SC-NAV-005

THE HONG KONG POLYTECHNIC UNIVERSITY

DEPARTMENT OF MARITIME STUDIES

Course	:	Post experience Diploma in Ship Command
Class	:	Part A
Session	:	1995/96
Subject	:	Navigation
Date	:	11 December 1995
Time allowed	:	3 hours Time : 0930 - 1230

Instructions to Candidates :

This paper contains TWO sections, A and B

Section A contains THREE questions.
Attempt ALL three questions.
Questions in Section A have equal marks and are each worth 20%.

Section B contains SIX questions.
Attempt any FOUR questions.
Questions in Section B have equal marks and are each worth 10%.

Available from : invigilator

Section A

A1. The following deviations were observed on ship's head by compass :

N	NE	E	SE	S	SW	W	NW
12°E	7°E	8°W	18°W	12°W	1°E	8°E	10°E

Calculate the approximate coefficients and the deviation on S67°E.

A2. (a) Describe the formation of radiation fog, advection fog and sea smoke.

(b) State the conditions which favour the formation of sea fog.

A3. You are requested to rendezvous and stand by another vessel which has been damaged by fire. The damaged vessel is heading for port on a course of 220°(T) at speed of 5 knots. The observed radar bearing and range of this vessel are 110°(T) and 16 miles.

Your orders are to take up station on the damaged vessel 1 mile off her starboard quarter on a relative bearing of 122°. Own vessel maximum speed is 14 knots.

Require to find :

(a) the course to steer to rendezvous
(b) the time taken to take position.
(c) the bearing at which you would expect to sight the vessel if the visibility is 5 miles.

SECTION B

B4. With the aid of sketch, describe the practical rules for avoiding the centre of a Tropical Revolving Storm in the northern hemisphere.

B5. Explain the basic principle used by GPS receiver to work out ship's position.

B6. Describe the accuracy of the Loran-C system and the possible errors in this system.

B7. Explain the basic function of ARPA tracking system.

B8. Discuss the accuracy of the observed position obtained by sun-run-sun method, given that the change in azimuth between the two observations is 30° and the random errors introduced in the instruments are as follows :

(a) sextant error +1.5'
(b) speed log error +5%
(c) gyro compass error +1°.

- End -