MODEL EXAMINATION AT THE MANAGEMENT LEVEL (ML)

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CESNI
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Model examination at the management level

Introduction

The existing Standards for practical examination for obtaining a certificate of qualification as a boatmaster (ES-QIN, Part II, Chapter 4) establish the framework for examinations at the management level. To provide the authorities with guidance on how the examination is to be conducted within this framework, the CESNI/QP working group decided to develop a model examination in accordance with ES-QIN.

Chapter 4 contains two parts: journey planning (I) and journey execution (II). This document contains a model examination for both parts. The journey planning part of the practical test is characterized by the questions designed primarily to assess the candidate's knowledge, in contrast to the journey execution part, which aims above all to assess the candidate's abilities.

The model examination will be conducted on the assumption that the candidate has previously passed a theory examination (ES-QIN, Part I, Chapter 2, Standards of competence for the management level). The concluding practical examination will start with the journey planning part and will be followed by the journey execution part.

Part 1 of the examination: journey planning

A Explanation and minimum requirements for future questions in the part of the examination on "journey planning"

This part of the examination can take place on an examination location or on board a vessel. This part of the examination will be a written examination (or will use a corresponding electronic tool, see point 3). Once the candidate has answered the questions, he may be asked oral questions about his answer and/or the contents of the examination.

The part of the examination on "journey planning" should normally always contain crossing a border, a lock and a bridge. In addition, the route to be planned should always contain a free-flowing stretch of river and a stretch without a current. The minimum sailing time for the journey to be planned in this part of the examination should not be less than 72 hours.

The following task concerns a practical examination with a cargo vessel. If examination scenarios with other types of vessel are to be used, the answers will have to be adapted accordingly.

In principle, no knowledge can be demanded from the candidate that is the subject of the examination of the authorisation for stretches with specific risks. If route-specific knowledge is a topic, it shall be sufficient for this examination if the candidate can provide information on how he obtains this knowledge.

This model examination covers at least elements nos. 1, 3, 4, 9, 11, 13, 14, 16, 33 and 34 of Category I and elements nos. 2, 5, 10, 23, 25, 28, 29, 31, 35, 36 and 38 of Category II. Each draft answer contains an indication of which elements it covers.

B Question

Note: the information contained here will be made available to the candidate at the start of the time allowed for answering the question. With regard to the length of the examination and its extent, it will only be possible to hand out a representative share of the following questions. However, it must be ensured that the candidates do not know before the examination which questions are going to be asked.

You are to transport animal feed from Antwerp to Budapest by motor vessel “ES-QIN” (length 86 m, width 9.50 m). Plan the journey section from Antwerp as far as Aschaffenburg. The “ES-QIN” is equipped to standard S2. When sailing in standing water and carrying its maximum load, the craft reaches an average speed of 16 km/h; the vessel is operated in continuous voyage mode. The crew are on board for 14 days and then have 14 days’ leave; the current crew have already been on board for 10 days. Today is your first day on board as the boatmaster. Assume that your crew have just taken all the required rest periods.
The animal feed to be transported has a specific weight of 0.65 t/m^3. The only hold has a volume of 2,000 m^3 up to the coaming. Loading will commence shortly.

The vessel uses gas oil as a fuel, the bunker capacity of the craft for the main engine is 25,000 litres and is distributed between 2 on-board bunker tanks. There is currently still a total of 4,000 litres of gas oil in the two bunker tanks. The craft consumes an average of 180 litres per hour with the engines operating at full load.

When planning your journey, enlarge on the following aspects, in particular:

I. Sailing route and navigation

1. Describe the sailing route. Which waterways will you be using? Which police regulations will apply to you and on which stretches of your voyage? How much time are you allowing for each stretch and why?

2. Also consider ecological and economic aspects in your journey planning.

3. What are the maximum permissible dimensions (length, width) of vessels navigating on the waterways you have selected? What are the bridge clearances for your journey section, and what will you have to bear in mind when passing bridges?

4. How are you calculating the relevant fairway depths on your stretch, and how are you taking account of the weather situation of recent days and upcoming days when determining the draught of your craft.

II. Cargo

1. On what does the amount of cargo depend, and how are you calculating the maximum amount of cargo that you can carry on board? What will you need to bear in mind when loading with regard to water levels? How much cargo are you allowed to take on board?

2. Explain how you will respond to any great reductions in water level that may occur.

3. How and where do you have to stow the cargo on board? Describe how you will achieve optimum capacity utilization of the holds with regard to a nautically economical trim of the craft. Describe how you would optimally trim your craft.
4. What will you need to bear in mind during the journey with regard to the cargo?
5. What will you need to bear in mind during loading and unloading?

III. Crew

1. Which and how many crew members must be on board during the voyage?

2. How long may crew members normally be on duty on board, and when must they normally take a rest or break? How long must each of these rests or breaks be?

IV. Documents

1. What documents relating to the vessel, cargo and/or crew will you need to have on board?

2. What will you need to bear in mind with regard to their validity?

3. What documentation will you have to do during the voyage in everyday operation?

V. Fuel

1. Calculate the fuel consumption for the journey section you have to plan and where and how much fuel you will be bunkering. What will fuel consumption be like on a stretch regulated by weirs or a canal compared with that on a free-flowing river?

2. What precautions will you take during the bunkering procedures?

VI. Devices and equipment on board

1. What determines the technical devices for the voyage that have to be on board and which devices are they?

2. What maintenance or inspection of technical devices might you have to perform during the voyage?

3. What will you need to bear in mind with regard to the use of ropes and wires on board?

VII. Life on board and health and safety at work

1. How will you organize the provision of food for the crew on board during the voyage?

2. Which health and safety at work rules will you have to observe during the voyage, e.g. with regard to access to the craft, the use of hazardous substances or the cleaning of enclosed spaces?

3. What briefings will you have to give to the crew?

4. What precautions will you take with regard to possible emergency situations on board?

5. What measures will you take in everyday operation to prevent water from penetrating the vessel, and what measures will you take in the event of flooding?

6. What will you need to bear in mind with regard to environmental protection?

Should you consider further documents in addition to the documents enclosed with this question to be necessary, assume that they will be available on board, valid and, additionally, have the necessary contents.

C Additional aids made available to the candidate:

The use of a (software) examination tool made available by the examining body for answering the examination questions will normally be possible. However, this tool must not relieve the candidate of the work involved in arriving at the following solutions. The tool should make it possible to retrieve real-time information about the waterways in question (e.g. water levels, closures, restrictions on usability), for instance via an internet connection. If, however, a software tool is permitted, the candidate must be allowed to use other sources for journey planning.

The following documents relating to the vessel will be made available to the candidate:

- inland navigation vessel certificate;
- measurement certificate;
- safety rota;
- copy of the Police Regulations for the Navigation of the Rhine in their latest version;
- Regulations for Rhine Navigation Personnel, national personnel regulations (if available in the language of the country in which the examination is taking place);
- working and resting time provisions of the countries affected (if available in the language of the country in which the examination is taking place);
- map of the European waterways network including information on channel depths, bridge clearances and permissible dimensions or access to websites containing information on the European waterways network, but no journey planning tool

D Sample solution

(…)

Part 2 of the examination: Journey execution

The candidates must prove that they are in a position to execute a journey. A major prerequisite for this is that the candidates operate the craft themselves. The individual elements of the examination are listed in the ES-QIN standard and, unlike the part of the examination on journey planning, must all be tested.
For organizational and financial reasons and for reasons of repeatability, this part of the examination is preferably conducted on an approved inland navigation simulator (ES-QIN, Part III, Chapter 1: Technical and functional requirements for vessel handling and radar simulators in inland navigation).

If no suitable simulator is available, the examination may also be conducted on a vessel, if possible on a commercial craft with a length of 86 m.
The journey execution must include a locking operation or a bridge passage.

Assessment

Ideally, each question answered by a candidate will be assessed by at least two examiners. The examiners will observe the candidate's abilities and may ask questions to examine the candidate's knowledge. Assessment will be done on the basis of an assessment sheet with assessment criteria per element of the examination (Annex 1). Each part of the examination will be awarded a number on a scale from 1 (poor) to 10 (excellent).
The examiners will complete and assessment form for this part. If an element is awarded less than 7, the examiner must always make a note on the assessment form. At the end of this part of the examination, the assessment sheets will be collected from the individual candidates, and the examiners will decide which candidates have passed.

This part will be conducted in a wheelhouse environment.
The candidates should be requested to explain, if necessary, what they see or have to do. The examiner will word the question such that the examiner can judge whether the candidate is making conscious decisions to act. The examiner will ask open questions so that the candidate has to give reasons for his answers and cannot just answer yes or no. The examiner will make a note of the questions asked.

Annexes

Annex 1

Scenario – Journey from berth to berth on a vessel-handling simulator or on board a craft			
Initial situation	**Location**	**Position**	**Examination element**
Preparations for the start of the voyage Set up the navigational instruments Collect local navigational information and voyage information. Activate and set up AIS/Inland ECDIS (departure) Final pre-departure check (vessel and cargo)	Start ideally at a location without current, without a major lock or at a large berth at a port		3: 1.1.5 4: 1.1.5 5: 1.1.6 6: 2.2.2
Scene 1 (around 15 minutes) Cast off, communicate with the deck crew, other craft and the vessel traffic services (VTS) or port authorities and/or the lock. Begin with a simple manoeuvre, short voyage.			1: 1.1.1 2: 1.1.4 3: 1.1.5 4: 1.1.5 6: 9.1.1 8: 5.1.2 9: 6.1.1 10: 6.2.2 12: 7.3.4
Scene 2 (around 15 minutes) Bridge passage, overtaking and meeting other craft.			1: 1.1.1 4: 1.1.5 8: 5.1.2 9: 6.1.1 10: 6.2.2 12: 7.3.4
Scene 3 (around 20 minutes) Failure of a system and anchoring in a safe place, setting the anchor, crossing to the other side of the fairway with traffic. Use of the blue sign and communications.			1: 1.1.1 4: 1.1.5 2: 1.1.4 8: 5.1.2 9: 6.1.1 10: 6.2.2 12: 7.3.4

Scene 4 (around 25 minutes) The voyage takes place in a traffic situation with several craft and the route ends at a cramped berth or in a small lock.			1: 1.1.1 4: 1.1.5 2: 1.1.4 7: 4.2.2 8: 5.1.2 9: 6.1.1 10: 6.2.2 11: 7.3.3 12: 7.3.4

Annex 2

Scenario 1 – Simulator voyage from Botlek to Moerdijk MCT, Container terminal crossing			
Initial situation	**Location**	**Position**	**Examination element**
Preparations for the start of the voyage[1] Set up the navigational instruments Collect local navigational information and voyage information. Activate and set up AIS/Inland ECDIS (departure). Final pre-departure check (vessel and cargo)	Welplaathaven waiting area, Rotterdam Botlek		3: 1.1.5 4: 1.1.5 5: 1.1.6 6: 2.2.2
Scene 1 (around 15 minutes) Cast off from waiting jetty number 3 and sail towards Oude Maas. Own craft (bow towards shore) is located at drifting waiting jetty number 3. Measures: Communicate with the deck crew, cast off, manoeuvring, communication with the Vessel Traffic Service Centre, reporting centre and port control centre on cargo information, sail vessel from Botlek to traffic situation with current.	Welplaathaven Rotterdam Botlek. Geulhaven berthing area, manoeuvres, cast off from Geulhaven, enter traffic, Nieuwe Waterweg (flood), enter Oude Maas (flood)	Jetty 3 End of river Oude Maas	1: 1.1.1 2: 1.1.4 3: 1.1.5 4: 1.1.5 6: 9.1.1 8: 5.1.2 9: 6.1.1 10: 6.2.2 12: 7.3.4
Scene 2 (around 15 minutes) Sail on the Oude Maas (flood) until just before Botlek Bridge, crossing with Hartelkanal, pushed convoy with 6 pushed barges exits from Hartelkanal and passes, pass Spijkenisse Bridge (keep distance from pushed convoy), overtaking manoeuvre after the bridge.	Start: below Botlek Bridge Finish after the overtaking manoeuvre		1: 1.1.1 4: 1.1.5 8: 5.1.2 9: 6.1.1 10: 6.2.2 12: 7.3.4

[1] Once the course of the “journey execution” has been made known in advance, this can take place at the same time as the part of the examination on “journey planning”.

Scene 3 (around 20 minutes) Start at cruising speed to the port of Moerdijk, oncoming craft in the Dordtsche Kil (DK), cross Hollandsch Diep (HD), contact harbour master, place of unloading occupied, anchor at “Reede van de Slechte” anchorage (take influence of wind and current into account), STBD/STBD with exit from ZHD.	Start 1000 m below HD-DK intersection Hoist anchor Zuid-Hollandsch Diep (ZHD)		1: 1.1.1 4: 1.1.5 2: 1.1.4 8: 5.1.2 9: 6.1.1 10: 6.2.2 12: 7.3.4
Scene 4 (around 25 minutes) Message unloading berth free: anchor up, re-adjust, report to harbour master, determine central side harbour, first length Moerdijk MCT (portside, shortly after the berth of the Van Oord dredging company), cooling water alarm (90 °C and rising), measures (on board and in the surroundings), cooling water valve opened after 2 minutes and voyage continued, cast off again and sail to place of unloading.	Start anchoring procedure Finish at Container terminal container terminal berth		1: 1.1.1 4: 1.1.5 2: 1.1.4 7: 4.2.2 8: 5.1.2 9: 6.1.1 10: 6.2.2 11: 7.3.3 12: 7.3.4

Annex 3

First part of the practical examination, scenes 1 and 2

Second part of the practical examination, scenes 3 and 4

Annex 4

Assessment form for the “journey execution” practical examination

Details of candidate
First name and surname:

_____

Details of examiner
First name and surname:

_____

Assessment of examination

Date: __-__-____(DD/MM/YYYY)
Place
Place of examination Place/berth _____
Name of simulator/craft used in the examination _____

Elements of the examination

1. Voyage, manoeuvres

Sub-elements	Number of points (1 to 10)
Control of the craft, (to be checked):	_____
Use of the propulsion system:	_____
Use of the steering gear:	_____
Use of the bow thruster:	_____
Manoeuvres (docking, anchoring, etc.):	_____
Shipping rules (if appropriate):	_____
Taking account of draught vs water depth:	_____
Taking account of wind and current:	_____

Additional (unanswered) questions on the capabilities demonstrated:

_____

_____

_____

Final assessment of voyage, manoeuvres: ☐

2. Mooring and unmooring plus anchoring

Sub-elements	Number of points (1 to 10)
Unmooring:	_____
Correct procedure:	_____
Mooring:	_____
Fast and safe:	_____
Anchoring:	_____
Wind/current:	_____
Minding own craft and other craft:	_____

Additional (unanswered) questions on the capabilities demonstrated:

Final assessment of mooring and unmooring plus anchoring: ☐

3. Adjusting and adapting navigational aids

Sub-elements	Number of points (1 to 10)
AIS:	_____
Inland ECDIS:	_____
Radiotelephony:	_____

Additional (unanswered) questions on the capabilities demonstrated:

Final assessment of adjusting and adapting navigational aids: ☐

4. Preparing navigational information at the start

Sub-elements	Number of points (1 to 10)
Weather:	_____
Current (tides, if applicable):	_____
Current water level:	_____
Radiotelephony channels:	_____
VTS centre:	_____
FIS/NtS:	_____

Additional (unanswered) questions on the capabilities demonstrated:

Final assessment of preparing navigational information at the start:

5. Switching on and adjusting devices in the wheelhouse

Sub-elements	Number of points (1 to 10)
AIS notification of current status:	____
Inland ECDIS:	____
Using scale:	____
VHF communication:	____

Additional (unanswered) questions on the capabilities demonstrated:

Final assessment of switching on and adjusting devices in the wheelhouse: ☐

6. Checking craft pre-departure:

Sub-elements	Number of points (1 to 10)
Cargo (stability, stowage, marine equipment (MTV), sheeting of cargo)	_____
Day and night marking:	_____

Additional (unanswered) questions on the capabilities demonstrated:

_____
_____
_____

Final assessment of checking craft pre-departure: ☐

7. Appropriate response to problems during the voyage

Sub-elements	Number of points (1 to 10)
Response to failure of navigation components[2]:	_____
Managing failures during the voyage:	_____
Instructions to the crew:	_____
Taking decisions and action in connection with this incident:	_____
Off-craft communication:	_____

Additional (unanswered) questions on the capabilities demonstrated:

Final assessment of appropriate response to problems during the voyage: ☐

[2] Such as failure of machinery, the rudder, of radiotelephony plus collision course with other craft.

8. Defensive sailing/damage prevention

Sub-elements	Number of points (1 to 10)
Sailing in traffic:	____
Commanding the crew:	____
Making for quay, locks and harbours:	____
Using instruments in this context:	____

Additional (unanswered) questions on the capabilities demonstrated:

Final assessment of defensive sailing/damage prevention: ☐

9. Communication in general

Sub-elements	Number of points (1 to 10)
Deck crew:	_____
Radiotelephony, port authorities:	_____
Briefing the crew on forthcoming manoeuvres:	_____
Communication with other craft:	_____
Use of radio telephony, two-way intercom system	_____

Additional (unanswered) questions on the capabilities demonstrated:

Final assessment of communication in general: ☐

10. Communication procedures; use of technical nautical terms

Sub-elements	Number of points (1 to 10)
Scheduling:	_____
Retrieving navigational information in a timely manner:	_____
Using and interpreting information:	_____
Knowledge procedures and communication in an emergency:	_____
Knowledge and capabilities of standard procedures and emergency communication:	_____

Additional (unanswered) questions on the capabilities demonstrated:

Final assessment of communication procedures; use of technical nautical terms:

11. Taking action in an emergency[3]

Sub-elements	Number of points (1 to 10)
Appropriate action:	_____
Quick but cautious manoeuvre, if necessary:	_____
Assignment and use of life-saving appliances:	_____
Use of rescue measures:	_____
Alerting the rescue and emergency services:	_____
Providing information for government services:	_____

Additional (unanswered) questions on the capabilities demonstrated:

Final assessment of taking action in an emergency: ☐

[3] For instance man overboard, fire, release of hazardous substances, damage to the vessel.

12. Alternatives to alerts

Sub-elements	Number of points (1 to 10)
Knowledge and abilities for sounding an alert in the event of failure of communication:	_____
Abilities to explain safety plans:	_____
Abilities to take the crew off the vessel:	_____
Abilities to use and explain alarm systems:	_____

Additional (unanswered) questions on the capabilities demonstrated:

Final assessment of alternatives to alerts: ☐

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