



NATIONAL SENIOR CERTIFICATE EXAMINATION
NOVEMBER 2008

NAUTICAL SCIENCE: PAPER I

Time: 3 hours

Marks: 150

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

1. This question paper consists of 4 pages and 6 annexures (Tables), pages i to vi. Please check that your question paper is complete.
 2. Answer ALL the questions in Sections A and B.
 3. Begin each answer on a new page.
 4. The use of scientific calculators is permitted.
 5. Alphanumeric calculators and dictionaries are NOT permitted.
 6. Nautical tables may be used.
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REQUIREMENTS

Drawing instruments
Graph paper
Chart SAN 3002

ANNEXURES

1. Examination notes and Deviation Card
 2. Predicted Hourly Heights – Walvis Bay – November 2001
 3. Altitude Correction Tables
 4. Conversion of Arc of Time
 5. Nautical Almanac – page 39, 12 – 14 February 1987
 6. Increments and corrections page 32m & 33m.
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SECTION A PRACTICAL CHARTWORK**QUESTION 1**

At 09:30 a GPS fix gave the following position of the vessel:

- Latitude $34^{\circ} 20'S$ Longitude $018^{\circ} 15'E$.
- Speed through the water is 15 knots.
- Current is estimated to set 100° (T) at 2,0 knots.
- The estimated leeway is 5° due to a NW'ly wind.
- The Magnetic Variation is $23^{\circ}W$.

- 1.1 What is the compass course to steer to the next alter course position Latitude $34^{\circ} 01'S$ Longitude $018^{\circ} 15'E$ entering the traffic zone approaching Table Bay? (13)
- 1.2 Lay off the courses on the chart from this last position to the Pilot rendezvous position: Green Point (Fl 10s. 20m 25M) bearing 180° (T) x 1,6 miles. (4)
- 1.3 What is the ETA at the Pilot rendezvous position? (3)
- [20]

QUESTION 2

A vessel at anchor off Smitswinkelbaai observes that horizontal sextant angles between

- Simonsberg $\Delta 546$ and Paulsberg $\Delta 366$ is 65°
- Cape Point Fl(2+1) 30s 87m 32M and Paulsberg $\Delta 366$ is 55° .

Determine the position of the vessel. [20]

QUESTION 3

At 15:00 a vessel steering 092° (C) observed Cape Point Fl(2+1) 30s 87m 32M bearing 042° (C).

At 15:30 Cape Point Fl(2+1) 30s 87m 32M was bearing 352° (C). The vessel maintained a speed of 8,0 knots, and the current was known to be setting 290° (T) at 1,8 knots.

Determine the position of the vessel at 15:30. [20]

QUESTION 4

Your vessel is at anchor off the Port of Walvis Bay waiting to enter the port.

The minimum depth in the approach channel is 5,0m.

The vessel's draught is 4,7m, and you are required to maintain a minimum clearance of 0,7m beneath the keel.

What is the earliest time the vessel may cross this point on the rising tide p.m. on Friday, 23 November 2001? [20]

QUESTION 5

- 5.1 What is the warning about 'Crayfish Trap Fishing' shown on the chart South of Slangkoppunt? (5)
- 5.2 What is the meaning of the abbreviation 'Obsc' shown on the chart South of Slangkoppunt? (3)
- 5.3 Describe the characteristics of Robben Island lighthouse. (6)
- 5.4 What is the scale of Chart 3002? (2)
- 5.5 Which is the safe side to pass Whittle Rock buoy Q(3) 10s Bell in Valsbaai? (4)
- [20]**

100 marks
