CONTENTS

FOREWORD

This booklet contains reports written by Examiners on the work of candidates in certain papers. **Its contents are primarily for the information of the subject teachers concerned**.

METALWORK

GCE Ordinary Level

Paper 6040/01
Theory, Drawing and Design

General comments

Only a few candidates were entered for the examination so it is difficult to generalise. However, the overall performance of the candidates was very poor indeed. There was little evidence that candidates had studied the important and fundamental sections of the syllabus to any degree and it is difficult to make any positive comments at all. Answers mainly lacked depth and showed only a superficial knowledge of the subject; they included much guesswork and answers so vague that it was often difficult to identify any factual content at all. Sketching was fair but infrequent and with insufficient annotation.

Comments on specific questions

Question 1

All candidates answered this question.

In **(a)** and **(b)** not one candidate named a specific metal e.g. high carbon steel for hardening and tempering, mild steel for case hardening, copper for work hardening and annealing, etc. but simply stated 'metal'. Hardening and tempering were often confused with each other so that the metal was heated bright red and quenched to temper.

In **(c)(i)** the rod was usually located by drilling a hole but then unnecessarily threaded. In **(ii)** hard and soft soldering were confused with each other for flux (acid?) was used to clean the joint and a soldering iron used to melt the silver solder.

Question 2

Answered by most candidates. Very little technical knowledge revealed. A slight idea of a locknut in **(a)** and using oil to prevent a ragged thread in **(b)** but it appeared that candidates had little practical experience of using taps and dies.

Question 3

Attempted by approximately half the candidates. No candidate showed any worthwhile knowledge of the lathe. Nearly all used a three-jaw chuck to hold square-sectioned alloy and none could set it up properly. Candidates used a countersink instead of a centre-drill and failed to explain how to reduce the bar to Ø 26 and produce the taper. There was a slight knowledge that parting square alloy could be dangerous but none knew how to do this.

Question 4

Attempted by approximately half the candidates. Again this question was very poorly answered. Most candidates tried to bend and twist the mild steel shutter catch without heating and would have used folding bars to produce the R5 bend. Apart from realising that the rivet's diameter was multiplied by $1\frac{1}{2}$, little else was known about riveting.

Question 5

A very unpopular question. It is obvious that candidates have no knowledge of beaten metalwork as the answers were complete guesswork.

Question 6

Unfortunately the candidates did not understand the question and therefore failed to produce any worthwhile solutions to the design problems. In **(a)** instead of attaching tube A to tube B as indicated in the drawing, they usually inserted it directly into tube B thus preventing its removal and making problem **(b)** impossible to solve as it could not pivot if fixed. A few candidates produced thumbscrews to adjust the shaft in **(c)** but failed to elaborate on how to prevent damage to the plastic coated shaft and how to ensure a decent thread into the thin walled tube A. The sketches often lacked clarity, were difficult to understand, and there was insufficient annotation giving details of sizes, materials, etc. The formal drawings were incomplete and so did not aid the understanding of the design solutions at all.

Question 7

The line quality of the freehand sketches was reasonable although more sectional and three dimensional views would have helped in the understanding of the solutions.

The line quality of the formal drawings was again fair but as no candidate completed the drawings and as most only drew part of the elevation, it was difficult to award many marks. Accuracy was poor and few conventions apart from hidden lines were used. Some candidates wasted time in drawing elaborate guide lines for their name, candidate number, date, scale and projection for which there are no marks.