METALWORK

SUBJECT 6045

PAPER 3

INTRODUCTION

The report will include among other things, general comments, appropriateness of the question paper, the relevance of the marking scheme, packaging of project for moderation and specific comments on the marking scheme expectations.

It is hoped that the report will benefit all those involved in the assessment of paper including examining board, planners, candidates, teachers, markers as well as the moderators. These groups could also help to improve on the quality of the examination by assisting the subject manager to address issues of concern raised during the marking of this paper. Such a contribution is of paramount importance because it will enhance the development of technology education through the Problem Solving Approach that has been influential in developing economies in all countries the world over.

GENERAL COMMENTS

The number of candidates who registered for the Design Project Paper this year was much higher compared to that of last year. This could be attributed to the following factors:

- The scrapping of practical fees that was charged for Practical Subjects in the previous year;
- The long period given to students to pay for the examination fees;
- The timeous distribution of Design Project Question Papers to examination centres and
- The preparedness of examination centres in terms of material resources.

Centres should be commended on that all registered candidates managed to submit design folios and projects for marking.

QUESTION PAPER

The question paper was of expected standards, challenging and arousing the competence of candidates because the problems they attempted were relevant to their situation both in rural and urban areas. The questions were also distributed to centres in good time. Moderators were happy that processes and skills the candidates were tasked to perform were within the bounds of the metalwork syllabus.

MARKING SCHEME

It has been observed during moderation that the marking scheme is being interpreted differently by teachers. This has been made abundantly clear by the differences on the deviations between the standardised moderators and the teachers. The range of deviation in most cases was above 20 marks. The main cause for the deviation is the lack of coordination workshops on the marking scheme with metalwork teachers involved in the design process and marking of the projects. There is therefore need to organise coordination workshops at National, Regional, District and Cluster levels to educate and adequately prepare all metalwork teachers so that the marking scheme is applied correctly without bias or prejudice to candidates and narrow the deviations.

LABELLING AND PACKAGING

Labelling and Packaging plays an important role on projects that are to be moderated at centres where the moderators did not get the candidates to identify their projects. It is therefore important for the centres to ensure that projects submitted for moderation are adequately labelled and well packaged. This will make it easy for projects identification and minimize the possibility of mock-up and artefact breaking as broken work also contributes to deviations in marks between the teachers and the moderators.

For easier identification and carriage, candidates' mock-ups and projects could be packaged in clearly labelled plastic bags before they are placed in common boxes from the centres as is the situation in the Metalwork Paper 2 (6045/2) practical examination.

OPTIONS

Out of the three options, just like the previous year, Sheet Metalwork and Forge-work were more popular with candidates than the machine work option which requires the use of machinery such as the lathe, the milling and the shaping machines. It is assumed that candidates could not opt for machine work because most machinery in school workshops is now redundant.

However, those who attempted machine work did not do much machine work processes besides drilling, otherwise the rest of work was more of bench work.

SPECIFIC COMMENTS

Situation and Design Brief

Most candidates managed to write down the situation and the design brief correctly although in some cases candidates left out key factors stated in questions. Centres could prepare candidates to improve on their approach on tackling specifications and factor analysis. This is so because the majority of candidates failed to justify the factors that had been clearly stated. However, candidates scored good marks in this area.

Investigations and generation of ideas

Some candidates exhibited a variety of good, relevant graphic presentations in the folios but most candidates from the same centres had similar findings. This clearly indicates that candidates simply copied a situation that discourages creativity. However, analysis of existing ideas was satisfactorily done in most centres though a number of candidates came up with limited analysis, an area that the teachers should dwell on to improve the quality of designs by the candidates.

Possible Solutions

Sketches for possible solutions in most cases were comprehensive, though candidates lacked in drawing quality sketches. Candidates were not critical in their analysis of the possible ideas. The poor analysis could be attributed to the duplication of researched ideas as possible with little or no adjustments at all to solutions. The chosen solutions were clearly marked but many candidates did not justify why the particular choices had been made.

Experiments/Testing Of Ideas

Experiments were rarely done by most candidates. Those who did, never included the evidence in their folios. This area could be improved on by recording all the little experiments done since the experiments influence the outcome of the final product.

Mock-Ups of Chosen Solutions

Many mock-ups that were made out of wood were of good quality while those made from paper or wire, were of poor quality. It was discovered that most mock-ups either deformed or broke in transit to the marking centres. This distortion affects candidates in that moderators mark projects in the state they find them in. In this case, projects that break in transit will not fetch much. In the folios, most candidates only evaluated the materials they used to make the mock-ups ignoring other areas such as appearance, methods of construction, scale, stability and proportion. The teachers are encouraged to put emphasis on the importance of analysing all the factors as this helps one to improve the project.

Working Drawings

Working drawings were poorly done by more than half the candidates. There were no conventions applied, scaling and dimensioning were not done and very poor line work was displayed. Indications are that drawing is an area that is being deliberately left out by teachers for reasons best known to themselves. Ways to improve the teaching of measured drawing should be found in order not to disadvantage the candidates.

Planning and Organisation

This area was well done by most candidates. The sequence and operation sheets were well illustrated and detailed. High marks were scored in this area.

Realisation of Design Solutions

The quality of work improved this year but candidates should work hard to improve on the quality of craftsmanship. They failed to operate within the specified limits and measurements that guided them though candidates got marks for stability, symmetry and squareness.

Quality of Construction

The quality of realised work varied. Some candidates had poorly constructed artifacts while others produced good quality work. More time should be given to students to do the practical component of the course.

Finish

Candidates who painted for a finish did so very well though a lot of work should be done to prepare for finishing. Some candidates painted galvanized iron and lost marks because galvanising is considered a finish.

Evaluation

Most candidates found evaluation very difficult. It is felt that more could be done to prepare candidates to evaluate their projects adequately. The idea is not to defend what one has produced but to guide those who may want to improve on the idea in future.

RECOMMENDATIONS

To improve the conditions of the design paper and the quality of responses from candidates, the following recommendations are suggested for consideration:-

- residential marking should be considered to cut down on travelling expenses and minimize the tendency of biased marking that emanates from moderators marking work from own regions. Moderators should not mark their own work. A different moderator should mark.

- centres should be encouraged to purchase and supply the correct materials including drawing paper to candidates in good time;

- examination centres should introduce an identical, reliable and stable method of labelling and packaging of projects. The labels should include the name of centre, centre number, the name of candidate and the candidate numbers written on strong and uniform tags;

- coordination workshops should be held at National, Regional District and Cluster levels for common interpretation of the marking scheme in order to narrow the levels of deviation and to share ideas in design technology;

- packaging of mock-ups and artifacts should be improved on to minimize breakages; and

- stakeholders should source funds to assist the Government and examination centres to repair, replace or buy new machinery for candidates to fulfil all expectations of the course, including machine work.

CONCLUSION

Candidates who registered for Metalwork Paper 3 have done well. It is hoped that the conditions will keep on improving so that the design process which is key to development is enhanced.