U.S.C.G. Merchant Marine Exam

Apprentice Mate Steersman

Q416 Navigation Problems – Oceans

(Sample Examination)

Choose the best answer to the following Multiple-Choice Questions.

1. You are taking a time tick using the 2000 signal from Kekaha-Kauai, Hawaii (WWVH). You hear a series of 1 second dashes followed by a 9 second silent period, then a long 1.3 second dash. At the beginning of the long dash, your comparing watch reads 07h 59m 54s. When compared to the chronometer, the comparing watch reads 08h 00m 00s, and the chronometer reads 08h 00m 06s. What is the chronometer error?

    A. No error
    B. 0m 06s fast
    C. 0m 06s slow
    D. 0m 12s fast

    Correct answer: A

2. Your vessel consumes 268 barrels of fuel per day at a speed of 19.0 knots. What will be the fuel consumption of your vessel at 15.0 knots?

    A. 212 bbls
    B. 132 bbls
    C. 167 bbls
    D. 243 bbls

    Correct answer: B

3. On 23 May your 0628 zone time position was LAT 28°18.0'S, LONG 102°42.0'E. Your vessel was steaming on course 040°T at a speed of 20.0 knots. An observation of the Sun's lower limb was made at 0758 ZT. The chronometer read 01h 02m 06s and was fast 04m 04s. The observed altitude (Ho) was 13°16.7'. LAN occurred at 1201 zone time. The observed altitude (Ho) was 42°32.0'. What was the longitude of your 1201 zone time running fix?

    A. 103°57.9'E
    B. 104°00.4'E
    C. 104°03.5'E
    D. 104°06.3'E

    Correct answer: C

4. On 25 December your 0330 ZT DR position is LAT 25°15.0'N, LONG 32°16.0'W. You are on course 145°T at a speed of 20 knots. What will be the zone time of sunrise at your vessel?

    A. 0623
    B. 0635
    C. 0641
    D. 0647

    Correct answer: D

5. While on a course of 159°T, a light bears 11° on the starboard bow at a distance of 10.6 miles. What course should you steer to pass 2 miles abeam of the light leaving it to starboard?

    A. 163°T
    B. 171°T
    C. 167°T
    D. 159°T

    Correct answer: D

6. You observe the lower limb of the Sun at a sextant altitude (hs) of 31°31.5' on 6 March. The index error is 2.5' on the arc. The height of eye is 76 feet. What is the observed altitude (Ho)?

    A. 31°35.3'
    B. 31°36.7'
    C. 31°38.2'
    D. 31°39.5'

    Correct answer: A

7. You are steaming at 22 knots and burning 319 barrels of fuel per day. You must decrease your consumption to 137 barrels per day. What must you reduce your speed to in order to burn this amount of fuel?

    A. 16.6
    B. 18.2
    C. 14.8
    D. 12.4

    Correct answer: A

8. On 15 November your 0813 zone time (ZT) fix gives you a position of LAT 22°30.0'N, LONG 67°28.0'W. Your vessel is on course 164°T, and your speed is 13.5 knots. Local apparent noon (LAN) occurs at 1215 ZT, at which time a meridian altitude of the Sun's lower limb is observed. The observed altitude (Ho) for this sight is 49°46.0'. What is the latitude at 1200 ZT?

    A. 21°42.5'N
    B. 21°39.3'N
    C. 21°36.0'N
    D. 21°32.8'N

    Correct answer: A

9. At 0915 ZT on 26 July you depart Yokohama, LAT 35°27.0'N, LONG 139°39.0'E (ZD -9). You are bound for Seattle, LAT 47°36.0'N, LONG 122°22.0'W, and you estimate your speed of advance at 14 knots. The distance is 4,245 miles. What is your estimated ZT of arrival at Seattle?

    A. 0728, 7 August
    B. 1528, 7 August
    C. 0028, 8 August
    D. 1528, 8 August

    Correct answer: A

10. On 8 April your 0830 zone time DR position is LAT 22°49.0'N, LONG 84°37.0'W. Your vessel is on course 228°T at a speed of 19.0 knots. What is the zone time of local apparent noon (LAN)?

    A. 1144
    B. 1147
    C. 1150
    D. 1154

    Correct answer: A