

Updated July 2025 Questions

Function 3 – Marine Engineering at Operational Level

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1. What is Fresh Water Allowance (FWA) and where do you see it on the Load Line Certificate?
2. How do you calculate Fresh Water Allowance?
3. If the FWA is more than expected, what does it indicate about ship stability?
4. If the FWA is negative, what action will you take?
5. What is the significance of GM (Metacentric Height)?
6. How does GM affect rolling period?
7. If GM is very high, what will be the effect on the ship's motion?
8. As a watchkeeper, how will you ensure the ship always has positive GM?
9. Explain the procedure for Enclosed Space Entry.
10. What gases are checked before entry and what are their safe values?
11. Which instrument is used for checking O₂, CO, H₂S, and CH₄?
12. Why is the LEL (Lower Explosive Limit) important during entry?
13. What are the safeties provided on Lifeboat Davit?
14. Which regulation covers lifeboat davit safeties?
15. What are on-load release hooks and how are they tested?
16. What weekly or monthly checks would you carry out on the davit system as a 4/E?
17. What are the bilge pumping regulations as per SOLAS?
18. How many bilge pumps are required on board?
19. Where is the emergency bilge suction fitted?
20. What precautions would you take before operating the bilge pump in the cargo hold?
21. Explain Free Surface Effect (FSE).
22. How do you reduce FSE practically on board?
23. If you have slack ballast tanks, what would be the corrective action?
24. How is FSE correction calculated in the stability booklet?
25. What is a Collision Bulkhead and where is it located?
26. Can doors be provided in the collision bulkhead?
27. What is the minimum distance of the collision bulkhead from the forward perpendicular?
28. What is a Torsion Box and how does it strengthen the ship's structure?
29. What are the additional safety measures for Bulk Carriers as per SOLAS Chapter XII?
30. What certificates are issued specifically for bulk carriers?
31. What is the purpose of a water ingress alarm in the cargo hold?

32. What is the regulation regarding double bottom structure in bulk carriers?
33. Explain the Fire Pump Regulations.
34. How many fire pumps are required on a cargo ship above 1000 GRT?
35. What is the requirement for emergency fire pump location?
36. If the fire pump suction valve is leaking, how would you rectify it?