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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.**

GEOMETRICAL AND MECHANICAL DRAWING

GCE Ordinary Level

<p>Paper 7040/01 Plane and Solid Geometry</p>

General comments

Many Centres are still using various sizes of drawing paper, varying from A1 to A3, and non standard sizes. Some Centres are allowing candidates to use only one side of the answer sheet. Some candidates have as many as three separate answer sheets.

Candidates are still not reading the instructions correctly and are answering all questions in **Section 2** when they have already answered all 3 questions in **Section 1**.

Occasionally a candidate will answer 4 questions from **Section 2**.

Many candidates are still dimensioning their solutions.

This year the candidates appeared to have sufficient time to answer the required number of questions.

Comments on specific questions

Question 1

This was a very popular question and well answered by the majority of candidates. The first part of this question was correctly answered, but a common mistake in part **(b)** of the question, i.e. the drawing of a similar figure, was to draw the diagonals that locate the corners of the new figure from the incorrect corner of the original figure.

The construction of the square equal in area to the polygon was well answered.

Question 2

Not a popular question. Many candidates did not appreciate that the curve was an involute.

Question 3

Candidates either answered this question well or did not appreciate that the point D allowed the link BC to slide as well as swivel and, consequently, constructed incorrect loci.

Question 4

Most candidates identified this question as a truncated cone and found it relatively simple. A few candidates failed to find the true lengths for the development of the cone.

Question 5

This question was poorly answered. Most candidates who attempted this question did not construct the square prism, which was necessary for the satisfactory drawing of the two given views. Consequently, the correct points of intersection were not found, but guessed.

Many candidates divided the vertical circular pipe to obtain the points of intersection instead of dividing the square duct. Consequently, the candidates could not determine the points of intersection.

Question 6

Most candidates had great difficulty in visualising the shape of the component and so they were unable to correctly draw the plan view. The auxillary view was frequently not attempted.

Question 7

This isometric was not a popular question, but the candidates that attempted it generally supplied good solutions.

Some candidates drew freehand sketches and others copied the given orthographic views.

Question 8

Many candidates had difficulty in drawing the given views, consequently they were unable to give a correct solution to the question.

Most candidates were able to determine the true lengths for the shapes they had drawn for their answer.

<p>Paper 7040/02 Drawing: Mechanical</p>
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General comments

Once again the quality of the scripts varied enormously. The better candidates showed a sound knowledge of the subject and had developed their drafting skills to a level that was a credit to them and their teachers. Unfortunately a number of the weaker candidates had not been prepared adequately for this examination. Candidates who are not familiar with BS 308/PD 7308 are at a distinct disadvantage and Centres are respectfully reminded that they should ensure copies are available to candidates when this subject is being taught. Whilst all Centres had used the envelopes provided, thereby ensuring that the scripts arrived in mint condition, it would be helpful to Examiners if Centres could ensure that the scripts were packaged in the order they appear on the mark sheet.

Once again it was disappointing to note that several Centres continue to supply A3 and even A4 paper. Unfortunately such sheets are of insufficient size for answering the questions for this examination.

Comments on specific questions

Section A

Question 1

It was pleasing to note that the majority of candidates were able to interpret the orthographic views and convert the bracket into a pictorial form. However many then attempted to produce their pictorial view using instruments. Unfortunately, the time taken for this is considerably longer than that required for a sound freehand sketch as requested, and these candidates penalised themselves by reducing the time available for **Question 2**.

Centres are advised to ensure that candidates only spend the recommended time on a particular question before moving on to the next. Centres are also reminded that any evidence of candidates using aids/instruments for this question will be heavily penalised. A well proportioned freehand sketch will always be awarded more marks than the most perfect of instrumental drawings for this aspect of the syllabus.

Common errors were:

- the failure to position point C in the foreground of the view
- drawing the vertical barrel as a solid, when it was in fact hollow
- positioning the two bevels at the top of the rectangular plate
- omitting the two square holes.

A handful of candidates had also orientated the vertical barrel horizontally. There were no marks awarded for the dimensioning of the pictorial sketch and candidates who did so would have been better off spending this time on **Question 2**. Centres should advise their candidates to read carefully the rubric of all questions and ensure that they only complete what is specifically requested.

Question 2

The majority of candidates had assembled the various components of the Woodworker's Clamp correctly although many did not position the Sliding Jaw and Adjustable Jaw 80mm apart as requested in the rubric. Regrettably, a number of candidates made no attempt to project the three views, preferring to simply place them randomly on their papers, consequently losing marks. Additionally, several candidates drew views on separate sheets or on the reverse side of their scripts. In such cases Centres are advised that only the best view scores marks.

(a) This view was attempted by all candidates, however a handful of solutions had been turned through 180°. Other errors were:

- view drawn in outline and not sectioned
- guide drawn as a solid bar rather than tubular
- adjustable Jaw assembled the wrong way round on the guide
- adjustable Jaw and Sliding Jaw juxtaposed.

It was pleasing to note that the majority of candidates had assembled the various details of this assembly view correctly and errors were generally of a minor nature.

(b) Several candidates lost marks by not attempting this view, and many drew the requested end view on the wrong side of their sectional elevation. This was a relatively straight forward view posing few difficulties to most candidates. The main errors being Jaws, Head and/or Handle drawn out of scale.

(c) Many of the weaker/slower candidates had not completed or started this view, others lost time by including hidden detail that was not needed.

The Grub Screw and Stop were frequently omitted from this view and a number of candidates drew the knurled portion of the Retaining Pin and the head of the Bolt so that their position in the plan view did not agree with the other views.

It is surprising and disappointing to note how many candidates lose marks by:

- not completing a title block and including an appropriate title, e.g. Woodworker's Clamp, the scale used and a projection symbol
- failing to insert the four dimensions or not conforming to BS 308/PD 7308
- not indicating where the section is taken and not labelling the views appropriately, e.g. Section on SS
- drawing hatching lines far too heavy, at angles other than 45° and not varying the spacing according to the size of the component being sectioned
- although virtually all candidates work from centre lines, very few use the correct form.

However, all but a handful of candidates submitted work of a standard to score marks for the quality of draughtsmanship and generally accuracy is of a pleasing standard.