

Updated July 2025 Questions

Function 5 – Electrical & Electronics

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1. What is an open circuit?
2. Explain how an open circuit fault is detected in a motor.
3. What is SCR and how does it work?
4. Explain the difference between a Thyristor and a Transistor.
5. What is meant by firing in a Thyristor?
6. Explain the significance of Power Factor.
7. How can Power Factor be improved on board?
8. What is CCA (Cold Cranking Amps) in batteries?
9. Explain types of starters used in motors.
10. Explain Star-Delta starter principle.
11. If motor starts in Star but does not change to Delta, what could be the problem?
12. What are alternator monthly routines as an ETO/watchkeeper?
13. What are the classes of insulation and on what basis are they classified?
14. Explain the significance of insulation resistance tests.
15. Explain the procedure of Megger test on alternator.
16. What precautions are taken while performing insulation resistance test?
17. What is AVR (Automatic Voltage Regulator) and its working principle?
18. What are MSB (Main Switchboard) safeties?
19. What is meant by a Dead Front Panel?
20. Explain the difference between ACB and MCB maintenance.
21. What are high voltage safety procedures on board?
22. Explain Generator paralleling procedure.
23. What is the function of a Synchroscope?
24. What action will you take if the Synchroscope fails?
25. Explain the working of Current Transformer (CT).
26. Explain the use of a Clamp Meter.
27. What is an Intrinsically Safe circuit?

28. What are types of breakers used onboard?
29. Explain the IP rating system for electrical equipment.
30. What checks are carried out on batteries to confirm full charge?
31. What are the specific gravity values of a battery when fully charged, 50% charged, and discharged?
32. Do we add water to acid or acid to water? Why?
33. Explain the chemical reaction taking place in a lead-acid battery.
34. Explain motor protection systems.
35. How does a 3-phase induction motor start and how is speed controlled?
36. What is VFD and its application onboard?
37. Explain Soft Starter and its applications.
38. What are the safeties of a motor?
39. What is the difference between intrinsically safe and explosion proof equipment?
40. Explain GCB (Gas Circuit Breaker) and its application.