

Examination questions on the subject of Marine power generation

Operational level			
Marine power generation			
Questions			
O/T - means Basic/Advanced			
Item	O/T	Question	Correct answer
1.	○	The general use of shipboard insulated networks is primarily due to: A. providing protection against electric shock, B. absence of proper grounding of the ship, C. ensuring the continuity of power supply for critical equipment, D. the windings of the ship's generators are connected in a triangle.	<div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto; text-align: center;">C</div> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div>
2.	○	In shipboard systems, at least the following is required: A. 1 basic power generating unit, B. 2 basic power generating units, C. 3 basic power generating units, D. 4 basic power generating units.	<div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto; text-align: center;">B</div> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div>
3.	○	The commonly used in shipboard systems is the following electricity distribution system: A. Radial, B. Circular, C. Loop-in, D. Wavy.	<div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto; text-align: center;">A</div> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div>
4.	○	The emergency source of electrical power shall be located at: A. at stern, B. on bow, C. at least on the compass deck, D. above the bulkhead deck.	<div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto;"></div> <div style="border: 1px solid black; width: 40px; height: 20px; margin: 0 auto; text-align: center;">D</div>

5.	○	<p>The protection of generators, which can be checked during normal operation, is as follows::</p> <p>A. Overcurrent, B. Undervoltage, C. Directional, D. Short circuit.</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> <div style="border: 1px solid black; height: 15px; width: 40px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 15px; width: 40px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 15px; width: 40px; margin-bottom: 2px; text-align: center;">C</div> <div style="border: 1px solid black; height: 15px; width: 40px;"></div> </div>
6.	○	<p>When 1 generator unit is operated and a blackout occurs, the generator protection that will disconnect the generator of this unit from the rails is as follows:</p> <p>A. Overcurrent, B. Undervoltage, C. Directional, D. Short circuit.</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> <div style="border: 1px solid black; height: 15px; width: 40px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 15px; width: 40px; margin-bottom: 2px; text-align: center;">B</div> <div style="border: 1px solid black; height: 15px; width: 40px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 15px; width: 40px;"></div> </div>
7.	○	<p>When 2 generating units are operated and one of them stops generating power, the generator protection that disconnects the generator from rails unit is as follows:</p> <p>A. Overcurrent, B. Undervoltage, C. Directional, D. Short circuit.</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> <div style="border: 1px solid black; height: 15px; width: 40px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 15px; width: 40px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 15px; width: 40px; margin-bottom: 2px; text-align: center;">C</div> <div style="border: 1px solid black; height: 15px; width: 40px;"></div> </div>
8.	○	<p>Frequency regulation of the generating unit allows a deviation from the setpoint in the steady state as follows:</p> <p>A. 1%, B. 5%, C. 10%, D. 30%.</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> <div style="border: 1px solid black; height: 15px; width: 40px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 15px; width: 40px; margin-bottom: 2px; text-align: center;">B</div> <div style="border: 1px solid black; height: 15px; width: 40px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 15px; width: 40px;"></div> </div>
9.	○	<p>Frequency control of the generating unit allows a deviation from the setpoint in the dynamic state as follows:</p> <p>A. 1%, B. 5%, C. 10%, D. 30%.</p>	<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: auto;"> <div style="border: 1px solid black; height: 15px; width: 40px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 15px; width: 40px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; height: 15px; width: 40px; margin-bottom: 2px; text-align: center;">C</div> <div style="border: 1px solid black; height: 15px; width: 40px;"></div> </div>

10.	○	<p>Voltage regulation of the generating unit allows for a deviation below the setpoint in the dynamic state as follows:</p> <p>A. -10%, B. -15%, C. -20%, D. -30%.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> B <input type="checkbox"/> <input type="checkbox"/> </div>
11.	○	<p>The voltage regulation of the generating unit allows for a deviation from the setpoint in the steady state as follows:</p> <p>A. 1%, B. 1,5%, C. 2%, D. 3%.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> D </div>
12.	○	<p>The generator voltage frequency switched on the GTR rail during synchronization should be:</p> <p>A. higher than the GTR frequency, B. lower than the GTR frequency, C. same as the GTR frequency R, D. it does not matter.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <input checked="" type="checkbox"/> A <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div>
13.	○	<p>For the distribution of the active power in parallel operation of generators, the following is responsible</p> <p>A. PM (Power Management), B. generators voltage regulators, C. generators drive motors speed controllers, D. supervising computer.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> C <input type="checkbox"/> </div>
14.	○	<p>For the distribution of reactive power in parallel operation of generators, the following is responsible</p> <p>A. PM (Power Management), B. generators voltage regulators, C. generators drive motors speed controllers, D. supervising computer.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <input type="checkbox"/> <input checked="" type="checkbox"/> B <input type="checkbox"/> <input type="checkbox"/> </div>

15.	<input type="radio"/>	<p>The emergency generator (a generator with an independent drive unit) will be connected to the power system in the event of failure of the basic units after the maximum of:</p> <p>A. 20 seconds, B. 30 seconds, C. 40 seconds, D. 45 seconds.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> D </div>
16.	<input type="radio"/>	<p>The signal for starting the emergency generator shall be:</p> <p>A. power failure of the generator, B. signal from the bridge, C. loss of voltage on GTR bars, D. manual start.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> C <input type="checkbox"/> </div>
17.	<input type="radio"/>	<p>A signal to switch on another generating unit associated with reserve power occurs when the load on the working unit</p> <p>A. exceeds 70%, B. exceeds 75%, C. exceeds 80%, D. exceeds 85%.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> D </div>
18.	<input type="radio"/>	<p>The distribution of the operating power of two operating generating units shall be equally charged with the accuracy of:</p> <p>A. 5%, B. 10%, C. 15%, D. 20% .</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> C <input type="checkbox"/> </div>
19.	<input type="radio"/>	<p>A shaft rod generator with a thyristor inverter with a fixed trigger angle requires:</p> <p>A. a choke, B. synchronous compensator, C. capacitors section, D. filters.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <input type="checkbox"/> <input checked="" type="checkbox"/> B <input type="checkbox"/> <input type="checkbox"/> </div>
20.	<input type="radio"/>	<p>Manual synchronization is usually performed in light bulbs system:</p> <p>A. on the dark way B. on the bright way C. on the rotating lights way, D. on pulsating lights way.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <input checked="" type="checkbox"/> A <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div>

21.	○	<p>If, during the parallel operation of the generators, the proper distribution of the active power is "not held", this means that:</p> <p>A. the microchip supervising the power plant is not set up correctly, B. the generator voltage regulators are set incorrectly, C. the auxiliary motor speed controllers are set incorrectly, D. the number of generating units set for parallel operation is not sufficient.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> C <input type="checkbox"/> </div>
22.	○	<p>Power generator undervoltage protection is provided:</p> <p>A. with the main switch of the generator, B. with the generator , C. by means of generator protection relays, D. by the means of a computer in GTR.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <input checked="" type="checkbox"/> A <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div>
23.	○	<p>The directional protection of the generators is provided:</p> <p>A. in the main switch of the generator, B. in the generator , C. by means of generator protection relays, D. by the means of a computer in GTR.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> C <input type="checkbox"/> </div>
24.	○	<p>Voltage frequency control on the GTR during the operation of the shaft generator with thyristor inverter is realized:</p> <p>A. by means of an excitation control of the shaft generator, B. by means of synchronous compensator excitation control, C. by means of a change in the thyristor ignition angle, D. by means of increased revolutions of MG.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <input checked="" type="checkbox"/> A <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div>
25.	○	<p>Voltage control on GTR during operation of the shaft generator with thyristor inverter is realized:</p> <p>A. by means of an excitation control of the shaft generator, B. by means of synchronous compensator excitation control, C. by means of a change in the thyristor ignition angle, D. by means of increased revolutions of MG.</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <input type="checkbox"/> <input checked="" type="checkbox"/> B <input type="checkbox"/> <input type="checkbox"/> </div>
26.	○	<p>In computerised shipboard systems, when there is a blackout and the emergency unit, which is powered by an independent drive system, is not connected to the ATR rails, the power supply shall be provided to:</p> <p>A. lighting fixture marked with red signs, B. rudder, C. fire pump,</p>	<div style="border: 1px solid black; padding: 5px; text-align: center;"> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> </div>

		D. electrical equipment having UPS.	D
27.	O	Voltage distortion in THD systems must not exceed: A. 5%, B. 8%, C. 10%, D. 15%.	A
28.	O	In the ship's computerised systems, after "blackout" has subsided, electrical equipment starts up sequentially, which is related to: A. insufficient active power reserve, B. insufficient reactive power reserve, C. too low voltage in the grid, D. hard start of squirrel cage engines.	D
29.	O	Mayer's system is the following safety device type for the generator: A. short-circuit, B. undervoltage, C. reverse power, D. overload.	D
30.	O	Receivers that are turned off by the Mayer system include: A. bilge pump, B. SG oil pump, C. SG air compressor, D. air conditioning compressor.	D
31.	O	In ships where the lighting and other important equipment is supplied by transformers, provision shall be made for at least: A. 1 transformer, B. 2 transformers, C. 2 transformers and one backup transformer, D. 3 transformers.	B
32.	O	The polarity of DC rails shall be marked as follows: A. green for positive pole, black for negative pole, B. red for the positive pole, black for the negative pole, C. red for positive pole, green for negative pole , D. red for the positive pole, blue for the negative pole.	

		<p>C. 10 mm², D. 25 mm².</p>	<input type="text"/>
39.	<input type="radio"/>	<p>The main switchboard rails in networks above 1000 V shall be subdivided into at least:</p> <p>A. 2 sections, B. 3 sections, C. only 1 section, D. 4 sections.</p>	<input type="text" value="A"/> <input type="text"/> <input type="text"/> <input type="text"/>
40.	<input type="radio"/>	<p>Cables of networks with a voltage above 1000 V shall be:</p> <p>A. laid separately from network cables with a voltage up to 1000 V, B. laid together with network cables up to 1000V, C. cables up to 1000V should be laid on cables above 1000V., D. the provisions do not specify this.</p>	<input type="text" value="A"/> <input type="text"/> <input type="text"/> <input type="text"/>