

## **CARPENTRY AND JOINERY**

### **EXAMINATION SCHEME**

There will be three papers, Papers 1, 2 and 3, all of which must to be taken. Papers 1 and 2 will be a composite paper to be taken at one sitting.

Paper 1: will consist of forty multiple-choice objective questions all of which are to be answered in 45 minutes for 40 marks.

Paper 2: will consist of two sections, Sections A and B to be answered in 1 hour 30 minutes for 60 marks.

Section A: will consist of five short-structured questions all of which are to be answered in 30 minutes for 20 marks.

Section B: will consist of three questions. Candidates will be required to answer any two in 1 hour for 40 marks.

Paper 3: will be a practical test of 2 hour duration. It will consist of two questions out of which candidates will be required to answer one for 100 marks.

A list of materials for the test shall be made available to schools not less than two weeks before the paper is taken for material procurement and relevant preparations.

#### **Alternative to practical test**

Alternatively, in the event that materials for the actual practical test cannot be acquired, the Council may consider testing theoretically, candidates' level of acquisition of the practical skills prescribed in the syllabus. For this alternative test, there will be two sets of compulsory questions to be answered in 1½ hours for 100 marks.

### **DETAILED SYLLABUS**

#### **Preliminaries**

S/NO.	CONTENT	NOTES
1	Workshop and worksite safety (a) Workshop Rules and Regulation (b) First Aid	(i) Safety practices (personnel) (ii) Safety devices (preventive and protective devices) (iii) Safety rules (machines) (iv) Workshop layout. (iv) Types of first aid materials. (v) Worksite aids e.g. ladder, steps, scaffolding, etc.

	(c) Worksite Safety	(vi) Worksite hazards (vii) Safety precautions in worksite.
2	Tools, Machines and Maintenance (a) Hand Tools (b) Portable power tools and maintenance (c) Machines and maintenance	(i) Woodwork hand tools (e.g., cutting tool, drilling tools, measuring and marking out tools, etc) (ii) Types of portable power tools e.g. jigsaw, sanders, portable power saws, etc. (iii) Uses of hand tools and portable power tools. (iv) Maintenance and precautionary measures for hand tools. (v) Sketches of hand tools or portable power tools may be required. (vi) Types and uses of machines in carpentry and joinery workshop.
3	Materials: types and uses of (a) Timber; (b) Adhesives; (c) Ironmongery. e.t.c	(i) Growth and structure of timber. (ii) Conversion, seasoning and uses of timber. (iii) Common defects in timber and their remedies. (iv) Reasons for seasoning timber. (v) Preservation and preservatives. (vi) Veneer and manufactured boards. (vii) Types of adhesives; uses and characteristics (e.g. animal glue, casein glue, ureaformaldehyde). (viii) Types of ironmongery (sketches may be required) e.g. screws, nails, hinges and locks.
		(ix) fixing of hinges and locks (specification for ordering nails may be required).

4	<p>Construction principles and Techniques</p> <p>(a) Timber preparation</p> <p>(b) Joints</p> <p>(c) Doors and windows</p> <p>(d) Form work and centering</p> <p>(e) Estimating and costing</p> <p>(f) Wall paneling, cladding and partitioning</p> <p>(g) Pre-fabricated building</p> <p>(h) Stairs, handrail and balusters</p> <p>(i) Scaffolding and ladder</p> <p>(j) Estimation and costing</p>	<p>(i) Sequence of timber preparation to sizes (plane wood surface to flatness and edge to planesquareness).</p> <p>(ii) Sketching and developing of working drawing.</p> <p>(iii) Interpreting simple working drawings of wood projects.</p> <p>(iv) Common woodwork joints, construction and uses.</p> <p>(v) Simple project requiring specified joint.</p> <p>(vi) Types of doors and windows.</p> <p>(vii) Types of formworks, identification, construction and uses.</p> <p>(viii) Identification, design or construction of centres for arches.</p> <p>(ix) Purpose of timbering.</p> <p>(x) Cost analysis of simple projects e.g. centre table, stool. Projects may be presented in form of working drawing.</p>
5.	<p>Finishes and Finishing</p> <p>(a) Abrasive</p> <p>(b) Finishes</p> <p>(c) Finishing</p>	<p>Abrading tools</p> <p>(i) Types and grades of abrasives</p> <p>(ii) Uses of abrasives</p> <p>(iii) Selection of grades of abrasives</p> <p>(iv) Types of finishes e.g. varnishing lacquer, paints, etc.</p> <p>(v) Characteristics and application of finishes</p> <p>(vi) Finishing tools – spray gun</p> <p>(vii) Finishing process e.g. scraping, filling, sanding and staining.</p> <p>(viii) Simple project work involving finishing.</p>
6	<p>Business Opportunities in Carpentry and Joinery Trade</p> <p>(a) Furniture making</p> <p>(b) Material supply and merchandising</p> <p>(c) Contract work</p>	<p>(i) Project work with commercial value e.g. dining table, doors, etc.</p> <p>(ii) Description of a standard small scale workshop (layout/equipment).</p> <p>(iii) Project work involving feasibility study reports.</p>

**LIST OF FACILITIES AND MAJOR EQUIPMENT/MATERIALS REQUIRED:**

ITEM NO.	EQUIPMENT	QUANTITY REQUIRED
1.	Standard Workshop with a good layout and ventilation	1
2.	First aid box	1
3.	Chart showing Safety Practices in Carpentry and Joinery Workshop	3
4.	Complete Tool box	3
5.	Work Bench	3
6.	G Clamp or F Clamp	10
7.	Safety Equipment - Fire extinguisher, Fire bucket	1 each
8.	Ratchet Brace or Wheel Brace	2
9.	Hand Vice	10
10.	Bench Vice	6
11.	Rip Saw	5
12.	Panel Saw	5
13.	Crosscut Saw	5
14.	Fret Saw	3
15.	Coping Saw	2
16.	Bow Saw	2
17.	Tenon Saw	10
18.	Dovetail Saw	5
19.	Jack Plane	5
20.	Smooth Plane	5
21.	Plough Plane	2
22.	Rebate Plane	2
23.	Grooving Plane	2
24.	Crow Bar	2
25.	Try Square	5
26.	Mitre Square	3
27.	Sliding Bevel	3
28.	Marking Gauge	3
29.	Mortise Gauge	3
30.	Pincers	2
31.	Tape Rule(Metric)	2
32.	Firmer Chisel	2 Sets
33.	Mortise Chisel	2 Sets
34.	Carving Chisel	2 Sets
35.	Centre bit	2 Sets
36.	Twist bit	2 Sets
37.	Drill bit	2 Sets
38.	Star screw driver	2 Sets
39.	Long-nose pliers	2

40.	Combination plier (flat-nose)	2
41.	Flat screw driver	2 Sets
42.	Spoke shave	2
43.	Claw Hammer	2
44.	Cross Pein Hammer	2
45.	Ball Pein Hammer	2
46.	Scriber	2
47.	Steel rule	2
48.	Inside caliper	1
49.	Outside caliper	1
50.	Allen key	1 Set

#### LIST OF RECOMMENDED TEXT BOOKS

S/N	TEXT BOOK	AUTHOR
1	BRIAN PORTER & CHRISTOPHER TOOKE 3 <sup>rd</sup> Edition (Bks 1,2 and 3)	
2	WOOD TRADES (Part 1 and 2)	A.Y.EMARY
3	CARPENTRY AND JOINERY (Bks 1 and 2)	DAVID R.BATES
4	THE THEORY AND PRACTICAL OF WOODWORK 3 <sup>rd</sup> Edition	GEORGE LOVE
5	JOINERY	W.B.MACKAY
6	CARPENTRY	W.B.MACKAY
7	CARPENTRY AND JOINERY (Bks 1,2 and 3)	R.BAYLISS
8	WOODWORK IN THEORY AND PRACTICAL	JOHN A.WARTOR