

THE HONG KONG POLYTECHNIC UNIVERSITY
DEPARTMENT OF MARITIME STUDIES

Course : Post experience Diploma in Ship Command
Class : Part A
Session : ~~1995/96~~ 1996/97
Subject : Navigation
Date : 16 December 1996
Time allowed : 3 hours (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%.

Section A

- A1. (a) The following observations were made of the Sun when swinging ship slowly to adjust a well placed standard compass at a position where the variation was 20° W.

C.Heading :	000°	045°	090°	135°	180°	225°	270°	315°
C.Bearing :	140°	138.5°	140.5°	142°	143.5°	145°	146°	147.5°
True Bearing:	125°	124.5°	125.5°	127°	127.5°	128°	129°	129.5°

- (i) Obtain a list of deviations.
 - (ii) Analyse them into the various coefficients.
 - (iii) Explain how you would attempt to locate the cause and remove the effect of the largest coefficient observed.
- A2. (a) On the attached outline of the world draw in and name the principal ocean currents showing the direction and position.
- (b) Some of these currents can have an effect on prevailing local weather. Select one current which has a known effect on the regional weather pattern, describe how it produces this known effect and why.
- 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 90° (T) at speed of 4 knots. The observed radar bearing and range of this vessel are 315° (T) and 18 miles.
- Your orders are to take up station on the damaged vessel 1 mile off her beam on a relative bearing of 090° . Own vessel maximum speed is 18 knots.
- Required to find :
- (a) the course to steer to rendezvous
 - (b) the time taken to take position
 - (c) the bearing at which you expect to sight the vessel if the visibility is 6 miles.

Section B

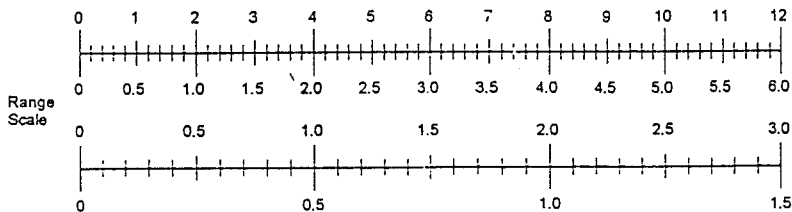
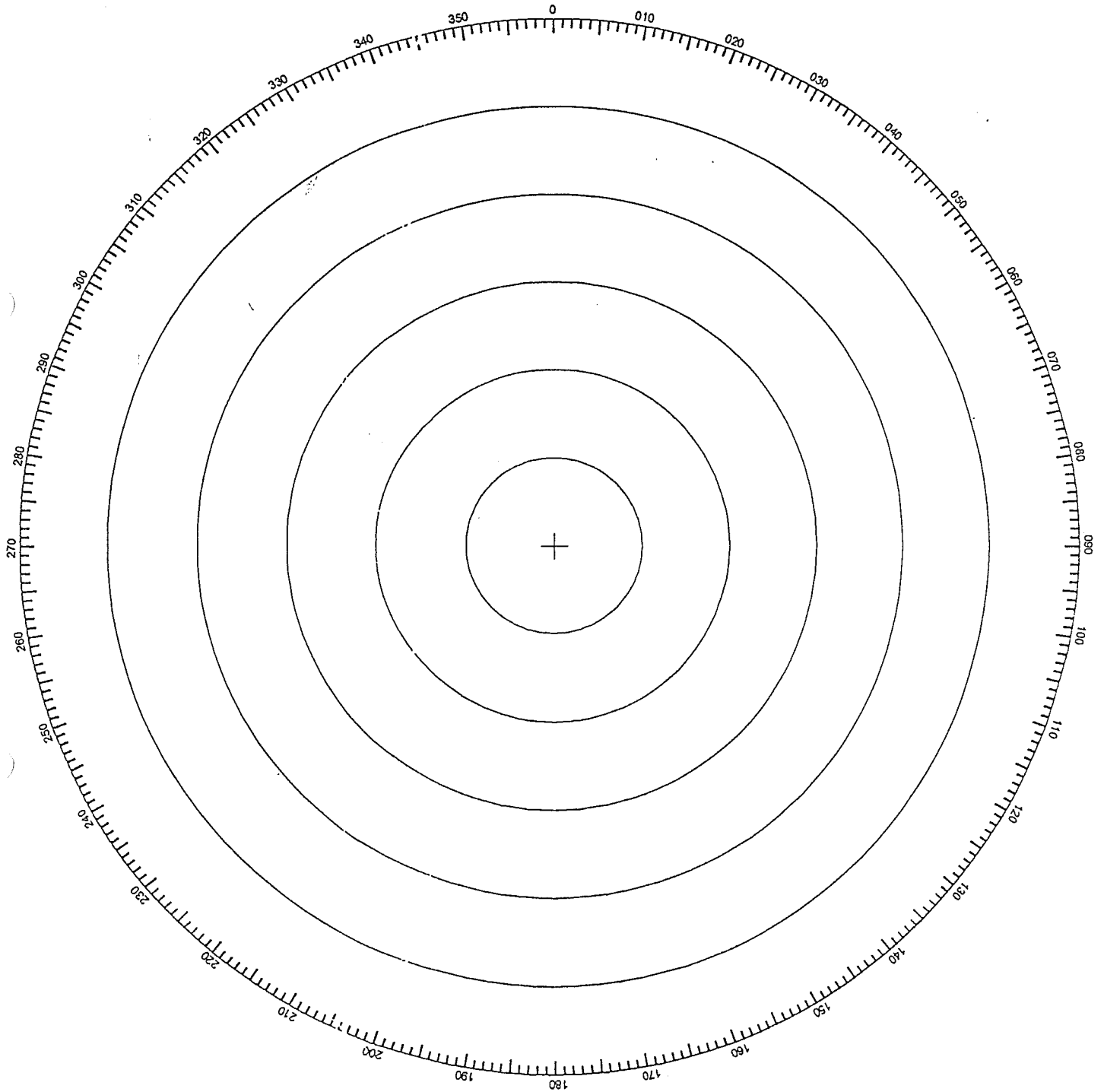
- B4. Describe the following terms :
- (a) Land and Sea Breezes
 - (b) Katabatic Winds
 - (c) Fohn Wind effect
 - (d) A sea level view of a Cold Front
- B5. Describe the principle of operation and the essential components of an echo sounder.
- B6. Explain the advantages of group transmission format of LORAN-C system.
- B7. Outline the causes of the fixed and variable errors to which the Decca navigation system is subject and explain, in details how these errors are allowed for an/or assessed in practice.
- B8. Describe the characteristics of a marine radar set in connection with pulse length and beam width on radar performance.
- B9. What instructions should the master give to the officer of the watch, when participating with other vessels in an ice convoy?

- End -



RADAR PLOTTING SHEET

FOR TRAINING USES ONLY



Signature _____