

U.S.C.G. Merchant Marine Exam

Master TV to Master Less than 500 Gross Registered Tons
Oceans or Near Coastal

Q135 Navigation Problems - Oceans

(Sample Examination)

Choose the best answer to the following Multiple Choice Questions.

1. On 25 March your 0500 ZT DR position is LAT 28°14.0' S, LONG 93°17.0' E. You are on course 291°T at a speed of 16.0 knots. You observed 3 celestial bodies. Determine the latitude and longitude of your 0550 running fix.

Body	Zone Time	GHA	Observed Altitude	Declination
Peacock	0520	226°18.5'	49°42.9'	S 56°47.6'
Altair	0535	238°38.2'	43°53.1'	N 8°48.9'
Spica	0550	338°48.5'	21°11.7'	S 11°03.8'

- (A) LAT 28°06.4'S, LONG 93°02.5'E
- (B) LAT 28°15.9'S, LONG 92°56.9'E
- (C) LAT 27°53.2'S, LONG 93°17.6'E
- (D) LAT 28°19.3'S, LONG 92°59.0'E

If choice B is selected set score to 1.

2. You observe the lower limb of the Sun at a sextant altitude (hs) of 45°49.7' on 13 November . The index error is 1.0' on the arc. The height of eye is 61 feet (18.6 meters). What is the observed altitude (Ho)?

- (A) 45°49.8'
- (B) 45°52.9'
- (C) 45°56.4'
- (D) 45°59.3'

If choice C is selected set score to 1.

3. A time diagram is a diagram of the celestial sphere as observed from above the _____.

- (A) observer's meridian
- (B) north celestial pole
- (C) south celestial pole
- (D) Greenwich meridian

If choice C is selected set score to 1.

4. A large group of stars revolving around a center is known as a _____.
- (A) shower
 - (B) constellation
 - (C) galaxy
 - (D) cluster

If choice C is selected set score to 1.

5. On 18 November your 1750 zone time DR position is LONG 110°16.0' W. At that time you observe Polaris with a sextant altitude (hs) of 21°29.8'. The chronometer time of the sight is 00h 52m 43s, and the chronometer error is 02m 18s fast. The index error is 3.2' on the arc, and the height of eye is 49.5 feet. What is your latitude by Polaris?
- (A) 21°28.1'N
 - (B) 21°03.4'N
 - (C) 21°35.1'N
 - (D) 21°13.4'N

If choice B is selected set score to 1.

6. On 1 November your 1600 zone time DR position is LAT 27°48'S, LONG 91°26'E. Your vessel is on a course of 327° T at a speed of 16 knots. What will be the zone time of sunset at your vessel?
- (A) 1829
 - (B) 1813
 - (C) 1821
 - (D) 1836

If choice B is selected set score to 1.

7. On 5 May in DR position LAT 38°34.5'N, LONG 124°20.7'W, you take an ex-meridian observation of the Sun's lower limb. The chronometer time of the sight is 07h 59m 10s, and the chronometer error is 01m 10s slow. The sextant altitude (hs) is 67°27.0'. The index error is 1.4' on the arc, and your height of eye is 30 feet. What is the latitude at meridian transit?
- (A) LAT 38°26.4'N
 - (B) LAT 38°30.2'N
 - (C) LAT 38°36.0'N
 - (D) LAT 38°41.2'N

If choice C is selected set score to 1.

8. Determine the great circle distance and initial course from LAT $34^{\circ}51.0'N$, LONG $115^{\circ}01.2'E$ to LAT $10^{\circ}16.0'S$, LONG $51^{\circ}42.6'E$.
- (A) 4582 miles, $245.6^{\circ}T$
 - (B) 4436 miles, $245.3^{\circ}T$
 - (C) 4598 miles, $245.6^{\circ}T$
 - (D) 4493 miles, $245.6^{\circ}T$

If choice D is selected set score to 1.

9. You depart LAT $50^{\circ}06.0'N$, LONG $153^{\circ}06.0'E$ and steam 879 miles on course 090° . What is the LONG of arrival?
- (A) $178^{\circ}36.0'W$
 - (B) $175^{\circ}56.0'E$
 - (C) $177^{\circ}24.0'E$
 - (D) $175^{\circ}04.0'W$

If choice B is selected set score to 1.

10. On 24 January your 0700 zone time DR position is LAT $22^{\circ}25.0'N$, LONG $46^{\circ}10.0'W$. Your vessel is on course $110^{\circ}T$ at a speed of 12.0 knots. What is the zone time of local apparent noon (LAN)?
- (A) 1212
 - (B) 1215
 - (C) 1203
 - (D) 1208

If choice A is selected set score to 1.

11. On 8 April your evening DR position is LAT $22^{\circ}16.0' N$, LONG $157^{\circ}58.3' W$. You observe an unidentified star bearing $238^{\circ}T$ at an observed altitude (H_o) of $50^{\circ}02.7'$. The chronometer reads 05h 09m 57s, and is 01m 23s slow. What star did you observe?
- (A) Alnilam
 - (B) Betelgeuse
 - (C) Bellatrix
 - (D) Aldebaran

If choice A is selected set score to 1.

12. On 22 March your 1834 ZT DR position is LAT $26^{\circ}13.5'$ S, LONG $108^{\circ}36.5'$ W. You observe an unidentified star bearing 077° T, at an observed altitude (H_o) of $43^{\circ}10.5'$. The chronometer reads 01h 32m 37s and is 01m 50s slow. What star did you observe?

- (A) Regulus
- (B) Menkar
- (C) Rigel
- (D) Alphard

If choice D is selected set score to 1.

13. What is the longitude of the geographical position of a body whose Greenwich hour angle is $210^{\circ}30'$?

- (A) $30^{\circ}30'E$
- (B) $59^{\circ}30'W$
- (C) $120^{\circ}30'W$
- (D) $149^{\circ}30'E$

If choice D is selected set score to 1.

14. The horizon glass of a sextant is _____.

- (A) mounted on the index arm
- (B) silvered on its half nearer the frame
- (C) between the horizon and the shade glasses
- (D) All of the above

If choice B is selected set score to 1.

15. The latitude of the upper vertex of a great circle is 36° N. What is the latitude of the lower vertex?

- (A) 0°
- (B) 36° N
- (C) Cannot be determined from the information given
- (D) 36° S

If choice D is selected set score to 1.