

Marine Electrical Technology VTU CBCS Question Paper Set 2018

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10MR64

Sixth Semester B.E. Degree Examination, June/July 2015
Marine Electrical Technology

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions, selecting
atleast TWO questions from each part.**

PART – A

- 1 a. With the circuit diagram, explain static excitation system in detail. (10 Marks)
b. Draw and explain Automatic Voltage Regulator block diagram with its working principles. (10 Marks)
- 2 a. With block diagram, explain in detail about shore supply. (10 Marks)
b. What are the different emergency loads? Classify depends on the period of use, while supplying from emergency generator. (10 Marks)
- 3 a. What are the precautions adopted in high voltage distribution system in ship? Explain it in detail. (10 Marks)
b. List out the different electrical cables used in ship. Hence explain the effect of temperature on it. (10 Marks)
- 4 a. With the help of neat circuit explain star-delta starter used in marine electrical motor. (10 Marks)
b. What are the different types of marine motors? Explain briefly. (10 Marks)

PART – B

- 5 a. With the help of neat diagram, explain in detail about different Navigational lights used in ship. (10 Marks)
b. Explain in detail the need of Engine Room telegraph and Emergency Radio operation in ship. (10 Marks)
- 6 a. Write a short note on alternator maintenances with defect, symptom, cause and remedy. (10 Marks)
b. Explain in detail the maintenance of air circuit breaker. (10 Marks)
- 7 a. What are the different hazardous zones and temperature class? Explain in detail. (10 Marks)
b. With a neat diagram, explain basic turbo-electric propulsion system. (10 Marks)
- 8 a. List out the different switch gears and equipments and Discuss the importance of the same in ship. (10 Marks)
b. What are the different steps to minimize the risk of an Electrical shock on board? (10 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and/or equations written eg. 42+8 = 50, will be treated as malpractice.

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10MR64

Sixth Semester B.E. Degree Examination, June/July 2016
Marine Electrical Technology

Time: 3 hrs.

Max. Marks:100

**Note: Answer FIVE full questions, selecting
at least TWO questions from each part.**

PART – A

- 1 a. With the constructional and operational diagram explain brushless generator in detail. (10 Marks)
- b. List out the Merits and Demerits of AC and DC on board. (10 Marks)
- 2 a. What are the different emergency batteries used in ship? Explain any one, in detail. (10 Marks)
- b. With block diagram explain in detail about shore supply. (10 Marks)
- 3 a. Explain in detail on the need of main and Emergency switch board in ship for electrical power distribution. (10 Marks)
- b. With the help of circuit diagram, explain Grounded and Insulated neutral system. (10 Marks)
- 4 a. What are the different protective devices used for marine electrical motor protection? Explain them briefly. (10 Marks)
- b. With the help of neat circuit diagram explain why the star-delta starter is preferred for electrical motor starting? (10 Marks)

PART – B

- 5 a. Explain in detail the Emergency Radio operation and hence brief, key radio call procedures. (10 Marks)
- b. With the circuit explain in detail about oxygen Analyzer used in ships on boards. (10 Marks)
- 6 a. Explain in detail the steps involved in an electrical fault finding and Repair. (10 Marks)
- b. What are the commonly used testing equipment and meters for electrical maintenance in ship? Explain briefly. (10 Marks)
- 7 a. Explain in detail, different tanker classifications and their Dangerous spaces. (10 Marks)
- b. With a neat block diagram explain basic turbo – electric propulsion system. (10 Marks)
- 8 a. Explain the need for Firefighting equipment in ship's Engine room and discuss the different fire fighting system in ship. (10 Marks)
- b. What are the different steps to minimize the risk of an electrical shock on board? (10 Marks)

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10MR64

Sixth Semester B.E. Degree Examination, June/July 2017

Marine Electrical Technology

Time: 3 hrs.

Max. Marks:100

Note: Answer FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. List out the Merits and Demerits of AC and DC on board in a ship. (08 Marks)
b. With construction and operational diagram explain brushless generator in ship. (08 Marks)
c. Write any four rules and regulations governing electrical machineries on ship. (04 Marks)
- 2 a. What are the different emergency batteries? Explain any one in detail. (10 Marks)
b. What are different emergency generator starting methods? Explain any one detail. (10 Marks)
- 3 a. Explain in detail about the need of main and Emergency switch board in ship. (10 Marks)
b. With neat diagram explain different distribution system used in the ship (05 Marks)
c. With the circuit explain Grounded and Insulated (Earthed and Isolated) Neutral system. (05 Marks)
- 4 a. What are the different protective devices used for marine electrical motor protection? Explain briefly. (10 Marks)
b. With the help of neat circuit explain star delta starter used in electrical motor. (10 Marks)

PART – B

- 5 a. What is the need of alarm system in ship? List and explain different alarm system in ship. (10 Marks)
b. With the circuit explain in detail about oxygen Analyzer used in on board ships. (10 Marks)
- 6 a. Explain in detail the different steps involved in Fault finding. (10 Marks)
b. Explain different testing Equipment used for maintenance of Electrical system in ship. (10 Marks)
- 7 a. Explain in detail about different tanker classification and their Dangerous spaces. (10 Marks)
b. Explain in detail about the following
i) Flameproof (Ex'd) equipment
ii) Increased safety (Ex'e) equipment
iii) Intrinsic safety (Ex'i')
iv) Nm – sparking (Ex 'n' or 'N') equipment. (10 Marks)
- 8 a. Why the safe watch keeping is required in ship? What are the facts should be followed by officers in charge of the navigational watch system? (10 Marks)
b. Explain the need of Firefighting Equipment in ship's Engine room and discuss the different fire fighting system in ship. (10 Marks)

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10MR64

Sixth Semester B.E. Degree Examination, Dec.2016/Jan.2017
Marine Electrical Technology

Time: 3 hrs.

Max. Marks:100

Note: Answer FIVE full questions, selecting at least TWO questions from each part.

PART – A

- 1 a. Draw and explain construction and working of brushless alternator. (12 Marks)
b. Draw and explain construction and working of automatic voltage regulator. (08 Marks)
- 2 a. Explain the construction, working, charging, and discharging of lead acid battery with neat sketch. (10 Marks)
b. Explain share supply connection box with neat circuit sketch. (10 Marks)
- 3 a. Explain the various distribution systems used onboard with neat sketch. (10 Marks)
b. Explain the construction and working of synchro-scope with neat sketch. (10 Marks)
- 4 a. Explain star delta starts with neat sketch. (10 Marks)
b. Explain single phasing with neat sketch. (05 Marks)
c. Explain soft starts with neat sketch. (05 Marks)

PART – B

- 5 a. Explain navigational light circuit with neat sketch. (10 Marks)
b. Explain CO₂ cabinet door alarm with neat sketch. (10 Marks)
- 6 a. Explain the various testing done using megger on 3 ϕ induction motor with neat sketch. (15 Marks)
b. Draw the construction circuit diagram of megger. (05 Marks)
- 7 a. Draw and explain basic turbo-electric propulsion system. (10 Marks)
b. Explain Ex'd', Ex'e', Ex'p', 'N', Ex'i' equipments. (10 Marks)
- 8 a. Explain DO's and DO NOT's when working with electrical equipment. (10 Marks)
b. Explain electrical shock and sketch the caution board for electrical shock risk. (10 Marks)

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10MR64

Sixth Semester B.E. Degree Examination, Dec.2017/Jan.2018
Marine Electrical Technology

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting atleast TWO questions from each part.

PART - A

- 1 a. With Construction and Operational diagram, explain brushless generator in ship. (10 Marks)
b. Write the rules and regulations governing electrical machineries on ship. (10 Marks)
- 2 a. Explain the classification of batteries. Discuss any one emergency battery used in ship. (10 Marks)
b. What are the different emergency loads? Classify depending on the period of use, while supplying from emergency generator. (10 Marks)
- 3 a. With neat diagram, explain different distribution system used in the ship. (10 Marks)
b. With the circuit, explain Grounded and Insulated (Earthed and Isolated) neutral systems in detail. (10 Marks)
- 4 a. What are the different protective devices used for marine electrical motor protection? Explain briefly. (10 Marks)
b. With the help of neat circuit diagram, explain Star – delta starter used in electrical motor. (10 Marks)

PART - B

- 5 a. What is the need of alarm system in ship? List and explain different alarm system in ship. (10 Marks)
b. With circuit, explain in detail about Oxygen Analyzer used in on board ship. (10 Marks)
- 6 a. Explain in detail the different steps involved in Fault finding (10 Marks)
b. Explain different testing equipment used for maintenance of Electrical system in ship. (10 Marks)
- 7 a. Explain in detail about different tanker classification and their dangerous spacer. (10 Marks)
b. Explain in detail about the followings : (10 Marks)
i) Flame proof (Ex'd) equipment ii) Increased safety (Ex'e) equipment
iii) Intrinsic safety (Ex'i) iv) Non-Sparking (Explain 'n' or 'N') equipment.
- 8 a. Explain the need of Fire Fighting Equipment in Ship's Engine Room and discuss the different fire fighting system in ship. (10 Marks)
b. List out the different switch gears and equipments and discuss the importance of the same in ship. (10 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
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