

UNIVERSITY OF MALTA
SECONDARY EDUCATION CERTIFICATE
SEC

GRAPHICAL COMMUNICATION

May 2008

EXAMINERS' REPORT

MATRICULATION AND SECONDARY EDUCATION CERTIFICATE
EXAMINATIONS BOARD

**SEC Graphical Communication
May 2008 Session
Examiners' Report**

Part 1. Statistical Information

The tables below show the distribution of grades for the May 2008 session.

Distribution of Grades**Table 1: Distribution of Grades for Paper A and Paper B candidates.**

Grade	1	2	3	4	5	6	7	U	Abs	Total
Paper1&2A	25	55	59	105	144	-	-	82	3	473
Paper1&2B	-	-	-	14	46	38	54	49	19	220
Total	25	55	59	119	190	38	54	131	22	693

Table 2: Distribution of Grades for all candidates.

Grade	1	2	3	4	5	6	7	U	Abs	Total
Candidates	25	55	59	119	190	38	54	131	22	693
%	3.6	7.9	8.5	17.2	27.4	5.5	7.8	18.9	3.2	100

General Comments

The examination consists of two papers, Paper 1 and Paper 2, each of two hours duration. Paper 1 is common to all candidates. There were two versions of paper 2, 2A and 2B. Questions in Paper 2A are more difficult than those set in paper 2B according to the current syllabus.

To attain a grade in this examination, candidates must be able to read the questions with attention, understand what is required of them and submit a solution in a neat and relevant manner.

Examiner's report offers practical tips to teachers and students. It cannot be stressed enough that before attempting the questions, candidates should consider carefully what the object of the question is: misunderstanding costs many otherwise good important marks. Teachers should stress the point of reading the set questions thoroughly and help students acquire confidence in expressing their ideas by sketches and then presenting the solution. Students should be taught that dimensions and answers are always given in millimeters unless otherwise stated in this subject.

A good number of candidates were well prepared and responded positively to the questions set. Others showed a noticeable lack of understanding of the practical application of fundamental geometrical principles and were unprepared. In general the quality of line work was satisfactory. However, there were instances, where candidates

did not show sufficient construction lines to give a clear indication of the geometrical construction used. It is of imperative importance that candidates leave construction showing so that examiners will be able to follow the method employed to reach the solution. There were instances where candidates were instructed to "leave all construction lines visible" in the question and yet construction lines were completely erased.

Part 2. General Comments

2.1 Paper 1

Question 1

This question was divided into two sections having six marks each. A figure of a star was shown and candidates were requested to construct the star in a geometrical manner.

Candidates were tested in the geometrical construction of a:

- a) regular polygon: one expected that the construction of a polygon is a popular topic, yet it was on the whole not very well answered. Candidates were requested to draw a pentagon in a given circle and lining by bold lines the upper part of the star. The drawing of the pentagon was presented in many cases by trial and error method, some with no construction visible whatsoever.
- b) Triangle: given the length of the base, an included angle at that side and the perimeter so as to complete the lower part of the star. It was extraordinary how many candidates ignored the second part of the question, or found it very difficult to answer. The basic geometrical construction must not be neglected and should be practiced regularly.

Table 3 below shows the performance of candidates regarding this question.

Table 3: Performance in Question 1

0	1 to 6 marks	7 to 11 marks	Full marks	Abs
10.5%	81.4%	4.2%	0.7%	3.2%

Question 2

This was another question where one was expecting very good results. The method of enlargement and reduction of figures is simple enough.

- a) Most candidates attempting this question were able to enlarge the figure accurately but found difficulty in enlarging the semi-circles and circle.
- b) Some candidates lost marks for presenting the plain scale inaccurate, others failed to measure and specify the required length Z-N.

Table 4: Performance in Question 2

0	1 to 6 marks	7 to 11 marks	Full marks	Abs
16.6%	40.5 %	37.5 %	2.8 %	3.2%

Question 3

This was a very popular question with many good solutions being submitted and most candidates demonstrated a good understanding of the ellipse and its properties. A considerable number of candidates lost marks for drawing the construction lines with thick bold lines and presenting the solution in an untidy manner.

Table 5: Performance in Question 3

0	1 to 6 marks	7 to 11 marks	Full marks	Abs
5 %	42 %	40.8 %	9 %	3.2%

Question 4

The examiners view with some concern that a significant number of candidates were unable to find the true length of a line properly. An important topic like this cannot just be ignored and neglected.

- a) Difficulty was experienced by some candidates completing the plan of the inverted pyramid.
- b) There were some correct constructions showing how the true length of the pyramid is found and candidates presented the surface development correctly. It was evident that candidates not familiar with the method of finding the true length, presented their solutions by drawing a series of lines aimlessly in space, ending nowhere. The method of finding the true length is extremely useful in the geometry of pattern developments.

Table 6: Performance in Question 4

0	1 to 7 marks	8 to 13 marks	Full marks	Abs
15 %	62.5 %	17 %	2.3 %	3.2%

Question 5

The syllabus specifies topics that should be covered carefully by candidates sitting for this examination. Some candidates are not aware of this and give the impression that they do not read the syllabus. The solutions they present in examination looks like the first question they ever attempted, and they seem to invent a method on the spur of the moment, besides presenting a careless solution.

- a) Much time is wasted in trial and error, by stubbing around the compass point to locate the centres from which the blending arcs are struck. Marks are simply not awarded for such solutions. The three simple tangency constructions which produce the exact centres from which the blending arcs are struck should be emphasized more.
- b) More attention should be given to the principle that any triangle drawn with the diameter of a circle as the base and its vertex on the circumference is a right angle.
- c) Many left out this part of the question most probably because they had difficulty in locating geometrically the centre of the arc MN.

Table 7: Performance in Question 5

0	1 to 7 marks	8 to 13 marks	Full marks	Abs
1.5 %	32 %	60.5 %	2.8 %	3.2%

Question 6

A sectional orthographic view testing the candidates on the basic principle of ribs and webs. A number of candidates forgot that when it comes to longitudinal cutting planes, webs, ribs, spokes shafts and similar parts sectioned along their axis are not to be shown in section. Many students seem to have little idea of the difference between a casting and a fabrication. As a matter of fact they used different angles for hatching lines to represent the different members of the given casting when one angle of 45° for the whole component to represent its section was more than enough.

Many candidates confused the first angle symbol with the third angle orthographic ISO/EN standard conventional symbol. Others had no idea at all, of the projection symbol, for they ignored completely the last part of the question.

Table 8: Performance in Question 6

0	1 to 9 marks	10 to 17 marks	Full marks	Abs
4.6 %	48.5. %	42.9 %	0.8 %	3.2%

Question 7

Details of a Wall Unit in orthographic projection were given and candidates had to present a two-point perspective drawing, one must admit this type of drawing is not easy, but rewarding when the method is mastered. The given figure must be understood before the perspective is attempted, therefore candidates must be fluent in both first and third angle projection.

The concept of perspective is that, the further away the objects are, the smaller they become. Unfortunately many students lack the basic fundamental principle and divided both length and width of the unit geometrically into equal parts, which was totally wrong. The crate had been given to eliminate the hustle to foreshorten both the length and width of the unit and to locate precisely the required vanishing points. The pictorial view was given in addition to the orthographic view to help the students visualize the unit more. Most candidates had little knowledge of how to represent the ISO/EN conventional symbol of glass.

Table 9: Performance in Question 7

0	1 to 9 marks	10 to 17 marks	Full marks	Abs
2 %	20. %	72.5 %	2.3 %	3.2%

2.2 Paper 2**Question 1**

A hospital brochure and two detailed drawings were shown. After studying the given figures candidates had to;

- a) Submit two preliminary sketches
- b) make a neat drawing of the best logo sketched and
- c) colour the logo depicting the services of a Dental Clinic (Paper 2A) or of a Family Doctor (Paper 2B).

This question focused upon graphic design issues. It must be said that when candidates are asked to find ways of presenting visual images on paper they seem to be at a loss or find it too difficult to express their ideas. Students lack creativity. A large number of candidates still select to follow the first idea that comes into their minds. Examiners reward the more ingenious and individual interpretations. Teachers should help students acquire confidence in expressing their ideas by means of sketches and finally presenting a good graphic drawing.

Paper 2A

Many candidates presented a drawing of a toothpaste and toothbrush, others a picture of a funny smiling face showing white teeth others a crying face, one presented a "No Dogs" sign.

Paper 2B

The most popular was of a patient on a couch. It must be said that a good number were of an artistic nature.

Table 10: Performance in Question 1

	0	1 to 5 marks	6 to 9 marks	Full marks	ABS
2A	2.6. %	61. %	31.2. %	4.2 %	1 %
2B	2 %	64. %	21.5. %	1.5 %	11 %

Question 2

A popular question and most candidates were able to construct the vertical bar chart and the pictorial pie chart. It was evident that candidates had good training in this type of questions, where colours are involved. On the other hand marks were deducted for colouring the solutions carelessly.

Candidates were asked to show their calculations, yet some neglected this suggestion, others presented their calculations in a barely legible manner.

Table 11: Performance in Question 2

	0	1 to 6 marks	7 to 11marks	Full marks	ABS
2A	0	6 %	71 %	22 %	1 %
2B	0	12 %	66. %	11 %	11 %

Question 3

Candidates were tested in the construction of the locus of a point – a cycloid. . A simple construction of a circle rolling on a line, requiring little thought, especially if followed by a practical application. Most of candidates were not familiar with the basic construction of the cycloid. In fact there were some candidates who seemed to invent a method for constructing the locus of the point on the spur of the moment. In both papers (Paper 2A and Paper 2B) the solution was symmetrical about the vertical centre-line, thus only half of the locus had to be constructed and copy the other half.

Table 12: Performance in Question 3

	0	1 to 7 marks	8 to 13marks	Full marks	ABS
2A	19	38.5 %	37.5 %	4 %	1 %
2B	47	29 %	11. %	2 %	11 %

Question 4

A popular question and examiners expected some excellent solutions of the circuit line-work and symbols. Another question with a practical example was offered to candidates. Some circuits and symbols were very clearly represented, but in a number of solutions some components were omitted. A good number of presentations were carelessly connected and the position of the electrical components would have made the circuit lethal, if they had been energized. Marks were deducted due to lack of appropriate consistency in lines representing the circuit and types of connecting points. Candidates presenting freehand drawn lines and components were heavily penalized.

Table 13: Performance in Question 4

	0	1 to 7 marks	8 to 13marks	Full marks	ABS
2A	2.3 %	42.3 %	54.2 %	0.2 %	1 %
2B	17	76.8 %	4.5. %	0 %	11 %

Question 5

Another question where candidates showed that they did not cover all the topics listed in the syllabus. They showed that they were not familiar with the terms, 'vectors, space diagram, polygon of forces and magnitude'. Some candidates did not even attempt to try to answer this question, and left the space blank. Others merely copied the given diagram. However, there were other candidates especially candidates who opted for Paper 2A who managed to submit good solutions and were awarded full marks. Some candidates experienced difficulty in constructing the scale and in drawing parallel lines for the vectors.

Table 14: Performance in Question 5

	0	1 to 7 marks	8 to 13marks	Full marks	ABS
2A	14 %	7.5 %	41.5 %	36 %	1 %
2B	26.8 %	30.9 %	19.5 %	11.8 %	11 %

Question 6

Two orthographic views in first angle projection and an isometric sketch of a Stone Bridge (Paper 2A) and a Gateway (Paper 2B) were illustrated. Candidates were expected to present an auxiliary view on a pre-set X-Y line looking on the plan in the direction of the arrow A.

This was not an easy and popular question, but most candidates attempting it were able to construct the auxiliary view. Some difficulty was experienced by candidates, when trying to obtain the inner curve of the archway. Some got mixed up when transferring the height from the elevation to the corresponding projection lines drawn from the plan view. A good number of candidates, especially from candidates opting for Paper 2A made use of thin light lines for projection and lined in the required auxiliary elevation by neat and bold lines, thus succeeding in obtaining full marks. These types of solutions were very

clear to follow the method employed, in fact, there were some candidates who even labelled the construction lines by neat numbers and letters showing from where they obtained the heights for the auxiliary view. Others unfortunately preferred to use thick bold lines both for the projection of the lines and for the outline of the archway.

Table 15: Performance in Question 6

	0	1 to 9 marks	10 to 17marks	Full marks	ABS
2A	29 %	22.6 %	48.5 %	21.5 %	1 %
2B	11.3 %	33.6 %	36.8 %	16 %	11 %

Question 7

A cylindrical part intersecting a triangular prism forming a niche was illustrated. Candidates were presented with two complete views and were to ;

- (a) complete the given front view by drawing in the missing curve of intersection
- (b) draw a half surface development on the pre-set centre-line.

The response to this question was very disappointing; both in number and in quality, for the solutions were not well answered. It has already been stressed that topics of this type just cannot be ignored.

- (a) Many candidates managed to solve the curve of intersection, but the presentation was very poor due to lack of accuracy and the types of lines drawn. Some presented the curve of intersection very crudely, without showing how the curve was obtained, others managed to draw the curve, without making use of projection lines from the end view and plan, while others did not make use of the 45° projecting line at all.
- (b) Many candidates ignored completely this part of the question. There were some candidates who showed some preliminary construction line, got confused and lined up the supposed development by using a freehand curve.

Table 16: Performance in Question 7

	0	1 to 9 marks	10 to 17marks	Full marks	ABS
2A	11.6 %	57.7 %	28.3 %	1.4 %	1 %
2B	22.5 %	53.5 %	12.6 %	0.4 %	11 %

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