

Year 11 MMS Semester 2 Sample Exam Answers

Section A: Multiple Choice

1	A	6	C	11	B	16	D
2	B	7	D	12	B	17	B
3	D	8	C	13	A	18	C
4	D	9	B	14	D	19	C
5	B	10	C	15	A	20	A

Section B: Short Answer

Qu21 (18 marks)

a) (3 marks) Any 3 of:

- Journey took a longer time
- Cargo may spoil due to ↑travel time
- ↑Diseases to crew/passengers eg. scurvy
- Crew/passengers experienced 'doldrums' – hot & humid weather
- Poor conditions ↑tensions on board

b) (4 marks)

- Brouwer's route
- Quicker route which ↑profit as ↑number of trips
- Cooler weather ↓tensions on board.
- ↓Spoilage of cargo (↑profits)

c)

i) (1 mark)

- Dirk Hartog

ii) (3 marks) *Answers may include, but are not limited to:*

- Confirmed existence of Great Southern Land
- Mapped sections of NW coast in great detail
- Landed on 'Dirk Hartog Island' and left a pewter plate detailing aspects of the landing in 1616.

d) (7 marks)

- 1712
- Kalbarri/Zuytdorp cliffs
- Unknown, presumed to wreck in violent storm
- Evidence of a camp site. Fires, wreckage from ship, bottles etc.
- Phillip Playford & Tom Pepper
- 1954
- Historic Shipwrecks Act 1976

Qu22 (11 marks)

a) (3 marks)

- Catamaran
- Monohull
- SWATH

b) (2 marks)

- Displacement hull – maintains buoyancy by displacing a volume of water, causing water to give upthrust force
- Planning hull – maintains buoyancy by sitting on top of the water, skimming and pushing it aside.

c) (6 marks)

	Advantages	Disadvantages
Timber	<ul style="list-style-type: none"> • Buoyant • Easily available • Easy to work with 	<ul style="list-style-type: none"> • Not fireproof • Heavy • Slow to manufacture
Fibreglass	<ul style="list-style-type: none"> • Non-corrosive • Light weight • Very strong • Recyclable • Very buoyant 	<ul style="list-style-type: none"> • Requires knowledge to build/repair • Needs respirator to build (fibres are harmful to health)
Aluminium	<ul style="list-style-type: none"> • Light weight • Easy to cut • Fireproof • Strong & durable 	<ul style="list-style-type: none"> • Flexible • Expensive • Need to know how to weld

Qu 23 (10 marks)

a) (2 marks)

- $1^{\circ}50'W$ 2011 (1'E) to 2016 = 5 years = $5 \times 1' = 5'E$
- $1^{\circ}50'W + 5'E = 1^{\circ}45'W$

b)

i) (1 mark)

- $60^{\circ}T$

ii) (2 mark)

T to C West Add

- $60^{\circ} + 1^{\circ}45'W$
- $61^{\circ}45'W$

iii) (2 mark)

- A to B = 12 cm $1'$ of latitude = 18.5cm
- $D = 12/18.5 = 0.65$ nautical miles

iv) (2 mark)

- $S = 4$ knots, $d = 0.65$ nautical miles $t = d/s = 0.65/4$
- $t = 0.16$ hours = 9.72 minutes

v) (1 mark)

- 17.2m

Qu 24 (24 marks)

a) (4 marks) *Answers may include, but are not limited to:*

- check that it is safe to perform the manoeuvre.
- Account for wind and tide and go into the wind/tide

- Approach on an angle of 45° at slowest speed.
- When 1m from jetty make the turn, put into neutral and ask crew to fasten vessel when at rest

b) (6 marks)

- Isolated danger marker – isolated danger of limited extent eg. isolated rock/reef/wreck/obstruction
- West cardinal marker – safe water is to the west of the marker
- Safe water mark – safe water beyond this marker (usually at the end of a channel)

c) (4 marks) *Answers may include, but are not limited to:*

- Location of safety equipment
- What to do in the event of an emergency
- Intentions of trip
- Check for crew's understanding

d) (4 marks)

- Fire extinguisher
- Bailer/bilge pump
- Anchor chain
- Lifejackets
- Red & orange flares

e) (3 marks) *Answers may include, but are not limited to:*

- EPIRB beacon releases signal
- Signal is picked up by at least 3 different satellites
- Triangulates your position based on time delay from beacon to receiver.

f) (3 marks)

- Yes
- Australia has a Search and Rescue Region (SRR)
- If an emergency occurs in our SRR (including Southern Ocean), we have a responsibility/obligation to act.

Qu 25 (14 marks)

a)

i) (4 marks) *Answers may include, but are not limited to:*

- A – surface water, warm, less dense water
- Due to solar heating from Sun and heat transfer from lower atmosphere
- C – Deep water, cold, denser water
- Heat energy dissipates and thus does not reach deep water/little light or heat energy reaches this depth.

ii) (3 marks)

- Deep Sea ecosystem

Any two of:

- ↓Light
- ↑Pressure
- ↑Density

b) (2 marks) *Answers may include, but are not limited to:*

- heat capacity = amount of heat energy required to increase the temperature of the water by 1°C
- water has a higher heat capacity than air

c)

i) (1 mark)

- Plimsoll line

ii) (4 marks) *Answers may include, but are not limited to:*

- Different ports have different salinity levels
- Therefore the seawater provided different levels of upthrust
- Need to consider this when loading cargo (size of mass/ amount of cargo to be loaded)
- If the boat sits too low in the water (↓Freeboard), may become unstable and capsize at Sea (loss of cargo and lives ☹️)

Qu 26 (13 marks)

a) (2 marks)

- Seagrass has roots, stems and leaves
- Seagrass is part of Angiosperms division

b) (2 marks) *Any 2 of:*

- Warm, clear, nutrient poor water
- Shallow, sandy bottom substrate
- Lots of light

c) (4 marks) *Answers may include, but are not limited to:*

- Sea cucumber – Echinodermata
- Crabs – Arthropoda
- Marine Bristle worms – Annelida

d) (3 marks)

Seagrass meadows provide:

- Nutrient rich water = ↑growth
- Shelter from predators = ↑survival
- ↓Water turbulence = safe environment for ↑growth

e) (2 marks)

Closed fishery = no removal of adults

- ↑number to spawn ↑offspring produced
- ↑number of individuals to population = recovery

Section 3: Extended Answer

Qu 27 (20 marks)

a) (2 marks)

- global circulation current
- that is driven by differences in temperature and salinity.

b) (4 marks)

Surface currents

- driven by local winds and/or atmospheric circulation
- the stronger the wind the stronger the current

Deep water

- driven by temperature and salinity differences forming convection currents
- can also be influenced by contours in ocean basin

c) (4 marks)

- eastern currents move southwards, whereas western currents move northwards
- due to anticlockwise ocean gyres operating in Southern Hemisphere
- eastern currents consist of warm water as the origin in the Sth Equatorial current.
- whereas western currents consist of cold Antarctic water

d) (6 marks)

- Geostrophic current
- Sea level on NW shelf is slightly higher
- Than the sea level of SW region
- Water flows downwards with gravity
- This height difference is established due to warm water piling up as a result of
- Indonesian archipelago tunnelling Sth Equatorial water downwards towards west coast of Australia.

e) (4 marks)

- West Australian Rock Lobster
- A strong Leeuwin current will
- increase recruitment levels to the population
- as warm, nutrient poor water disperses larvae
- to coastal inshore reef systems
- Leeuwin Current is weak; recruitment is usually poorer

Qu 28 (20 marks)

a) (4 marks)

- pristine environment,
- disease-free, pollution free water,
- warm, nutrient poor water
- warm water ↑growth rate as chemical reactions occur at faster rate
- nutrient poor water assists with controlling growth rates (as extra nutrients are applied to the system if needed)
- not heavily populated, lots of coastal areas to set up facilities

b) (4 marks) *Answers may include, but are not limited to:*

- Finfish species often need cooler water and big open spaces
- Counter-currents that run along the coastline bring cool, nutrient rich water northwards to mix with southwards Leeuwin current.
- SW of Western Australia / Nth Western Australia
- Less populated and there are lots of coastal regions that have the opportunity to be developed.
- Existing transport links so product can be sold onwards to market
- High rate of water exchange to distribute nutrients

c) (4 marks) *Answers may include, but are not limited to:*

- Sea cages
- Can facilitate a high stocking density
- Waste products diffuse into surrounding water
- Marine environment provides clean, oxygenated water
- Cheaper
- Less maintenance/

d) (6 marks) *Answers may include, but are not limited to:*

- ↑nutrients (N & P) introduced into surrounding marine environment
- can lead to toxic algal blooms occurring with ↓light available to native producers (eutrophication)
- Farmed species living in a high density can develop diseases
- Diseases can be passed on to the native species and cause a ↓in their populations
- Farmed species can escape cages, as these species are mainly carnivorous
- Can predate on native species and ↓their populations

e) (2 marks) *Answers may include, but are not limited to: Any 2 of:*

- Not overfeed the farmed species to reduce the likelihood of excessive nutrients contaminating nearby environments/ seafloor
- Vaccinate and conduct regular health checks of farmed species
- Check cages regularly for signs of wear/tear and make repairs
- Monitoring of pollutants into the environment to reduce degradation to seafloor and algae growth

Qu 29 (20 marks)

a. (6 marks) *Answers may include, but are not limited to:*

- materials/methods used to construct East Indiamen (boats) that were used in 1600s
- can see what materials were used and how they were put together – comments on tools and construction methods of the time.
- Equipment that was used for journey at sea in the 1600s.
- Provides information about the navigation equipment used, cooking/eating utensils, medical care, artillery and warfare to protect the vessel.
- From artefacts remaining on wreck site eg. silver coins, ivory tusks
- Can learn interesting aspects about how the Europeans conducted trade in the East Indies.
- Positioning of debris in wreck site eg. location of anchors
- Can see if any attempts were made to save the ship.

b. (4 marks)

- Historic Shipwrecks Act 1976

Any three of:

- Protects wreck sites from looting and disturbance
- Shipwrecks can be considered as ‘living museums’
- For all to enjoy
- HMAS Sydney wreck site contains human remains – living memorial to those who lost their lives

c. (10 marks)

	Dutch 1600s	Modern day
Latitude	• Astrolabe and cross staff to determine latitude	• GPS – triangulations of three satellites determine position
Longitude	• Could not measure longitude – big problem!	• GPS • Introduction of time zones
Speed	• Log line to determine cruising speed	• Boat speedometer measure speed.
Position fixing	• Dead reckoning to place position on chart.	• GPS • Chart work completed on professionally surveyed charts

Depth	• Lead line lowered over side of vessel – see how many fathoms were lowered = depth	• Depth sounders accurately measure depth via SONAR.
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Qu 30 (20 marks)

a) (4 marks)

i)

- 115°30’12”E 31°59’30”S

ii)

- 115°29’21”E 31°59’39”S

b) (2 marks)

- Flashing light Red
- Groups of 3, seen for 2 nautical miles

c) (10 marks)

i) (4 marks) course drawn on chart

- Through channel markers in Geordie Bay (Port & Starboard)
- Safely navigate through reef
- Not too far off coast/direct passage
- Finish at 3.2m water off Ricey Beach

ii) (3 marks)

- Approximately 43cm on chart
- 1Nautical mile = 1’ of latitude, 1’ = 18.5cm
- 43/18.5 = 2.32 nautical miles

iii) (3 marks)

- $s=d/t$, $s= 8$ knots $d= 2.32M$ $t=2.32/8$
- 0.29 hours
- 17.43 min

d)

i) 3 marks

- 9am – 12pm = 3 hours
- $height = (1/12 \times 1) + (2/12 \times 1) + (3/12 \times 1) = 0.5m$
- $1.1 - 0.5 = 0.6m$

ii) 1 mark

- $3.2 + 0.6 = 3.8m$

End of marking key ☺

Semester 2 Exam reflection

My greatest strengths in content knowledge were...

Content areas I still need to work on are...

The style of question I handled really well include...

The style of question I still need to work on include...

Aspects of exam technique that I used really well include...

Aspects of my exam technique I need to work on before my next exam are...