

AUTO BODY REPAIRS AND SPRAY PAINTING

SCHEME OF EXAMINATION

There will be three papers, Papers 1, 2 and 3 all of which must 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 1 hour for 40 marks.

Paper 2: will consist of five essay questions. Candidates will be required to answer any four in 1½ hours for 60 marks.

Paper 3: will be a practical test of 3 hours, 10 minutes duration. It will consist of one compulsory question 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 one question to be answered in 3 hours for 100 marks.

DETAILED SYLLABUS

1.	<p>Safety rules and regulations in Auto body repairs and</p> <p style="text-align: center;">spray painting.</p>	<p>Definition of safety rules and regulations in auto body repairs and spray painting.</p> <p>1.2. List of rules and regulations and their importance.</p> <p>1.3 List of safety tools and equipment/machines for auto body repairs.</p> <p>1.4 Auto body dressing code: personal protective equipment (nose mask, goggles, boots, ear defender, etc).</p> <p>1.5 Sources of accident (human factors, machinery/equipment and workshop keeping) and their preventions.</p> <p>1.6 Factory acts on safety rules and regulations: 1984 amended resource conservation recovery act, environmental protection agency regulations and hazardous waste collection and recycling (solvent recovery system).</p>	<p>1:3:1 Identification of safety tools and equipment and demonstration of their usage.</p> <p>1:4:1 Identification of dress code and protective equipment and demonstration of their usage.</p> <p>1:5:1 Identification of containers for hazardous waste.</p> <p>1:5:2 Demonstration of horse play.</p> <p>1:5:3 Report faulty machines/ equipment</p> <p>1:5:4 Demonstration of workshop keeping e.g. cleaning oil and water from the floor with saw dust and dry sand</p>
S/NO.	TOPIC	CONTENT	PRACTICAL

<p>2</p> <p>Tools and Equipment</p> <p>(a) Basic Hand Tools</p> <p>(b) Spray painting tools and equipment.</p> <p>(c) Care and maintenance of tools and equipment.</p>	<p>2.1 Types of hand tools. (hammers, dollies, spanner, files, ratchets, body spoons, etc) and their uses.</p> <p>2.2 Types and uses of power tools and equipment/machines (drilling machine, body jack, sanders, air compressor, shaping machines, cutting machine, etc).</p> <p>2.3 Advantages and disadvantages of machines.</p> <p>2.4 Uses of machines and safety precautions.</p> <p>2.5 Spray painting tools and equipment (scrapers, brushes, funnels, paint pots, spray gun, spraybody filters, air compressor, oven, spray boot, etc).</p> <p>2.6 Definition of maintenance and types – predictive, preventive and corrective.</p> <p>2.7 Manufacturer’s maintenance guide.</p> <p>2.8 Maintenance of tools and equipment.</p>	<p>2:1:1 Identification of hand tools and equipment</p> <p>2:2:1 Identification and demonstration of the use of power tools.</p> <p>2:4:1 Demonstration of the use of r</p> <p>2:5:1 identification of spray painting tools, equip and their uses.</p> <p>2:8:1 Dismantling and assembly of a gun</p> <p>2:8:2 Cleaning of tools and equipment</p>
<p>3.</p> <p>Materials for auto-body repairs and spray painting</p> <p>(a) Auto-body Repairs materials.</p>	<p>3.1 Types of body filler - plastic filler; - fibreglass fillers; - body solder; 30/70 and 40/60.</p> <p>3.2 Type of body abrasives e.g. sand papers, (wet and dry); Sanding disc.</p> <p>3.3 Type of sealers e.g. rubber sealers, seam sealers, undercoating, etc.</p> <p>3.4. Rivet pins e.g. pop and solid rivets.</p>	<p>3:1:1 Identification of body fillers.</p> <p>3:2:1 Identification of body abrasives.</p> <p>3:4:1 Demonstration the use of rivet gur</p> <p>3:5:1 Identification of</p>

	(b) Spray painting materials.	<p>3.5 Types of paints – Enamel paints and lacquers.</p> <ul style="list-style-type: none"> - Under coats: surface primer, putty/body filler, sealers. - Top coats: lacquers and enamel paints. <p>3.6 Manufactures paint guide: paint formula, paint mixing equipment, custom-mix basecolours, paint labels, colour charts.</p>	<p>paints by use of thinner.</p> <p>3:5:2 Demonstration of the use of under coats.</p> <p>3:5:3 Demonstration of those of top coats.</p> <p>3:6:1 Demonstration of how to mix paints</p> <p>3:6:2 Identification of colours using colour charts</p>
4.	Type of metals.	<p>4.1 Ferrous and non ferrous metals – mild steel, cast iron, aluminium, brass, etc.</p> <p>4.2 Properties of metals – fusibility, malleability, ductility, weldability, etc.</p> <p>4.3 Uses of metals on Auto bodies.</p>	<p>4:1:1 Identification of ferrous and non-ferrous metals.</p> <p>4:1:2 Demonstration of properties of metal</p>
5	Heat treatment of metals.	<p>5.1 Definition of heat treatment.</p> <p>5.2 Types and process of heat treatment e.g. hardening, annealing, normalizing, case-hardening and tempering.</p> <p>5.3 Importance of heat treatment.</p>	<p>5:2:1 Demonstration of heat treatment processes.</p>
6.	Oxy-acetylene welding and equipment.	<p>6.1 Definition of oxy-acetylene welding.</p> <p>6.2 Safety precautions</p> <p>6.3 Oxy-acetylene welding equipment.</p> <p>6.4 Types of oxy-acetylene gas used e.g. (high and low pressure system).</p> <p>6.5 Installations of welding equipment.</p> <p>6.6 Welding nozzles.</p>	<p>6:3:1 Identification of equipment.</p> <p>6:4:1 Demonstration of how to use high low pressure system</p> <p>6:5:1 Demonstration of how to assemble welding equipment</p> <p>6:6:1 Demonstration of how to install welding equipment</p>

2. Fundamentals of vehicle body work by J. Fairbrother.
3. Practical welding (The motivate series Mac-Milan texts for Industrial Vocational and Technical Education) by S. Gibson.
4. Fundamentals of motor vehicle technology, chassis and body electronics (5th Edition) Book 1, 2, and 3 by Hilliers V. A. W. and David R. Rogers.
5. Bodywork Maintenance and repair including interiors by Paul Browne.
6. Automotive encyclopedia by Good heart-Willcox.
7. Auto body repair and repainting by Bill Tobold.

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