
Examiners' Report on Paper A (Electricity/Mechanics)

General considerations

The client is a natural gas supply company that exploits gas fields both on land and offshore. As explained in the client's letter with respect to offshore production there is a need to have large capacity storage facilities for the gas on land. Reference is made to an enclosed report of one of the client's research people, Mr Vantor, who has been investigating the use of cavities in salt formations for this purpose.

The client wants to obtain protection for the proposals made by Mr Vantor in his report, taking into account the prior art indicated in his report and the use of cavities in salt formations for the storage of energy known from Document I.

Independent claim(s)

In the report of Mr Vantor three embodiments are disclosed. The embodiments shown in Figures 1 and 2 relate to the storage and recovery of natural gas, whilst in the embodiment of Figure 3 energy is stored and recovered. However, most of the candidates realized that the common concept in all embodiments is to use a pressurized first fluid to increase the potential energy of a second fluid, and thus drafted an independent claim directed to a system or method for storing and recovering energy in broad terms.

Candidates who submitted one single independent claim not covering all the embodiments were penalized. Some marks were recoverable by an additional independent claim. No marks were, however, given for the suggestion to file a separate application for an embodiment not covered by the claims, as there was a unifying common concept between the three embodiments, as already mentioned above.

With respect to the category of the independent claims it was possible to draft apparatus/system or method claims in order to obtain good protection. However, it was considered that in this year's paper full protection and therefore the maximum marks could only be obtained if independent claims in both categories were submitted. A method claim referring back to a system claim, e.g. a claim for a method of operating or using the system defined in another claim was considered to be of less value.

A good independent claim directed to a system for storing and recovering energy should have specified the following features:

- two reservoirs;
- a fluid present in the lower parts of the reservoirs;
- means connecting the reservoirs such that the fluid can move from one reservoir to the other reservoir;
- means for forcing another fluid having a lower density in the upper part of one of the reservoirs.

In a good independent method claim the same features should have been included, but drafted in terms of a method.

If essential features were missing in the claims, e.g. if it was not mentioned that the are of different densities or that one of the fluids was forced under pressure into the upper part of one of the reservoirs, a number of marks were lost.

The omission of essential features sometimes lead to a situation where novelty was put into doubt. Clear cases of lack of novelty lost a substantial number of marks.

A candidate also lost marks if the claims were unduly restricted, e.g. by indicating that the reservoirs are formed by cavities in a salt formation. Unnecessary restrictions were features like: the reservoirs are located underground, the reservoirs are located at different levels, the fluid forced in the upper part of one of the reservoirs is a gas.

Excessive generalisation tended to result in a lack of clarity, which was penalized according to its severity. Formal deficiencies such as a clearly incorrect two-part form of the claims resulted in a minor deduction.

Dependent claims

The dependent claims should have been directed to the specific aspects of the three embodiments, i.e. the means for connecting the source of pressurized gas to the upper part of one of the reservoirs, the other reservoir being open to atmosphere (Figure 1), the provision of a pump/turbine unit coupled to a generator/motor unit and the connection of the pump/turbine unit to the reservoirs and the source of pressurized gas (Figure 2), and the arrangement of the pump/turbine in Figure 3.

These aspects should have been progressively developed and structured to provide good fall-back positions.

Description

Acknowledgment of the prior art indicated in both the report of Mr Ventor and the disclosure of Document I was expected.

Candidates were expected to produce convincing and comprehensive analysis of the problem and its solution. General statements like "the problem is to improve the known system" or "the problem is to avoid the disadvantages of the prior art", unless these specific disadvantages were identified, did not attract many marks.

Conclusion

Candidates are reminded that careful attention should be paid to the question of which type or types of independent claims would confer the best protection and draft their answers accordingly. Moreover, particularly this year, some candidates paid insufficient attention to the determination of the general underlying concept of the problem set, and hence became embroiled in unnecessary lack of unity considerations.

Lastly, it should be clear to candidates that any comments made in the examiners' reports should not be taken out of context and are normally only applicable to the paper for which that report was written.

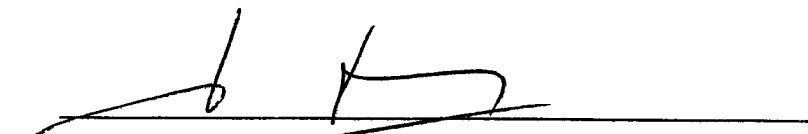
Paper A (Electricity/Mechanics) 2000 - Schedule of marks

Category	Maximum possible	Marks awarded		Marking by further examiners if any	
		Marker	Marker	Marker	Marker
Independent claims	50				
Dependent claims	35				
Description	15				
Total	100				

Sub-Committee for Electricity/Mechanics agrees onmarks and recommends the following grade to the Examination Board:

- PASS (50-100)
- FAIL (0-49)
- COMPENSABLE FAIL (45-49, in case the candidate sits the examination for the first time)

The Hague, 30 August 2000



J. Combeau - Chairman of Examination Committee I