# CLASS- 3

# COASTAL NAVIGATION

1. Find the height of tide at 1830 hrs. on the 22$^{nd}$ July 1991 at port of Bristol.

2. Calculate the depth of water on a charted sounding of 7.7m at the Entrance to the Port of Dover on 27$^{th}$ February 1991, 1636 GMT.

3. Find the UKC at 1200 hours for a vessel of 8 meters draft over a charted shoal of 7.5 meters on 12$^{th}$ March 1991 at Dover.

4. Find the time which the AM tide rises to 2meters on 21$^{st}$ Dece4mber 1991 At DOVER.

5. Find the time at which the afternoon tide rises to 2.6m on 17$^{th}$ of December 1991 at Dover. Comment on the accuracy of predicted tidal heights and times.

6. Find the UKC at 1500 hrs for a vessel 7meters draft where the charted depth is 7.5 meters on 15$^{th}$ March 1991 at DOVER.

7. Find the UKC at 2000 hours for a vessel of 3.8 meters draft over a charted shoal of 3.7 meters on 28$^{th}$ March 1991 at Dover.State the reasons for possible differences between the published heights/ times and actual heights/times experienced.

01. From a ship steering a course of 063(C) and at a sea speed of 9 knots. Lundy N. light was observed bearing 101 (C ) and 1.5 hrs later it bore 212(C ). If the tidal stream 030(T) at 4 knots throughout. Find the latitude and longitude of the ship's position at the time of both observation.( chart 5047)

02. Lundy Island south light house at 0900 hrs bearing 020 deg (T). After 1.5 hrs same L/H bore 335 deg (T). The vessel steer a course 045(T). Speed of the vessel 7.5 knots. A current was setting

180 (T) at 1.0 knot speed. Find out the position of the vessel at the time of 2$^{nd}$ observation. ( chart 5047)

03. A vessel obtains rader range of T. Medang light house (F1.10s 52m 20M) as 5miles, after streaming a course of 102 C for 50 minutes the Gosong Raleigh isolated danger light (F1 (2) 5s 16m 13M. Racon (O) } found to due south , Find the ships position. (CHART NO 3946)

04. At 2000 hrs the bearing of LanjungTuan  (F1 ( 3) 15s 118m 23M) . Water Tower Buk Tunggal and P. BatuBesar light (F1. G, 4s 6m 5M) found to be 344 C , 043 C and 089 C respectively . Find the ships position and deviation for ships heights. (CHART NO 3946)

05. A vessel observes simultancous bearing of P. Undanlight F1. (2) 15s 53m 18M as 127 Cand Melaka Aero RC tower as 015 C while the former found to be 4.7 miles off . Find the ships position and deviation of the compass for the ship's head. (CHART NO 3947)

06. A vessel steering a course of 140 C at 14knots, Observed Muntai light F1 5s 42m 18M bearing four points on the starboard bow . 35 minutes late same light was abeam and distance off 8 miles. After a further interval of 35 minutes it was four points on the quarter. Find the position of the vessel at the time of 3$^{rd}$bearing . Course made good and set & drift experienced during the run. (CHART NO 3947)

07. A vessel in position with TANJUNG NAPAL ( SUMATER) leading lights in transit and PULAU PANDANG light ( F1 5s 63m 15M) bore 263 C . Find the ship's position . From this position find the compass course to reach a position with PJARAK light [ F1 (2) 15s 162 20 M] 3 points on the port bow and distance 3 miles.( CHART NO -3945)

08. A vessel obtains a Rader Range  of KEPULAUAN SEMBILAN, B. Putih ( White Rock)Lt. [F1 (2) 10s 21m 15M] as 5 miles. After steaming for 3 hours on course of 172 C the PULAU-PULAU ARUAH, P.JEMUR light (F1 5s 46m 18M) bore 207 C . Find ship's position at the second observations. .( CHART NO -3945)

09. A vessel in position with TelukTering leading lights in transit and the same time passing the 15m depth contour line as evidenced on the echo sounder graph. Find the position, From this position find the compass course to steer to reach a position with Changilight F1(3) 15s 13m 15M , 4 Points on the port bow and distance 1.6 miles(CHART NO -4041)

10. A vessel in Anchorage 'P' of Eastern Bunkering Anchoring B at 1400 hours found  Changi light F1(3) 15s 13m 15M found to be 2 miles due NNE. Find ship's position. The vessel then steered a course of 242 C for 1 hour and P SakijangBendera TR (50) found to be 1.15 mile bearing  015 T. Find the compass course to steer counteracting a current of 060 T at 1 knots. (CHART NO -4041)

<mark>CURRENT & LEEWAY : SET, RATE & DRIFT</mark>

01.  Find the course to street by compass from a position with Beachy Head light [F] (2) 20 sec 31m 25M} bearing 015 (T) and Royal Sovereign Light (F) 20 sec 28m28m) 065 (T) in order to rech a position , 4miles due South of Bassurelle Light buoy (F) (4) R 15 sec } RECON, allowing 5 leeway due to Southerly wind and a current setting 045 (T) at 3 knots while own ship is streaming at 15 knots. (Chart no.5055/2451)

02. From a position with Dover Entrance Light (F) 7.5 sec 20M) bearing 288 (G), Varne Light Vessel ( F1 R 20 sec 12m 22M ), bearing 212 (G) , a ship with 10 knots speed streets a course of 222 ( G) with a current direction & speed 284 (T) at 2 knots. Two hours after leaving the aforesaid position , find the expected bearing and range of Dungeness Lt (F) 10sec 40m 27M). Gyro error 1 11). (Chart no.5055/2451)

03.At 1200 hrs sextant altitude from top of P. UMDAN Lt house F(F) 15s 53m 18M), which is 53 meter above the sea level is observed to be 00  19.7'  while bearing from the same light house found to be 063  (T), Find ship's position . Vessel then streered a course of 305 (T) for 2 hours and TANJUNG TUAN light (F) (3) 15s 18m 23M) found to be 5.0 mile abeam to starboard . Find the ship position . course and speed made good. Also find out set and Draft of the current. ) (CHART NO 3946 )

04.A vessel was streering 305 (T) . At 1200hrs T. Gabang Lt House (F1.4s 28m 16M) bore 338 (T) and 1230 Hrs it boar 050 (T) distance 5.1 Nautical miles and at 1300 hrs T. Gabang Lt. house bore 100 (T) . Find the course made good . ship's position at 1300 hrs and set and rate of current. (CHART NO 3946)

05. At noon from a position with Mudah Utara light F1 (2) 6s 14M bearing 015 T x radar distance 3.5 miles, a vessel steer a course of 297 T and speed of 15knots. 3.5 hours late P. Undan light F1(2) 15s 53m 18M found to bore 015 T x 5.4 miles . Find the set and rate of the current and course and speed made good by the vessel. (CHART NO 3947)

06. At 1200 Hrs, PULAU-PULAU ARUAH, PJEMUR Light (F1 5s 46m 18M) was found to be 8 miles due East. Find the ship's position . From this position find the course to steer to reach a position 5 Nautical miles due South of PJARAK light [ FL (2) 15s 162m 20M] counteracting a Current setting 090 (T) at 3 knots. Leeway 6 due to westerly wind. What will be the speed made good and  ETA to the second position? .(CHART NO -3945)

07. From a vessel streering104  (T) at 10hrs, KEPULAUAN SEMBILAN, B.Putih ( White Rock) Lt. { FL( 3s 27m 5 M} Bore 090 (C) and after 1 hour the same light house bore 036 (c) . Find the ship's position at 1100 hrs allowing for a current setting 27 (T) at 2 knots and 5 off leeway due to a strong early wind Gyro error 2 (H). (CHART NO -3945)

08. At 2000 hours a vessel heading 090 C in position with BatuBerhanti light (F1. 8s 16m 13M) bearing 270 C , distance 1 mile . From this position the vessel steered a course of 085 C for 50 minutes and the P Nogsa light bore due East distance 0.6 miles. Find the set and rate of the current course and speed made good. ( CHART NO -4041)

09. A vessel in position 002 (G) , distance 1 mile from Tembakul light Fl.R 5s 6m 4M . After steaming 245 G for 30 minutes Buffalo Rock Island. Danger Buoy Fl(2) 5s found to be 105 G x 1M. Find the set,rate of the current Gyro error 2 High Ship's speed 10 knots. (CHART -4040)

10. A vessel heading 030 (C) finds following bearing by compass at 0900 hours. Halen Mar Reet light. Reffles light house and KarangBanteag light 180 C , 287 C and  080 C respectively .Find the ship's position and error of the compass. From this position set course to pass P.SekijangBendera Island 1.8M counter aching current setting 1.5 knots x 010 T and leeway 3 due to a NWwind . Ship's speed 10 knots. (CHART NO -4041)

11. A vessel in position hearing 010 C, Distance 1.8 miles from Racon (o) of raffles light house Fl(3) 20s 32m 20M. After streaming 306 G  for 24 minutes Nipa light F1. 3s 16m 13M , recon (N) found to be 210 G x 1.7 miles. Find the set and  rate of the current. Gyro error 2 Low . Ship's speed 12 knots.(CHART -4040)

12. At  1400 hrs ship's head 270 C, Tembakul light F1.R 5s 6m 4M, found to be 010 C x 1.3 miles .Find the position From this position find the compass course to steer and ETA to reach Raffles light house F1(3) 20s 32m 20M, Recon (O) bearing 010 X distance 0.8 mile . Ships speed 12 knots . Current setting 120 (T) at 2 knot , leeway  5 due to Southerly wind. .(CHART -4040)

**Chart 2454**

13. **a)** A v/l steering 078⁰ ( C ) , at 0600 hrs ' Start Pt Lt Ho ' bore 298⁰ ( C ) and distance 10 miles. Find the ship's position ( Lat / Long ) ?    ( Varn From Chart, Devn Card I )

   **b)** If Ship's speed 12.0 kts and a current setting 230⁰ ( T ) at 3.0 kts. Find the ship's posn at 0800 hrs ( Lat / Long ) ?

   **c)** Also, find the SMG and CMG ?

14. **a)** A v/l steering 085⁰ ( C ), at 0430 hrs ' Start Pt Lt Ho' bore 253⁰ ( C ) and ' Berry Hd    Lt Ho' bore 341⁰ ( C ). Find the ship's posn  ( Lat / Long ) ?( Varn from Chart, Devn Card III )

   **b)** At 0730 hrs , Bill of Portland Lt Ho' Bore 013⁰ ( C ) at 4 miles off. Find the ship's position at 0730 hrs ( Lat / Long ) ?

   **c)** Also, find – i) CMG & SMG, ii) Set, drift and rate of current experienced ?

15. **a)** At 1100 hrs ' Anvil Pt Lt Ho ' bore 320⁰ ( C ) and distance 8.0 miles off. Find the ship's posn at 1100 hrs ( Varn   from Chart, Devn Card III )

**b)** V/l set a course of 257⁰ ( C ) from above posn in ( a) and at 1400 hrs observed ' Bill of Portland Lt Ho ' bore 016⁰ ( C ) at 8.5 miles off. Find the ship's posn at 1400 hrs ( Lat / Long ) ?

**c)** Find – i) CMG & SMG, ii) Set, drift and Current experienced ( Ship's Log Speed 10.0 kts)

16. **a)** At 2100hrs v/l steering 030⁰ ( C ) at 10.0 kts, posn with ' Start Pt Lt Ho ' bore 308⁰ ( C ) distance 7.5 miles. Find the ship's posn at 2100 hrs ( Lat / Long ) ?

   **b)** Whilst on the above course, v/l experienced a current setting 100⁰ ( T ) at 3.0 kts and a NW wind Leeway 5⁰.

   - Find Ship's Posn at 2300 hrs ( Lat / Long ),

   - Find CMG & SMG

 **c)** Calculate time and dist off when ' Berry Hd Lt Ho' will be abeam ?

17. **a)** At 1030 hrs ' Casquets Lt Ho' bore 118⁰ ( C ) and range 17.0 miles. Find ship's posn ( Lat / Long ) ?

   ( Varn from Chart, Devn Card III, Ship's Heading 072⁰ ( C ), Log Speed 13.0 kts )

   **b)** At 1330 hrs found ' Cap de la Hague Lt Ho ( Fl 5s 48m 23M )' bore of 176⁰ ( C ) at 16.0 miles off. Find the ship's posn at 1330 hrs ( Lat / Long ) ?

   **c)** A SE wind causing leeway 4⁰ ,

   - Find CMG & SMG,

   - Bearing & Range of " Cherburgh Deep-sea Pilot" ?

   - Set, Drift and Rate of currect experienced ?

18. **a)** A V/l steering 267⁰ ( C )  at 14.0 kts. At 0430 hrs found ' The Needles Lt Ho '  bore 003⁰ ( C ) and dist 11.0 miles. Find the ship's posn ( Lat / Long ) ? ( Varn from Chart, Devn Card III )

   **b)** Find – i) CMG & SMG, ii) Time ' Anvil Pt Lt Ho' will be abeam ?

19. **a)** Vessel steering 248⁰( C ) at 11.0 kts, at 0230 hrs found ' Hurst Point Lt Ho ' and ' The Needles Lt Ho ' in transit and 'The Needles Lt Ho' was 9 miles off.  Find the ship's position ( Lat / Long ) ? ( Variation From Chart, Deviation Card III )

**b)** At 0530hsr ' Bill of Portland Lt Ho ' found to be bore due North at 7 miles off. Find the ship's     position at 0530hrs ( Lat / Long ) ?

**c)** Find – i) Course and Speed Made Good ?  ii) Find Set and Rate of current ?  iii) Time when ' Saint Albans Head ' will be abeam ?

20. **a)** At 1800 hrs, found ' Casquets Lt Ho' bore $200^0$ ( T ) and ' Alderney Lt Ho ' bore $143^0$ ( T ). Find the ship's Posn ( Lat / Long ) ?

**b)** From the above posn, find the course to steer to reach to a posn with ' Cap de la Hague Lt Ho'  bearing due South, distance 10 miles off counteracting a current setting $245^0$ ( T ) at 3.0 kts. ( Ship's Engine speed 10.0 kts )

**c)** Find the time vessel will reach to 2nd posn ?

21. **a)** At 1000hrs, ship's posn with ' Start point Lo Ho ' bore $298^0$ ( T ) , distance 8 miles. Find the ship's posn ( Lat / Long ) ?

**b)** From above posn, find the course to steer to reach to a posn with ' Beer Head ' bearing $320^0$ ( T ), distance 10 miles, counteracting a current setting $285^0$ ( M ) at 4.0 kts.

( Varn from Chart , Ship's log aped 12.5 kts )

22. **a)** A  vessel was steering $085^0$( C ), at 1600 hrs observed ' Start Pt Lt Ho ' bore $256^0$( C ) and ' Berry Head Lt Ho ' $328^0$( C ). Find the ship's posn ( Lat Long ) ( Varn $8^0$ W, Devn Card II )

**b)** From Above posn, find the compass course to steer to pass ' Bill of Portland Lt Ho ' 10 miles off to port side counteracting a current setting $155^0$( M ) at 3.0 kts ( Ship's Engine speed 14.0 kts ).

**c)** Find time when ' Bill of Portland Lt Ho ' will be abeam ?

23. **a)** A vessel steering $258^0$ ( C ) and at 0300 hrs observed ' The Needles Lt Ho ' Bore $063^0$ ( C ) and ' Hengistbury Head ' bore $348^0$ ( C ). Find the ship's Posn ( Lat / Long ) ? ( Varn from Chart and Devn Card III )

**b)** From above posn, find the compass course to steer to reach to a posn due South of ' Bill of Portland Lt Ho ' 12 miles off counteracting a current setting $188^0$ ( T ) at 1.8 kts ( Ship's Log Speed 12.5 Kts )

**c)** Find time when ' Anvil Point Lt Ho ' will be abeam ?

24. **a)** A vessel steering 198⁰ ( C ), at 0030 hrs observed ' Beer Head ' bore 340⁰ ( C ) and ' Straight Point ' bore 283⁰ ( C ). Find the ship's Posn ( Lat / Long ) ( Varn from Chart, Devn Card III )

    **b)** Find the compass course to steer to reach due East of ' Start Point Lt Ho ' at 7 miles off counteracting a current setting 135⁰ ( M ) at 3.2 kts and a NE'ly wind force 5, leeway 3⁰ ( Ship's Log speed 11.8 kts )

    **c)** Find time when ' Berry Head Lt Ho ' will be bearing due West and also find the distance of ' Berry head Lt Ho ' when it will be bearing due West.

25. **a)** On the 04ᵗʰ of Nov, at 1600 hrs, ' Start Point Lt Ho ' bore 256⁰ ( C ) and ' Berry Head Lt Ho' Bore 328⁰ ( C ), Find the ship's posn ( Lat / Long ) ? ( Varn 8⁰ W, Devn 5⁰ E )

    **b)** From the above posn – find compass Co to Steer to pass ' Pte de Barfluer Lt Ho ' 10 miles off to Stbd counteracting a current setting 220⁰ ( T ) at 3 kts.

    **c)** Find time when " Pte de Barfluer Lt Ho ' will be abeam ?

### Chart 2675

26.

    **a)** At 1700 hrs, ' Dungeness Lt Ho ' bore 270⁰ ( T ) and ' S. Foreland Lt Ho ' bore 031⁰ ( T ) – find the ship's Posn ( Lat / Long ) ?

    **b)** The vessel then steered 225⁰ ( C ). At 1900 hrs, ' Royal Sovereign Lt Vsl ' bore 257⁰ ( C ) and ' Dungeness Lt Ho' bore 037⁰ ( C ). Find the ship's posn ( Lat / Long ) ?

    **c)** Find the set, drift and rate of current ( ship's speed was 13.0 kts )

    **d)** Also find the CMG & SMG ? ( Varn 4⁰ W, Devn Card I

27.

**a)** A v/l steering 117⁰(C), at 0830 hrs observed ' Cherbourg (Fl(3)WR.15s. 24/20M)146⁰(C) & 'La Plate ( Fl(2+1)WR. 9/6M) 198⁰(C). Find the ship's posn ( Varn from Chart, Devn card III ) ?

    **b)** from the posn in (a), vessel set course for ' Nab Tr ( Fl.10s 16M ) at 10 miles off, counteracting a current setting 310⁰(T) at 4.5 kn. Find the compass course to steer ( Ship's Engine speed 16.0 kts ) ?
    **c)** Find - i) CMG & SMG, ii) Time vessel will reach to the destination posn, iii) Time & distance off ' St Catherine's Pt' will be due North ?

**Chart 2450**

28. A vessel steering a course 032° (T) at 10.0 kts, at 0600hrs ship position 50°32.8'N, 001°54.8'W. A current setting 140° (T) at 2.0kn.

Find – a) ship's position at 0700hrs?

b) Course Made Good (CMG) and Speed Made Good ( SMG ) ?

29. A vessel ( v/l )steering a course117°(C) at 6.8kts, at 0930 hrs ' Poole Hr Pt(Qcc.WRG.10.6.6M)' bore 279°(C) and ' Handfast Pt' bore 251°(C). A current setting 085°(M) at 2.2kn ( Varn from Chart, Devn Card III ).

Find – (i) Ship's position at 0930 hrs ( Lat / Long ) ?

(ii) Ship's position at 1100 hrs,

(iii) CMG & SMG,

(iv) Time and distance off ' The Needle L/H' will be abeam ?

30. A vessel ( v/l )steering a course 068°(C) at 9.8kts, at 1830 hrs ' Bill of Portlad L/H' bore 289°(C) and          distance 7 miles off. At 2000 hrs ' Anvil Pt L/H' bears due North at 5.8 miles. ( Varn from Chart, Devn Card III ).

Find – (i) Ship's position at 1830 hrs ( Lat / Long ) ?

(ii) Ship's position at 2000 hrs ( Lat / Long ) ?

(iii) CMG & SMG,

(iv) Time and distance off ' Saint Albans Head' will be abeam ?

(v) Drift, set n rate of the current experienced during this period ?

31. A v/l Steering 106°(T) and engine speed 9.7 kts, at 0430 hrs observed ' Handfast Pt' bore 323°(C)

and ' Anvil Pt L/H ' bore 217°(C). At 0630hrs observed ' Saint Catherine's Pt L/H ' bearing 038°(C)

at 4.8 miles off.

Find - i) Ship's Posn at 0430 hrs and at 0630 hrs,

ii) CMG & SMG,

iii) Set, drifts and Rates of Current experienced during the period,

iv) Time and distance off ' The Needles L/H / will be abeam ?

**32.** A v/l steering 117$^o$(C ) at 5.5 kts, 0830 hrs observed ' Hurst Pt ' & ' The Needles ' in-transit and ' The Needles ' was 2.2 miles off. A current was setting 188$^o$(T) at 1.6kn and a NE'ly wind causing leeway 3$^o$ was experienced throughout.

Find - i) Ship's Posn at 0830hrs and 1000hrs,

ii) CMG & SMG

iii) Time & dist off ' St Catherine's Pt' will be due East.

**33.** A v/l steering 100$^o$(C ) @ 9.0kts, at 0600 hrs observed ' Handfast Pt ' & ' Poole Hr Pt ' bore 235$^o$(C ) & 308$^o$(C ) respectively. At 0800 hrs observed ' St Catherine's Pt ' due North at a distance of 2.5 miles off. If a N'ly wind causing leeway 4$^o$ ( Variation from chart, Deviation Card III )

Find - i) Ship's Position at 0600hrs and 0800hrs,

ii) CMG & SMG,

iii) Set, Drift & Rates of current experienced during this period,

iv) Time and distance off v/l will pass due South of ' The Needles

34. At 0200 hrs v/l's posn with ' Anvil Pt ' 290$^o$(T) X 7'.

Find course to steer to reach with ' Nab Tr ' 030$^o$(T) X 14', counteracting a current setting 147$^o$(T) @ 3.5kn ( Ship's Engine speed 13.5 kts ). Also, find the time vessel will be due South of ' St Catherine's Pt' ?

**35.** a) A v/l steering 197°(C), 0600hrs observed ' The Needles' & ' St Catherine's Pt ' in-transit and St Catherine's Pt 10 miles off. Find the ship's position ( Lat / Long ) ?

b) From the above position in (a), find compass course to steer to reach 8 miles due South of 'Anvil Pt' Counteracting a current setting 147° (M) at 3 kn and a N'ly wind leeway 4° ( ship's log speed 14 kts, varn from chart, devn card III ).

c) i) Find time and distance off St Catherine's Pt will be abeam, ii) Time v/l will reach off Anvil Pt ?

**36.** a) A v/l steering $327^o$( C ) @ 15 kts, 2200 hrs on 04th Jan'21 observed ' Anvil Pt'

& ' The Needles ' 10 miles n 14 miles off respectively. Find the ship's posn ( Lat / Ling ) ?

b) From the above posn in ( a ), v\l set course to reach with ' St Catherine's Pt' bearing NW and distance 8 miles counteracting a current setting $228^o$(T) at a rate of 4 kn and a SE wind ( force 8 ) leeway $5^o$. Find the compass course to steer ?

( Varn from Chart, Devn Card I )

c) Find - i) Time ' The needles' n ' St catherie's Pt' will be in - transit.

ii) Time ' Nab Tr ' will be bearing due North ?

<mark>TRANSIT BEARING</mark>:

01. A ship heading 280 C at 1900 hrs observed Nash point Light abeam to stbd and at the same time a bearing of Breaksea point Bn Lt(FL.R) was observed to be 160 deg G to the ship's head. Find the Lat and Long of the ship's position at this time. Also find the true course to steer and ETA to port TALBOT pilot station if the vessel's speed is 12 knots. ( chart 5047)

<mark>**Horizontal Sextant Angle :**</mark>

01.Boulogne Hardbour Entrance Light { F1 (2+1) 15 sec 19M} was in transit with colonne de ta Grande Armee (140) (50 44.4 N 1034.24.E) , bearing 079 (C). at the same time Cap d Alprech Light {F1 (3) 15sec 62m 24M} and aforesaid Boulogne Hardbour Entrance Light subtended a horizontal angle of 40 . Find the ship's position and the deviation of the compass for the ship's heading. ).(Chart no.5055/2451)

02.At 1300 hrz horizontal sextant angle between PJEMUR light house ( FL 5s 46m 18M) and B.Mandi light house (F1(2) 10s 43m 20M) found to be 27 , while PJEMUR light bore 187 (C), ships head 120 C find the vessel's position and devation for the ships head . From this

position plan a passage to reach port Dickson safe water Mark bouy (L.FL.10s) (CHART NO 3946 )

## Chart 2454

03. **a)** At 1430 hrs followings bearings   been observed –

- Anvil Point L/H bore $251^0$ ( T ), Handfast Point bore $282^0$ ( T ), Hengistbury Head bore $024^0$ ( T ),    Find the ship's position ( Lat / Long ) ?

<u>Calc :</u> HSA betn Anvil Pt L/H n Handfast Pt = ( $251^0$ ~ $282^0$ ) = $31^0$,

Comp Angle betn Anvil Pt L/H n Handfast Pt = ( $90^0$ -$31^0$ ) = $59^0$

HSA Betn Handfast Pt n Hengistbury Pt = ( $282^0$ ~ $024^0$ ) = $102^0$,

Comp angle betn Handfast Pt n Hengistbur Pt = ( $102^0$ - $90^0$ ) = $12^0$,

04. **a)** At 0030 hrs following  bearings been observed:

' The Needles L/H ' bore $046^0$ ( C ), ' Hengistbury Head ' bore $009^0$ ( C ),  ' Anvil Point L/H ' bore $301^0$ ( C ), Find the ship's Posn ( Lat / Long ) ? Devn for ship's head ( Take Varn from Chart ) ?

05.  At 1930 hrs, following compass bearings were observed –

- The Needles L/H Bearing $035^0$ ( C ), Hengistbury Head Bearing $357^0$ ( C ), Handfast point Bearing $320^0$ ( C ),    Find the ship's position ( Lat / Long ) ?

From the above position vessel set a course of $238^0$ ( C ) and at 2030hrs ' Anvil Pt L/H ' was found 6 miles off bearing $330^0$ ( C ).

Find – **i)** Set, Drift and Rate of current experienced during this period ?

**ii)**     Course and Speed Made Good ?  ( Varn from Chart, Devn Card III, Ship's Engine Speed 10.0 kts )

06. **a)** At 0330 hrs, Vertical sextant angle of ' Anvil Pt L/H' was $00^022'$ . Handfast Pt bore $312^0$(C) and Anvil Pt bore $260^0$(C). Find the ship's Posn ( Lat / Long ) ?

**b)** At 0500hrs, ' Hengistbury Hd' observed to be bearing $289^0$(T), distance 5.0 miles off - i) find CMG &  SMD during this period ?
**c)** If the vessel was steering a course of $045^0$(T) and engine speed 6.8 kts. Find - i) Set, ii) Drift n rate of current experienced during the above period ?
**d)** How close the vessel will pass ' The Needles ' ? Find time & distance off when ' The Needles' will be abeam ?

## Chart 2675

**07.**  **a)**( Varn 6° W, Devn Card ii, Ship's Speed 12.0kts ), A v/l steering 278° ( C )- ' Start Ptv L / H ' bore - 018° ( C ), ' Eddystone Rocks L/H ' bore 309° ( C ) – find the ship's posn ( Lat / Long ) ?

   **b)** From the posn as above in ( a ) , find the compass course to steer so as to sight ' Lizard Pt L/H ' right ahead at 16 miles off, counteracting a current setting 180° ( T ) @ 3.0 ktsWhat time ' Lizard Pt L/H ' will be at right ahead at 16 miles off ?

## <mark>PASSAGE PLANNING</mark>

01.Your ship drops Pilot at the pilotage ground off the port of Boulogne and now intends to procced to the Port of Dover across the Dover Strain. Draw a safe course from Boulogne pilotage ground, crossing the strait and keeping 2miles clearance NE of Varne Light Vessel (F1 R 20 sec 12m 22M) and passing 0.5 miles South of South Cardinal buoy ( 51 3.6'N, 1 25.8'E). ). (Chart no.5055/2451)

02. A vessel with 20 meter draft in position with T. Medang light F1. 10s 52m 19M bearing 6miles due SSW, receives instruction to proceed to one mile south of port Sungai Udang pilot ground . Find the courses and distance to port Sungai Udang pilot.(CHART NO 3947)

03.At 1500 hrs a vessel following a course of 312 T. PERMATANG SEPEDA Light House [FL (4) 20s 43m 23M] was found to be 2 miles abeam to starboard. From this position plan a passage to reach PORT KLANG pilot boarding ground. Ship's draught 20 meter. What will be the ETA to PORT KLANG pilot boarding ground. .(CHART NO -3945)

   04.A vessel at Singapore Western Petroleum Anchorage A obtains bearing of PSA BLDG (185), Mr. Siloso near Cruise Bay entrance (Santosa Island) and Palawan light (F1.G(2) 5s 8m 5M ) as 010 C, 045 C and 081 C respectively. Find the ships position. From this position plan a passage to reach Anchorage 'G' of the Eastern Bunkering Anchorage A. (CHART NO -4041)

05.At 1200 hours SENTOSA cable car towers found to be in transit and Selegi light FLR 2.5s 6m 5M found to be 155 C. Ship's head 090 C. Find the ship's position and error of the compass.From this position plan a passage and ETA to reach a position with 2 miles due North of P Nongsa light FL 8s 40m 20M. Ship's speed 16 knots. (CHART NO -4041)

06. At 1200 hours Raffler light house Fl (B) 20s 32m 20M found to be 1M and bore due North .Find the position from this position Find the standard compass course to steer and ETA to search western Boarding Ground 'A' . Ship's speed 10 knots. Current setting 010 (T) at 1 knots, leeway 4 due to southerly wind.(CHART NO -4041)

07.A vessel obtains bearing of Raffles light house F1 (3) 20s 32m 20M Recon (O) 358 T Distance 2.1 miles From this position draw up a passage plan to the entrance to crusie Bay. When the maximum draft of your vessel is 20 meters. .(CHART -4040)

08. A vessel obtains a radar range of Raffles light house F1(3) 20s 32m 20M Recon (O) as 2 miles, after steaming a course of 060 C , for 40 minutes, Tembakul  light F1. R. 5s 6m 4M, found to bore due North distance 2.1 miles, ships speed? .(CHART -4040)

<mark>DIPPING DISTANCE:</mark>

1. From vessel streering 180 (T) at 1000hrs, KEPULAUAN SEMBILAN, B. Putih( White Rock) Lt. { F1(2) 10s 27m 15 M} Bore 090 (C) and after 1 hour the same light house bore 036 (c) . Find the ship's position at 1100 hrs allowing for a current setting 270 (T) at 2 knots and 5 of leeway due to a strong North Easterly wind. Gyro error 2 (H).
If the vessel continue proceeds on the same course find the Dipping distance and time of B. putih (White Rock) light house. Observer's Height of eye is 12 meters.(CHART NO -3945)

<mark>TRANSIT BEARING:</mark>

01. A vessel in Singapore Western Petroleum Anchorage B finds SentosaAeral Cable way towers in transit bearing 010 C and Selegi light F1 R 2.5s 6m 5M bearing 112 C . Find the ship's position .deviation and error of the compass. .(CHART -4040)
02.

## Running Fix / Transfer PL with Current:

## Chart 2675

01. A v/l steering 085⁰(C), at 0100 hrs ' Cap de la Hague' bore 178⁰ ( C ) and 0330 hrs 'Cap Levi ' bore 208⁰(C). A current was setting 148⁰( T ) at 2.2 kn during this period. ( Varn from charts, Devn Card III, ship's engine speed 12.0 kts ). Find - a) Ship's posn at

0100 hrs n 0330 hrs, b) CMG n SMG, c) Time n distance off ' Cherbourg Tower' will be

due South ?

02. A v/l steering  058$^o$( C ) at 12.5kts, observed at 0900hrs ' Pt Robert ( Fl 15s 20M )' and ' Platte Fougere ( Fl WR 10s 16M' in-Transit with 134$^o$( C ) and the ' Platte Fougere L/H 16 miles off. A current setting 010$^o$( M ) at 2.4 kn and a N'ly wind ( Force 8 ) leeway 4$^o$ was experienced throughout

( Varn from Chart ).

Find - **i)** Devn for ship's head, **ii)** v/l's posn at 0900hrs and 1030 hrs,

**iii)** CMG & SMG, iv) Time and dist ' St Alderney ( Fl(4) 15s 23M' will be  due

South ?

03. A v/l steering  288$^o$( C ) at 12.5kts, observed at 0900hrs ' Pte de Barfleur ( Fl(2) 10s 29M )' and ' Cap Levi ( Fl R 5s 22M)'  7 miles and 11 miles off respectively. A N'ly wind ( Force 8 ) leeway 4$^o$ was experienced throughout. At 1100hrs observed  'Cap de la Hague ( Fl 5s 23M )' 157$^o$( C ) at 14 miles  distance.

Find - i) V/l's posn at 0900hrs and 1100hrs, iii) CMG & SMG, iii) Drift, rates n setting of current, iv) Time ' Cherbourg Tower ' will be abeam ?

04.  A v/l is steering a course 092$^o$(C) - 088$^o$(T),

a) At 2030 hrs, v/l in posn with ' Casquets ( Fl(5)30s24M) ' 148$^o$(C) X 14.5 miles - find ship's Posn ( L at / Long ) ? ( Varn from Chart, Devn Card III )

b) From above posn as in ( a), find the compass course to steer if  v/l intends to pass  due North of ' Pte de Barfluer ( Fl(2) 10s 29M )' at 7.0 miles off, counteracting  a current setting 210$^o$(T) @ 2.2 kn.

c) Also, find - i) CMG & SMG, ii) Time & distance off ' Cap de la Hague '

will be abeam ? iii) Time ' Cherbourg Light ( Fl(3) WR 15s 24/30M) ' and Tower will be in transit ? iv) ETA v/l will be at the posn as targated in (b) ?

 ( Varn from Chart, Devn Card III, Ship's Log speed 13.5 kts )

05.  A v/l steering  068$^o$( C ) at 12.5kts -
a)  observed at 0900hrs ' Pte de Barfluer ( Fl(2) 10s 29M )' bore 217$^o$(C)

at 17.5 miles off - find ship's posn ( Lat / Long ) ( Varn from chart, Devn Card III ),

b) From the posn (a) v/l set a course to steer to reach due West of ' Casquets ( Fl(5)30s24M )' at 22 miles off ( if a current setting 320⁰(M) at 3.5 kn and a SE'ly wind ( force 7 ) leeway 4⁰ ) – find the compass course to steer

   c) Find Time and distance off ' La Plate ( Fl(2 +1) WR 9/6M ) ' will be four (04 ) points on the port bow

06.  AT 0800 hrs observed the following simultaneous bearings -

'Pte de Barfluer L/H ( Fl(2)10s29M '  - 137⁰( C ),

Cherbourg L/H ( Fl(3)WR 15s 24/20' - 189⁰( C ),

La Plate ( Fl(2 + 1) WR 9/6M)' - 232⁰( C ),

Find - i) Ship's position,   ii) Devn from Ship's head.

07. a) 0630 hsr Ship's Posn observed ' Nab Tower ( Fl.10s.16M) 016⁰(C), 'St Catherine's Pt ( Fl.5s.25M & F.R.13M ) 296⁰(C) and ' The Needles ( Oc(2)WRG 20s.17-13M ) 296⁰(C).

Find  - i) the ship's posn, ii) Devn for ship's head ?

b) From the posn in (a) find compass course to steer to reach 10 miles due South of ' Bill of Portland ( Fl(4).20s.25M ' counteracting a current setting 220⁰(T) at 4.0 kts and a SW'ly wind ( forace 8 ) leeway 4⁰ ( Compass Errors as derived in (a), ship's engine speed 14.0 kts )

c) Find time  and distance' Anvil Pt ( Fl.10s.19M ) will be abeam ?

d) Also find - i) CMG, SMG, ii) Time vessel will be off ' Bill of Portland ' ?

## Chart 2450

08. A v/l steering 238⁰( C ) at an engine speed of 16 kts. At 0400 hrs observed ' Nab Tr ' bore 005⁰( C ) and at 0600 hrs ' St Catherine's Pt ' bore 030⁰( C ). Find the ship's position at 0400 hrs and 0600 hrs ( Lat / Long ) ?  ( Varn from Chart, Devn Card I ).

09.A v/l steering 227⁰( C ) and it's engine speed was 5.2kts. At about 2230 hrs observed ' Hengisbury Head '  and Christchurch harbor ' Water Tr ' bore 020⁰( C )  and 330⁰( C ) respectively. A current was setting  147⁰( M )@1.2kts. ( Varn from Chart, Devn Card III )

**Find** – **i)** Ship's position at 2230hrs, **ii)** CMG n SMG, **iii)** Time and dist off ' Handfast Pt' will be abeam ??

**10.**A v/l steering 108⁰( C ) at 6.8kts, at 1100 hrs observed ' Handfast Pt ' and ' Castle Head ' bore 328⁰( C ) and 217⁰( C ) respectively. At 1245 hrs observed ' The Needles ' due North 5.8 miles off.Find – i) v/l posn at 1100 hrs, ii) v/l posn at 1245 hrs, iii) CMG & SMG, iv) Drifts and setting & rates of current ?

11. A vessel steering  223⁰( C ) @ 5.5 kts, 0700 hrs observed ' Hengisbury head' and ' Hurst Pt ' bore 303⁰( C ) n 077⁰( C ) respectively and at 0830 hrs  observed v/l due East of ( from ) ' Anvil Pt ' at 2.8 miles ( Varn from chart, Devn Card III )
Find - (i) V/l posn at 0700 hrs n 0830 hrs, ( ii) CMG n SMG, ( iii ) drift, rate  n set of current experienced during this period, (iv) Time and distance off ' Handfast Pt ' will be abeam ??

12.A v/l Steering 103⁰( G )  @ 4.4kts, at 0300 hrs observed ' Poole Hr Pt (Occ.WRG.10.6.6M )  ' and ' Handfast Pt ' bore 305⁰( G )  and 215⁰( G )  respectively. A current setting 157⁰( M ) at 0.8 kn and a NE'ly wind Leeway 3⁰ were experienced throughout.
Find - i) V/l posn at 0300hrs and 0500 hrs,  ii) CMG n SMG, iii) Time ' The Needles ' will be due

North ?