

U.S.C.G. Merchant Marine Exam  
Mate Uninspected Fishing Vessels  
Q194 Navigation Problems - Oceans  
(Sample Examination)

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

1. On 14 January your 0746 zone time DR position is LAT  $26^{\circ}37.0'N$ , LONG  $153^{\circ}19.0'W$ . At that time, you observe the Sun bearing  $123^{\circ}psc$ . The chronometer reads 05h 49m 16s, and the chronometer error is 02m 29s fast. The variation is  $3^{\circ}W$ . What is the deviation of the standard magnetic compass?

- (A)  $3.4^{\circ}E$
- (B)  $4.4^{\circ}W$
- (C)  $1.4^{\circ}W$
- (D)  $1.6^{\circ}E$

*If choice C is selected set score to 1.*

2. On 13 October your vessel's 1722 zone time DR position is LAT  $27^{\circ}36'S$ , LONG  $136^{\circ}16'E$ , when an amplitude of the Sun is observed. The Sun's center is on the celestial horizon and bears  $266^{\circ}$  per standard magnetic compass. Variation in the area is  $2^{\circ}W$ . The chronometer reads 08h 24m 19s and is 01m 43s fast. What is the deviation of the standard magnetic compass?

- (A)  $2.8^{\circ}W$
- (B)  $2.3^{\circ}E$
- (C)  $6.8^{\circ}W$
- (D)  $4.8^{\circ}E$

*If choice A is selected set score to 1.*

3. On 13 August your 0345 ZT DR position is LAT  $21^{\circ}35.0' N$ , LONG  $135^{\circ}26.0'W$ . You are on course  $052^{\circ}T$  at a speed of 14 knots. What will be the zone time of sunrise at your vessel?

- (A) 0443
- (B) 0540
- (C) 0449
- (D) 0536

*If choice D is selected set score to 1.*

4. The great circle distance from LAT  $24^{\circ}25.3'N$ , LONG  $83^{\circ}02.6'W$  to LAT  $35^{\circ}57.2'N$ , LONG  $5^{\circ}45.7'W$  is 3966.5 miles. Determine the latitude of the vertex.

- (A)  $38^{\circ}46.2'N$
- (B)  $38^{\circ}16.4'N$
- (C)  $38^{\circ}09.4'N$
- (D)  $37^{\circ}57.3'N$

*If choice C is selected set score to 1.*

5. A vessel at LAT 20°00'N, LONG 107°30'W is to proceed to LAT 24°40'N, LONG 112°30' W. What is the course and distance by mid-latitude sailing?
- (A) 315.3°T, 394.0 miles
  - (B) 317.2°T, 397.0 miles
  - (C) 314.0°T, 389.0 miles
  - (D) 318.3°T, 399.0 miles

*If choice A is selected set score to 1.*

6. Your vessel departs Seattle at 1010 zone time, (ZD +8), on 28 May bound for Apra, Guam, (ZD -10). The distance by great circle is 4,948 miles, and you estimate that you will average 18.5 knots. What is your estimated zone time of arrival?
- (A) 0737, 10 June
  - (B) 1937, 9 June
  - (C) 1737, 9 June
  - (D) 0737, 9 June

*If choice D is selected set score to 1.*

7. 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) 1147
  - (B) 1150
  - (C) 1154
  - (D) 1144

*If choice D is selected set score to 1.*

8. On 16 July at 2000 zone time, you take a sextant observation of Polaris. Your vessel's DR position is LAT 27°22.0' N, LONG 148°35.0' W, and your sextant reads 26°57.5'. Your chronometer reads 05h 59m 16s, and your chronometer error is 01m 28s slow. Your height of eye is 48 feet, and the index error for your sextant is 1.3' off the arc. What is the latitude of your vessel from your observation of Polaris?
- (A) 26°58.8'N
  - (B) 27°43.4'N
  - (C) 27°36.1'N
  - (D) 26°52.1'N

*If choice C is selected set score to 1.*

9. On 12 September your 0600 zone time (ZT) fix gives you a position of LAT  $22^{\circ}51.9'N$ , LONG  $133^{\circ}40.1'W$ . Your vessel is on course  $062^{\circ}T$ , and your speed is 12.3 knots. Local apparent noon (LAN) occurs at 1142 ZT, at which time a meridian altitude of the Sun's upper limb is observed. The observed altitude ( $H_o$ ) for this sight is  $70^{\circ}33.2'$ . What is the calculated latitude at LAN?
- (A)  $23^{\circ}23.0'N$
  - (B)  $23^{\circ}26.5'N$
  - (C)  $23^{\circ}24.8'N$
  - (D)  $23^{\circ}27.9'N$

*If choice C is selected set score to 1.*

10. On 22 February your 0800 zone time position is LAT  $24^{\circ}16'S$ , LONG  $95^{\circ}37'E$ . Your vessel is on course  $126^{\circ}T$  at a speed of 14 knots. An observation of the Sun's lower limb is made at 0945 zone time. The chronometer reads 03h 47m 22s, and the chronometer error is 02m 37s fast. The observed altitude ( $H_o$ ) is  $57^{\circ}02.1'$ . LAN occurs at 1148 zone time, and a meridian altitude of the Sun's lower limb is made. The observed meridian altitude ( $H_o$ ) is  $75^{\circ}22.3'$ . Determine the vessel's 1200 zone time position.

- (A) LAT  $24^{\circ}52.2'S$ , LONG  $96^{\circ}27.2'E$
- (B) LAT  $24^{\circ}52.2'S$ , LONG  $96^{\circ}24.0'E$
- (C) LAT  $24^{\circ}49.3'S$ , LONG  $96^{\circ}27.2'E$
- (D) LAT  $24^{\circ}49.3'S$ , LONG  $96^{\circ}24.0'E$

*If choice B is selected set score to 1.*