

HONG KONG POLYTECHNIC
CENTRE FOR MARITIME STUDIES

COURSE : Post Exp. Diploma in Ship's Command
CLASS : Part A
SESSION : 1991/92
SUBJECT : Navigation
DATE : 20 January 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%

Available from invigilator : ATT Vol. III

SECTION A

Attempt any TWO questions.

Questions carry equal marks.

1. (a) Explain how the Inter Tropical Convergence Zone (ITCZ) is formed.
(b) Describe the weather likely to be experienced within the ITCZ.
(c) Sketch an outline synoptic weather map of an area where the ITCZ is active.
(10 marks)

2. A high pressure system can be one of two types.
(a) Describe the formation of each type.
(b) State the weather associated with each type.
(10 marks)

3. (a) Explain why an air mass becomes unstable.
(b) Detail the effect of unstable air on the local weather.
(10 marks)

- END OF SECTION A -

Section B

Compulsory Question (25 marks)

4. At 1500 GMT. Your DR Position is $30^{\circ}30'N$ $150^{\circ}20'E$
Steering $060^{\circ}T$, speed 15 knots.
The following distress message was received on 2182 kHz.

"Mayday Mayday Mayday
This is Ranger Ranger Ranger
Mayday Ranger
Position $30^{\circ}30'N$ $154^{\circ}30'E$
Have explosion in Engine room
Ship listed badly, drifting Southward at about 2 knots
Wind ----- Require ----- "

The message suffer lots of interference towards the later part and breaks off abruptly.

- (a) Describe the communications you would establish.
- (b) Determine a datum for the SAR operation.
- (c) When you arrive at the datum, you do not see the ship in distress, or any other ship, state the action you would take having consideration to the various possible cause. - VHF
- search pattern
- conduct MRCP/SMC
- search for possibilities
- SAR search
- search South
5. (a) Draw a block diagram of a radar set and briefly describe the functions of the individual blocks.
- (b) Briefly describe the differences between analogue PPI and Raster Scan display modes, giving the advantages and disadvantages of each.

10 marks questions

6. As a Master of a ship, describe how you could ensure that all Navigational charts and Publication are being up-dated properly and fit for use in the current voyage.
7. Find the height of tide for Tawau (5099) at 1800 hr. local time on 20th May 1986.
8. Name three different types of racons, citing the principle employed, and stating the principal characteristics of each type.
9. The Global Positioning System is designed to provide near worldwide three dimensional accuracy in the near future. Describe :
 - (a) The system configuration
 - (b) The reasons that P-Code may provide higher accuracy than C/A code.

- End -