

Maritime Technology and Marine Ecology

Maritime Technology · Answer Key · 18 Questions

1. What is the primary environmental purpose of using 'scrubber' technology on large cargo ships?

A) To increase fuel efficiency

B) To reduce sulfur oxide emissions

C) To prevent hull biofouling

D) To track whale migrations

2. Which device is commonly attached to ship hulls to prevent the attachment of barnacles and algae, a process known as biofouling?

A) Antifouling coatings

B) Sonar transducers

C) Stabilizer fins

D) Anode bars

3. What is the name of the maritime technology used to map the seafloor topography for the purpose of habitat conservation?

A) Bioluminescence sensors

B) Multi-beam echosounders

C) Satellite radar

D) Thermal imaging

4. How does 'Silent Propulsion' technology in modern research vessels benefit marine life?

A) It increases water oxygenation

B) It reduces underwater noise pollution that disrupts cetaceans

C) It repels predatory sharks

D) It generates electricity from sea currents

5. What is the primary function of an Oil Water Separator (OWS) onboard a vessel?

A) To purify drinking water for the crew

B) To extract oil from bilge water to prevent ocean contamination

C) To harvest algae for biofuel

D) To cool the engine during long voyages

6. Which type of maritime technology is used specifically to prevent vessels from accidentally striking whales?

A) Automatic Identification System (AIS)

B) Whale Avoidance Sonar systems

C) Gyrocompass navigation

D) Ballast water exchange

7. Why do modern ships utilize Ballast Water Management Systems (BWMS)?

A) To prevent the spread of invasive aquatic species

B) To increase the ship's speed

C) To monitor water temperature

D) To detect schools of fish

8. What is the environmental benefit of using 'Air Lubrication' systems on ship hulls?

A) To filter microplastics from the ocean

B) To reduce drag and lower fuel consumption

C) To oxygenate the water around the ship

D) To scare away invasive jellyfish

9. What do marine researchers use 'Glider' underwater robots for in maritime technology?

A) To transport cargo across the ocean

B) To autonomously collect oceanographic and biological data

C) To clean oil spills on the surface

D) To provide Wi-Fi to remote islands

10. In maritime navigation, what do ECDIS systems help protect indirectly by ensuring precise route planning?

A) Sensitive coral reefs and shallow habitats

B) The ship's crew from sea sickness

C) The ship's cargo from spoilage

D) The ship's engine from rust

11. What is the purpose of cathodic protection (sacrificial anodes) on ship hulls?

A) To attract schools of fish for research

B) To prevent corrosion and heavy metal leaching into the water

C) To provide a surface for sea plants to grow

D) To generate magnetic fields for navigation

12. Which renewable energy technology is being retrofitted onto large commercial cargo ships to assist propulsion and reduce fuel use?

A) Tidal turbines

B) Rigid wing sails

C) Solar-powered propellers

D) Geothermal heat exchangers

13. What technology is used by offshore wind farms to minimize environmental impact on seabed ecosystems during installation?

A) Explosive pile driving

B) Bubble curtains to dampen sound

C) Deep-sea dredging

D) Chemical ocean cleaning

14. What kind of data does a CTD profiler collect for environmental oceanography?

A) Conductivity, Temperature, and Depth

B) Cargo, Tonnage, and Direction

C) Carbon, Titanium, and Density

D) Current, Time, and Distance

15. What is the function of a 'Moon Pool' on a maritime research vessel?

A) To act as a swimming pool for the crew

B) To allow scientific equipment to be lowered into the water without side-ship exposure

C) To store hazardous marine waste

D) To stabilize the ship during storms

16. Why are marine autonomous surface ships (MASS) sometimes considered more environmentally friendly?

A) They do not require human food supplies

B) They can be optimized for extreme fuel efficiency without crew accommodation needs

C) They use nuclear power exclusively

D) They are built entirely from recycled plastic

17. Which maritime technology is primarily used to track the movement of polar bears or seals in ice-covered waters?

A) Satellite-linked telemetry tags

B) Deep-sea anchors

C) Underwater cameras

D) Large-scale nets

18. What are 'Dynamic Positioning' systems used for when operating near fragile marine environments like reefs?

A) To maintain a fixed position without using anchors that damage the seabed

B) To maximize the speed of the vessel

C) To track the migration of fish schools

D) To create artificial waves for research