

## Examiners' Report on Paper B

### Background

The official communication cited two new documents, DII and DIII. DII clearly anticipates claims 1 to 4 and the client admits that it would not require an inventive step to use contactless detecting means in place of the brushes of DII. It would clearly be undesirable to amend the claims so that one of the two embodiments of the invention was no longer covered, so that amendments based on claims 5 or 6 would not be in the clients best interests. Although the subject matter of claim 7 is known from DIII, the client's letter states that the signals produced by this device necessitate the use of a complicated signal processor. In this device, information relating both to the amount of movement and the direction of movement is encoded in a single signal. The candidate should thus conclude that the concept of using a transducer which generates two staggered pulsed signals, the order of the pulses of which is indicative of the direction of movement of the device, appears to be patentable. This concept is disclosed in the application as filed at page 6, lines 10 to 22 and in Figure 9 in respect of the optical arrangement and at page 7, lines 20 to 26 in respect of the inductive arrangement.

### 1. Independent claim(s)

- 1.1 A good independent claim can thus be obtained by restricting claim 1 as filed by the introduction into claim 1 of the features of the transducers which enable the direction of rotation of the ball to be detected. The solution disclosed in the application is to generate two pulsed signals, the order of the pulses of the signals enabling the direction of rotation to be determined. In the case of the pulses being simultaneous or equally spaced from one another, it is impossible to detect the direction of rotation (see page 8, lines 4 to 6 of the application), and it is therefore not possible to refer to the pulses being in a particular order. Some good claims included this negative criterion. It is, however, possible to express this concept in a number of ways given the disclosure of the application as filed and good marks were given for a number of different formulations of this concept. It is, however, essential that the characterising features are drafted in terms of apparatus features, e.g. "arranged such that" with a definition of the function.
- 1.2 A number of candidates produced claims which, at least arguably, offend against Art. 123(2). Omitting features from claim 1 as filed often resulted in claims offending against Art. 123(2). Thus, a number of candidates omitted the reference to the signal comprising a number of pulses corresponding to the amount of rotation of the ball, and marks were lost accordingly. Whilst there is disclosure of encoder discs with slots, apertures and teeth, there is no basis for a reference to, for example, "markings" or "discontinuities" in general. There is thus a potential danger when candidates attempt to generalise and it was necessary to decide on a case to case basis if such generalisations were justified in the light of the disclosure of the application as filed, including the drawings and in the light of the candidates argumentation. Potentially more serious are restrictions introduced into the claim for which no support exists in the application as filed and which could not be removed after grant without broadening the claim and therefore offending against Art. 123(3). Claims which would be caught in such a trap were heavily penalised. Minor offences, on the other hand, such as that exemplified above, which could be remedied by restriction of the claim were less heavily punished.

- 1.3 It was decided that a reference to "phase difference" would be acceptable. Similar reference to the "order of the pulses of the two signals is such that the direction of rotation can be detected" is potentially good (better than a reference to the order of the signals), as is a reference to the pulses of one of the signals leading or lagging the pulses of the other. The claim should, of course, be clear with respect to the signals between which a phase difference or order is defined. A reservoir of suitable language is found in the application as filed, in particular at pages 6 and 7. In general, the unnecessary use of wording which is of equivalent effect to wording which could be drawn from the application as filed was regarded as undesirable. Any candidates who did use such wording were, of course, expected to justify the allowability of the wording under Art. 123(2).
- 1.4 The presence of unnecessary features in the independent claim was treated in a similar fashion to Paper A. More serious, of course, were restrictions which resulted in one of the embodiments falling outside the scope of the claim. Some marks could, however, be recovered, if the candidate suggested the filing of a divisional application for the lost embodiment.
- 1.5 Claims directed to solutions other than the staggered signal solution, that is either the biasing or the contactless solution, were found to be bad. The clients wishes, as expressed in his letter, should be followed unless there is good reason to depart therefrom.
- 1.6 A suggestion to file a divisional application having a claim directed to the feature of magnetic induction, but not restricted to staggered signals earned the candidate some credit.

## 2. Dependent claims

- 2.1 In the case of the preferred solution, claims 2 to 6 may be retained, although it was necessary to amend or delete claim 7. Some credit was given to candidates who did this. However, in order to earn good marks for the dependant claims, candidates were expected to introduce new dependent claims representing improved fall back positions.

## 3. Argumentation

- 3.1 Most candidates seem to have read the past examiner's reports and produced argumentation which is divided into the sub-sections as set out below. It was, however, noted that many candidates, whilst able to follow this form, did not achieve what is, in fact, more important, that is, to provide convincing, logical argument which is consistent with what is desired to be protected. The examiners were more convinced by candidates who clearly knew what they were trying to achieve than those who slavishly follow the preferred form without the required substance. Thus, marks were available for the following points:-
  - 3.1.1 a discussion of the **sources of amendment and issues arising under Art. 123(2)** including the basis for and identification of amendments and the basis for and justification of any generalised expressions or omitted features in the claims under Art. 123(2). Marks were lost in the event of inadequate or non-existent argumentation concerning the allowability of amendments under Art. 123(2).

3.1.2 **arguments concerning novelty** over the available prior art documents. Although it is, course, enough to establish novelty over a document to point out a feature of the independent claim which is absent from that document, the examiners were more convinced when candidates pointed out which features in the prior art devices served the function of the absent feature. Thus, for example, a statement to the effect that each transducer of DII only generates a single pulsed signal as opposed to two pulsed signals is satisfactory. However, a better answer points out that, whilst the transducer of DII produces two signals, only the first of these is pulsed and the second, which carries out the function of direction detection, only adopts one of two values according to the direction of movement, and that even if pulses were to be produced in the second signal by appropriate movement of the device, there is no question of any such pulses being staggered with reference to the pulses of the first signal.

3.1.3 **arguments concerning inventive step**. These are sub-divided as set out below.

- (I) **Identification of the closest prior art**. Either DII or DIII could be regarded as the most relevant document. If starting from DIII, it is a mistake to read too much into the reference to a mouse in DIII. It is arguable whether or not a mouse always has a ball, also whether or not the presence of two transducers is implied. Candidates were expected to justify their choice.
- (ii) **Definition of a problem associated with the closest prior art** relevant to the distinguishing features of the independent claim.
- (iii) Arguments as to **why the prior art does not lead to the invention as claimed**, including in DIII, where appropriate, why the invention provides a solution to the stated problem. Poor marks in this category were given to candidates who merely stated that the prior art does not disclose an arrangement which produces two staggered signals and therefore this solution must be inventive. Better marks were given to a candidate who argued convincingly that one would still not arrive at the claimed solution even if the two documents were combined. This can be achieved by suggesting what arrangements falling outside the scope of the claim would plausibly result from a combination of the teaching of the cited documents. Further credit was given to candidates who, in addition, established that there is no other incentive to arrive at the claimed solution. The examiners do not insist on the use of the problem and solution approach, and other approaches can be valid. On the other hand, technical progress is not necessarily relevant to the issue of inventive step.

3.2 **Presentation**. Candidates lost points for illogical, muddled presentation. It should be clear which arguments are considered by the candidate to be relevant to which issue.

**EXAMINATION COMMITTEE I**

Candidate No. ....

**Paper B (Electricity/Mechanics) Schedule of marks**

Category	Maximum possible	Marks awarded		Revision of marks / grade (if any)	
		Exr .....	Exr .....	Exr .....	Exr .....
Claims	24				
Argumentation	24				
Total	48				
Corresponding Grade					

Translation of marks into grades

Mark	Grade
0 - 11	7
12 - 17	6
18 - 23	5
24 - 29	4
30 - 35	3
36 - 41	2
42 - 48	1

Marking by further examiners if appropriate

	Claims	Argumentation	Total	Grade
Examiner .....				
Examiner .....				

**Remarks** (which must be given if both the following requirements are fulfilled:

- (a) the grades awarded by the two individual examiners before their discussion differ by two grades or more;
- (b) the marks awarded by at least one of the two individual examiners have been changed during their discussion.)

If marks are revised, a brief explanation should be given.

Sub-Committee for Electricity/Mechanics agrees on \_\_\_\_\_ marks and grade \_\_\_\_\_

Grade recommended to Board \_\_\_\_\_

The Hague, 5 September 1996

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J. Combeau - Chairman of Committee I