Cork Institute of Technology

Bachelor of Science in Nautical Science-Award

(NFQ Level 7)

Summer 2007

Coastal Navigation

(Time: 2 Hours: 30 minutes)

Answer ALL Questions.

Examiners: Capt B Kavanagh
Capt P Farnan
Capt P Miley

Notes for the guidance of candidates:

1 *The following items are required to complete this paper:* *Chart L (D1) 5047,A.T.T. Vol. 1 1996, Deviation card No 10, Plotting instruments ,Geographical Range Table, Luminous Range Table*

2 *Non-programmable calculators may be used. Candidates should state on the examination answer book whether or not a calculator has been used. If a calculator is used the method of working and all intermediate steps in a calculation must be made clear in the answer;*

3 *Where tables are used to arrive at an answer a reference must be inserted in the answer as to the table used e.g. Nories etc.*

4 *Attempt **ALL** questions, use WORKSHEET Q 5 when answering question 5.*

5 *The pass mark is 70%. All questions carry equal marks.*

6 *The positions given after the names of prominent points are approximate to 1' and are to be used for identification purposes only;;*

7 Use Deviation card 10 and Variation 7° W throughout.

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1 At 0445 a vessel recorded the following corrected GPS readings 51° 20'.8 N 04° 46'.1 W.

A tidal stream was estimated to be setting 310°T at 3 knots throughout and a northerly wind was estimated to be causing 5° leeway.

Find:

(a) The compass course to steer to go to a position one mile to the west of the Swansea and Neath pilot boarding position (51° 32' N 03° 57' W).

(b) The estimated time of arrival at the above position (one mile to the west of the Swansea and Neath pilot boarding position (51° 32' N 03° 57' W).

(c) the time when the Helwick Pass buoy (51° 32' N 04° 13' W) will be abeam.

2 At 0145 a vessel steering 263°C at 14 knots observes Foreland Point Lt. (51° 15' N 03° 47' W) bearing 227°C.

A current was estimated to be setting 035°T at 2 knots throughout and a southerly wind was estimated to be causing 5° leeway.

At 0230 Foreland Point Lt. Bore 152°C.

Find EACH of the following:

(a) the position of the vessel at 0230;

(b) the time, distance off and relative bearing when Lundy North Lt. (51° 12' N 04° 41' W) would be first sighted if the prevailing meteorological visibility was 5 nautical miles.

3 At 1515 the following compass bearings were observed:

Lundy Island South Lt. (51° 10' N 04° 39' W) 015°C

Hartland Point Lt. (51° 01' N 04° 31' W) 097°C

At the same time a vertical sextant angle of Lundy Island South Lt. was observed to be 0° 11'.7.

Index error of the sextant was 2' OFF the arc.

Find EACH of the following:

(a) the position of the vessel;

(b) the deviation of the compass for the vessel's heading.

4 When planning a passage the first of the four stages is appraisal.

List EIGHT different nautical publications that would be used and give a brief description of the type of information found in each.

5 Use Worksheet Q5.

Chart Interpretation Chart L(D1) 5047

6 (a) Write down the full charted characteristics shown against Bull Point Lighthouse (51° 12' N 04° 12' W) (7)

(b) State the limiting bearings of Lundy Island North Light (51° 12' N 04° 41' W)(2)

(c) State the meaning of the magenta circle around Breaksea Buoy (51° 20' N 03° 19' W) (2)

(d) Write down the meanings of the TWO symbols in position (51° 25'.6 N 03° 46'.0 W) (2)

(e) State the nature of the seabed indicated by each of the following abbreviations on a metric chart:

(i) Cs;
(ii) G;
(iii) bk.Sh. (3)

(f) State fully the meaning of "WORMS HEAD (45) (conspic)" in position (51° 33'.8 N 04° 21' W) (3)

(g) State the significance of the areas shaded green on the chart. (2)

(h) State the scale of the chart. (1)

(i) From the information on the chart briefly describe the nature of the coastline 2 miles to the east of Hartland Point (51° 01' N 04° 32' W) (1)

(j) If high water springs Avonmouth is at 1330, state the tidal stream set and drift experienced at <E> between 1100 and 1200. (2)

Dept of the Marine Deviation Card **No. 10**	
Ship's head by Compass	Deviation
000°	9.0°E
010°	
020°	9.5°E
030°	
040°	8.5°E
050°	
060°	7.0°E
070°	
080°	4.5°E
090°	
100°	2.0°E
110°	
120°	1.5°W
130°	
140°	4.0°W
150°	
160°	6.0°W
170°	
180°	7.0°W
190°	
200°	7.5°W
210°	
220°	6.5°W
230°	
240°	5.0°W
250°	
260°	2.5°W
270°	
280°	0.5°E
290°	
300°	3.5°E
310°	
320°	6.0°E
330°	
340°	8.0°E
350°	