horizontal members fixed to the vertical members.

2. Match the items in List A with responses in List B by writing the letter of the corresponding response beside the item number. The options in List B can be used once, more than once or not at all.

List A	List B
(i) Piece of timber running between the hip of the roof and an eave.	A. Verga
(ii) Eave when two roof surfaces meet to form an external angle which exceeds 180° .	B. Common rafter
(iii) The horizontal timber supporting the roof overhang.	C. Jack rafter
(iv) The edge of a sloping roof which projects outside a gable wall.	D. Gable end
(v) The horizontal piece of timber forming the ridge at which rafters meet.	E. Valley
(vi) The overhanging lowest part of the sloping roof.	F. Eave
(vii) Sloping timber extending from the eave to the ridge of the roof.	G. Hip
(viii) Piece of timber running between the valley of the roof and the eave.	H. Run
(ix) A feature formed when two sloping surfaces meet to form an external angle less than 180° .	I. Ridge board
(x) An extension of the roof beyond the external wall.	J. Barge piece
	K. Purlin
	L. Valley rafter
	M. Hip rafter
	N. Overhang
	O. Soffit

SECTION B (40 Marks)

Answer all questions in this section.

- What is meant by scalidding?
 - Mention three basic requirements of scalloids.
- Why are wood screws much more preferred as fasteners than nails?
 - How is woodwork screws sized?
- Briefly explain two aims of staining.
 - What is meant by the term "raising the grain" as applied to wood finishes?
 - Define the term 'defect in timber'.
- Outline four objects of seasoning timber.
 - Define the following terms as used in timberworks:
 - Plank
 - Wane
- List two points to be considered when choosing a suitable saw.
 - Mention two ways for curbing of saws.

8. (a) What are fitting pieces and where are they used?
 (b) Describe the shape and uses of the following types of tiles:
 (i) Under eaves tiles
 (ii) "Tile and a half" tiles
9. Define the following terms as applied in staircase construction:
 (a) Stringer
 (b) Rough bearer
 (c) Nosing
 (d) Newel post
10. (a) What is the common use of a compass plane?
 (b) What is the cutting angle of a plane knife? Explain its significance in wood work.
11. Briefly explain how to fix a glass pane to a wooden window by using putty.
12. Explain where the following types of joints are applied:
 (a) Tusk and tenon joint
 (b) Stub mortice and tenon joint
 (c) Secret haunched mitred mortice and tenon joint
 (d) Rebated haunched mortice and tenon joint

SECTION C (40 Marks)

Answer two (2) questions from this section.

13. (a) Mention three parts of circular saw machine and explain the function of each.
 (b) With the aid of sketches, differentiate collar roofs with close couple roofs.
 (c) Sketch the following types of ironmongery and explain where each type is used:
 (i) Butt hinge
 (ii) Tee (or cross garnet) hinge
 (iii) Parliamentary hinge
 (iv) Backflap hinge
 (v) Clout nail
 (vi) Panel pin
14. (a) Briefly explain the following:
 (i) Skirting
 (ii) Dado rails
 (iii) Cornices
- (b) Briefly describe the structure and use of the following materials:
 (i) Laminated boards
 (ii) Block boards
 (iii) Batten boards

- (c) With the aid of sketches, briefly explain the construction of the following doors:
(i) Ledged matchboarded door.
(ii) Farned, ledged and braced matchboarded door.
15. (a) With the aid of a well labeled sketch, show how timbering to trench can be achieved in hard soils.
- (b) Assuming the sides of a trench is 900 mm deep, 600 mm wide and 6 m long in hard soil is to be timbered. Calculate the cost of timber that would be required for the timbering work when the price of timber is Tshs. 1,200/m³ per meter-run for each type of pieces (150 x 25) mm and (70 x 100) mm.
- (c) Differentiate "false work" from "form work" as applied in construction works.
- (ii) With the aid of labeled sketch, describe a timber common (or stud) partition wall having a door opening.
- (d) Mention four classes of woodworking hand tools and to each class give one example.