

HONG KONG POLYTECHNIC  
CENTRE FOR MARITIME STUDIES

Course : Post experience Diploma in Ship Command  
Class : Part A  
Session : 1992/93  
Subject : Navigation  
Date : 14 December 1992  
Time allowed : 3 hours

Instructions to Candidates : This paper contains TWO sections, A and B

Section A contains THREE questions. Attempt any Two questions - Questions in Section A have equal marks and are each worth 10%

Section B contains SIX questions. Questions 4 and 5 are compulsory and are worth a total of 50%.

Attempt any THREE questions from the remaining 4 questions which carry equal marks and are each worth 10%

A1. (a) State the information required for the production of a 'least time track'.

(b) Explain how this information is used and the benefit which may be obtained from it.

*attached*

A2. Indicate on the enclosed weather map for 20th June 1990, timed 0600Z:-

- (a)
  - (i) The flow of the warm air masses,
  - (ii) The flow of the cold air masses,
  - (iii) The occlusion,
  - (iv) The cold front,
  - (v) The warm front.

(b) Draw a synoptic forecast of an area 5° in each direction centred on 50°N, 30°W for 21st June at 0600Z.

(b) on the attached chart let draw a <sup>prognosis</sup> ~~synopsis~~ in the marked area for 0600Z on 21st June.

48. At 1000 hours a ship steers  $180^\circ T$  at maximum speed of 16 knots bears  $320^\circ T$  distant 300 miles from a helicopter base. She has on board an injured seaman who requires medical <sup>evacuation</sup> evacuation by helicopter.

The helicopter has a safe operating range of 270 miles at 100 knots and can land on the ship.

Determine.

- (a) the ship's course to <sup>steer</sup> steer to transfer the injured seaman with minimum deviation <sup>from</sup> from her course
- (b) the <sup>time</sup> time at which the transfer will take place.
- (c) the time <sup>at which</sup> the helicopter should leave her base.



1900 hours local

7B. Find the height of tide at Castle Peak Bay (7094) at ~~1900~~ on 25th February 1986.

Explain the reasons why the predicted heights of tide as correctly determined <sup>from</sup> for the Tide Tables may vary from the actual heights experienced.

SB.

Optional Questions

Discuss the factors affecting position accuracy in position determination systems utilising hyperbolic principles. (10 marks)

- B9. (a) Describe the phenomenon of second trace radar echoes.  
(b) Explain the value of a high PRF rate.  
(c) Explain using diagrams the relationship between PRF rate and second trace echoes.

- End -

