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

974 **CARPENTRY AND JOINERY**
(For Both School and Private Candidates)

Time: 3 Hours Thursday, 18th November 2015 a.m.

Instructions

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

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SECTION A (20 Marks)

Answer all questions in this section

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

(i) In order to give a screw start, the best tool to use would be a
A jennings bit B centre punch C gimlet
D bradawl E mortise chisel

(ii) The layer on which the growth of the tree takes place is
A cambium B bark C pith
D bast E sapwood

(iii) The method of applying timber preservative that attains the deepest penetration is
A spraying B pressure impregnation C dipping
D brushing E steeping

(iv) Which among the following are the four operations that must be carried out when preparing sawn timber? ( )
A Planing to thickness, width, face side and face edge
B Planing the face side, face edge, width and thickness
C Planing the face side, width, thickness and the face edge
D Planing the face edge, face side, thickness and width
E Planing to width, thickness, face side and face edge

(v) The following are the characteristics of hard wood *except*
A broad leaves B seed held in cones
C wide and rounded crown D leaves are shed in winter
E an irregular, less cylindrical trunk

(vi) When eradicating an attack of dry rot, all affected timber should be
A removed and immediately burnt on site
B left in place and treated with preservative
C removed and placed in a builder's rubbish skip
D removed and taken away to a refuse dump to be burnt
E kept in a free circulation of air

(vii) Which among the following is the most suitable glue when working with timber engineering and marine works?
A animal glue B hot melt glue C casein glue
D resorcinol formaldehyde E polyvinyl acetate

(viii) When ordering screws it is necessary to state the quantity required, size gauge and
A 120 screws B 75 screws C 144 screws
D 150 screws E 135 screws

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(ix) What is the function of pigments in paints?

A Provide the opaque and colour
B Regulate the penetration
C Increase the drying speed
D Provide the suspension
E Preserve and protect the work

(x) A moulding which cover the joint between the ceiling material and wall is called

A struts
B battens
C cornice
D noggins
E architrave

2. Match the items in **List A** with the responses in **List B** by writing a letter of the correct response beside the item number in the answer booklet provided

List A	List B
(i) An opening in the bottom of the plane	A Cap iron
(ii) A plate of steel with a sharpened edge which cuts the wood.	B Depth adjustment knob
(iii) Holds the blade down firmly to the body of the plane	C Frog
(iv) Controls how far the blade extends	D Iron
(v) Handle on the front of the plane	E Lateral adjustment lever
(vi) Serves to curl and break apart wood shavings	F Lever cap
(vii) Handle on the rear of the plane	G Knob
(viii) Metal wedge that holds the blade at the proper angle.	H Mouth
(ix) Controls the blade by skewing it so that the depth of cut is uniform	I Sole
(x) The bottom of the plane	J Tote
	K Slots
	L Body
	M Shoe
	N Ferrule
	O Hole

SECTION B (40 Marks)

Answer **all** questions in this section.

3. (a) Give the meaning of the term 'geometrical tools'.

(b) Explain why it is not advisable to plane a surface of work that has been sanded with an abrasive paper.

4. (a) How can the capacity (size) of the power hand router be determined?

(b) Explain how a zip saw can be identified and state when it is used.

5. Give four factors which influence the time taken to dry timber by kiln seasoning.

6. Name four types of door frames.

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7. (a) Define the term 'carcase'.

(b) What type of joint will be suitable for the construction of the following parts of a carcase?
   (i) The top (if the end grains are not to be shown)
   (ii) The bottom
   (iii) Shelves and partitions.

8. Mention four iron mongery which are needed for a side hung casement window.

9. (a) What make the scaffold stable?

(b) Why steel tubular scaffolding is preferred to timber scaffolding?

10. (a) What is the difference between a gambrel roof and gable roof?

(b) Why does a flat roof need a slight slope? State its minimum pitch.

11. In what condition is shoring provided?

12. (a) Mention the most common faults in designing a stairway which can cause accidents homes.

(b) Explain the use of spiral stair in buildings.

SECTION C (40 Marks)

Answer **two (2)** questions from this section.

13. (a) What are the accessories for the bench work? **(02 marks)**

(b) State the use of the following tools.
   (i) Trammel
   (ii) Pincer. **(03 marks)**

(c) Make nine classifications of woodworking hand tools and give an example on each. **(09 marks)**

(d) Name the three planes which are commonly known as bench planes and state the typical use for each. **(06 marks)**

14. (a) (i) Sketch a neat diagram of a fish plated joint and give its use.
   (ii) Explain four operations involved in making a mortise and tenon joint. **(08 marks)**

(b) (i) List four requirements of a good woodworking joint. **(02 marks)**
   (ii) Illustrate with a neat sketch the proportions to be born in mind when setting out a mortise and tenon joint. **(05 marks)**

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(c) Mention three functions of a haunch in a haunched mortise and tenon joint **(03 marks)**

(d) Give two advantages of lapped joint **(02 marks)**

15. (a) Make an isometric drawing of a lintel formwork and indicate the following parts

(i) Side board
(ii) Headtree
(iii) Props
(iv) Ties
(v) Cleats
(vi) Struts
(vii) Soffit board.

(06.5 marks)

1 (b) Briefly explain seven factors which are necessary when designing windows in a room. **(07 marks)**

(c) Calculate the number of square metres of match boarding required to cover both sides of a partition 2.40 m high by 2.28 m long, allowing 5 percent extra for waste and cutting. **(03.5 marks)**

(d) How many running metres of match board are required for the partition in 15(c) above, if the match boards have a covering width of 92 mm? **(03 marks)**

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