SEAGOING DECK OFFICER CLASS 3

CERTIFICATE OF COMPETENCY

PAPER 1

COASTAL NAVIGATION

Time Allowed : 2 hours 30 minutes

INSTRUCTION : -

This paper contains FOUR questions where

Candidates should answer all the questions.

Questions do not carry equal marks and candidates are advised to allocate their time accordingly.

The full mark for this paper is 100 and the passing mark is 70 (70%).

Materials to be supplied:

1. British Admiralty (B. A.) Chart No. 2049
2. Tide Table: A.T.T. Vol. 1, Edition 2007

NOTE : You should assume that your vessel is a general cargo ship of 7000 GT (gross tonnage) with a draught of 7 metres and a speed of 12 knots.

Assume a gyro error of 2° low.

CANDIDATES ARE NOT ALLOWED TO WRITE ON OR DEFACE THIS PAPER

This paper consists of this page and THREE other printed pages

Notes to Candidates:-

i) Write down your name in the top right-hand corner on the first page of the answer sheets.

ii) Write down the question number in the top left-hand corner on each page.

iii) Answer each question on a new page.

iv) No need to copy the questions' details onto the answer sheets.

v) Switch off all your mobile phones and communication devices when in the examination room.

vi) Return all the question paper(s), the used and unused answer sheets before leaving the examination room.

vii) Do not disturb other candidate(s) in the examination room.

viii) Do not attempt to take any photos or recordings of any question papers and/or answer sheets.

ix) The progress of the examination is being recorded by close-circuit television (CCTV) and voice recorders in the examination room.

If the above rules from item v) to viii) are infringed, candidates will be regarded as having failed the examination as a whole and will not be accepted for re-examination for such period as may be decided by the Director.

考生注意事項：-

i) 在答題紙首頁右上角寫上姓名。

ii) 在每頁答題紙的左上角標明回答的問題題號。

iii) 每一條問題另開新頁作答。

iv) 不需要抄寫問題到答題紙上。

v) 進入試場後，把手機及所有通信設備關閉。

vi) 離開試場前，交回所有試卷、所有用過和未用過的答題紙及草稿紙。

vii) 試場內不可干擾其他考生。

viii) 切勿嘗試拍攝或錄取任何試卷或答案。

ix) 考試期間試場內會有閉路電視 (CCTV)和錄音系統進行記錄。

如果違反上述 v) 至 viii) 規則，即當作所有考試不及格，以及在處長決定的期間內不得重考。

Candidates should answer all questions.

In all questions assume a gyro error of 2° low and the value for Variation to be determined from the chart.

The latitude and longitude given for prominent features are for identification purposes only and are approximate to one minute of arc.

1. At 1000 hours UTC (Coordinated Universal Time) on 16th April 2010, while heading for Cork Harbour (51° 50' N 008° 15' W), you observe Tuskar Rock Lt. (light) Ho. (House) (52° 12' N 006° 12' W) bearing 005° gyro & distance 5.5 n.m. (nautical miles), and Carnsore Point (52° 10' N 006° 22' W) distance 6.5 n.m. by radar.

   (a) Determine the position of the vessel at 1000 hours.

   (b) Determine the course to steer by gyro compass to pass 4.5 n.m. south of the Coningbeg Light Vessel (52° 02' N 006° 39' W).

   At 1115 hours Coningbeg Light Vessel with distance 2.5 n.m. was in transit with Hook Head Lt. Ho. (52° 07' N 006° 55' W) bearing 295° by standard magnetic compass.

   (c) Determine the set and drift experienced by your vessel between 1000 hours and 1115 hours.

   (d) Determine the deviation of the standard compass for the direction of the ship's heading.

   (30 marks)

2. From the position at 1315 hours lay off courses to the Cork Pilot Station (51° 45' N 008° 15' W) passing 9 n.m. south of Mine Head Lt. Ho. (52° 00' N 007° 35' W) and 2.5 n.m. south of Pollock Rock Buoy (51° 46' N 008° 08' W).

   (a) State the gyro courses to steer to counteract the tide estimated to be setting 270° T with a rate of 1.5 knot between 1315 hours and Pollock Rock Buoy.

   (b) Assume there is no tidal or current effect after passing south of Pollock Rock Buoy. Calculate the E.T.A. (estimated time of arrival) at Cork Harbour Pilot Station.

   (c) Describe how you would fix the ship's position between Knockadoon Head (51° 53' N 007° 52' W) and Cork Harbour Pilot Station.

   (30 marks)

3. At 1730 hours you encountered fog and at 1800 hours you observed the following radar bearings:

Capel Island (51° 53' N 007° 51' W) 025° T

Ballycotton Island Lt. Ho. (51° 49' N 007° 59' W) 322° T

Power Head (51° 47' N 008° 10' W) 270° T

At the same time the radar range of Ballycotton Island and Capel Island were 3.5 n.m. and 7.0 n.m. respectively.

(a) Indicate clearly on the chart the most likely position of the vessel at 1800 hours.

(b) State the reasons for your choice of one position and rejection of the other.

(20 marks)

4. (a) Calculate the earliest time at which your vessel may cross a charted depth of 7.0 metres with an underkeel clearance of 2.5 metres in the entrance to Cork Harbour (Cork City) in the afternoon on 1 April 2007.

(b) State the set and drift of the tidal current which you are likely to experience when approaching the Cork pilot station

(c) State which chart you would use when approaching Cork pilot station

(20 marks)

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