U.S.C.G. Merchant Marine Exam

Mate Offshore Supply Vessels

Q214 Navigation Problems - Near Coastal

(Sample Examination)

Choose the best answer to the following Multiple Choice Questions:

1. Your vessel has a draft of 23 feet. On 23 June 1983 you wish to pass over a temporary obstruction near Beaufort, SC, that has a charted depth of 22 feet. Allowing for a safety margin of 3 feet, what is the earliest time after 1600 DST (ZD +4) that this passage can be made?

- • (A) 1750
- ○ (B) 1815
- ○ (C) 1855
- ○ (D) 1944

If choice A is selected set score to 1.

2. On 20 July your vessel's 1626 zone time DR position is LAT 27°13.0'N, LONG 63°42.0'W, when you take an azimuth of the Sun.
Determine the gyro error using the azimuth information.
Chronometer time: 08h 24m 18s
Chronometer error: slow 02m 12s
Gyro bearing: 279.3°
Variation: 15°W

- • (A) 1.9°W
- ○ (B) 2.6°W
- ○ (C) 1.4°E
- ○ (D) 2.6°E

If choice A is selected set score to 1.

3. If the pitch of the propeller is 26.7 feet, and the revolutions per day are 131,717, calculate the day's run allowing 4% negative slip.

- ○ (A) 555.2 miles
- ○ (B) 578.4 miles
- • (C) 601.6 miles
- ○ (D) 649.4 miles

If choice C is selected set score to 1.

4. You desire to make good a true course of 203°. The variation is 19°E, magnetic compass deviation is 2°W, and gyrocompass error is 1°E. A westerly wind produces a 3° leeway. What is the course to steer per standard magnetic compass to make the true course good?

- ○ (A) 223°psc
- • (B) 189°psc
- ○ (C) 183°psc
- ○ (D) 210°psc

If choice B is selected set score to 1.

5. You swung ship and compared the magnetic compass against the gyrocompass to find deviation. Gyro error is 2°E. The variation is 8°W. Find the deviation on a magnetic compass heading of 234°.

NP-0112

HEADING		
PSC		PGC
030.5°	-	020°
061.5°	-	050°
092.0°	-	080°
122.5°	-	110°
152.0°	-	140°
181.0°	-	170°
210.0°	-	200°
239.5°	-	230°
269.0°	-	260°
298.0°	-	290°
327.5°	-	320°
358.5°	-	350°

- ○ (A) 2.5°W
- ○ (B) 2.5°E
- ○ (C) 1.0°W
- ● (D) 0.5°E

If choice D is selected set score to 1.

6. The wind at Frying Pan shoals has been north-northeasterly at an average velocity of 30 mph. The predicted set and drift of the rotary current are 355° at 0.8 knot. What current should you expect?

- ○ (A) 279° at 1.0 knot
- ○ (B) 047° at 0.3 knot
- ● (C) 325° at 0.7 knot
- ○ (D) 010° at 1.1 knots

If choice C is selected set score to 1.

7. If the speed necessary for reaching port at a designated time is 23.7 knots and the pitch of the propeller is 20.8 feet, how many revolutions per minute will the shaft have to turn, assuming a 7% negative slip?

- ○ (A) 116 RPM
- ○ (B) 124 RPM
- ○ (C) 112 RPM
- ● (D) 108 RPM

If choice D is selected set score to 1.

8. You are taking a time tick using the 1200 signal from Valparaiso, Chile. 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 12h 00m 18s. When compared to the chronometer, the comparing watch reads 12h 01m 23s, and the chronometer reads 11h 59m 35s. What is the chronometer error?

- ○ (A) 1m 05s fast
- ○ (B) 0m 25s slow
- ● (C) 1m 30s slow
- ○ (D) 0m 18s fast

If choice C is selected set score to 1.

9. At 1444 ZT on 28 July, in DR position LAT 40° 56.8' N, LONG 167° 12.4' E, you observe an amplitude of the Moon. The upper limb of the Moon is on the visible horizon and bears 299.3° psc. The variation is 1° E. What is the deviation?

- ● (A) 3.1°W
- ○ (B) 3.1°E
- ○ (C) 2.1°W
- ○ (D) 2.1°E

If choice A is selected set score to 1.

10. You receive a distress call from a vessel reporting her position as LAT 30°21'N, LONG 88°34'W. Your position is LAT 24°30'N, LONG 83°00'W. Determine the true course and distance to the distress scene by Mercator sailing.

- ○ (A) 322°T, 455 miles
- ● (B) 320°T, 460 miles
- ○ (C) 324°T, 460 miles
- ○ (D) 317°T, 470 miles

If choice B is selected set score to 1.