108. Describe a thrust bearing. Which of the surfaces wears? Why are there sometimes a number of oil-tubes for one thrust bearing?

109. What parts of a screw-shaft are generally covered with brass? Why is this necessary? About what thickness is the brass?

110. What is the stern-tube or screw-shaft pipe? Why is a pipe of such a length required? Of what is it made? How is it fixed at each end?

111. What is a lignum-vitæ bearing? How is the wood fitted? Where is such a bearing generally used?

112. How is a screw propeller fixed on the shaft? What means are used to prevent its getting loose at sea?

113. Where are sluice-valves placed? What large sluice-valve is there in almost all screw-steamers? From what position should this valve be worked? Why so? What attention should it receive?

114. With a condensing-engine, what valves or cocks are on the skin of the ship, in the engine-room, and in the stoke-hole?

115. What are the necessary fittings of a marine boiler?

116. With a surface-condensing engine, what cocks or valves are opened some time before the engine is started so as to be ready for starting whenever the order is given?

117. What is a steam-jacket? What cocks are on it? In what engines are jackets most generally used? Do they require to be felted?

118. What parts of an engine or its fittings should be felted or otherwise protected from radiation?

119. What are the small cylinders sometimes fitted on the slide-valve casing-cover of vertical engines? Explain their action. To what are they connected by a pipe? Why so?

120. Name the principal pipes in connection with the engines and boilers of a steamer, and state to what the ends of these pipes are connected.

121. Through what cocks or valves, pipes, and chambers does the water pass on its way from the sea-inlet rose-plate to the water-space of the boiler with a jet condenser?

122. Through what cocks or valves, pipes, and chambers does the circulating water of a surface condenser pass?

123. Through what cocks or valves, pipes, and chambers does the steam pass from the boiler until it is in the form of water in the hot well?

124. Name the pieces of the engine through which the pressure of the steam is transmitted from the piston to the screw propeller. Name them in the order in which they act.

125. What is an air-vessel? How does it act? At what parts of an engine or of its fittings are air-vessels generally applied?

126. What is the construction of a mud-box? Where should mud-boxes be placed? Why are they necessary? How should the space be divided by the rose-plate, and why?

127. What is a trunk-engine? Why has it fallen into disuse?

128. What is an oscillating-engine? For what steamers are oscillating-engines generally adopted? Why? How is the steam conveyed to and from the slide-valve casing?

129. Of what parts does the valve-motion gear of an oscillating-engine consist?

130. For what have geared engines sometimes been used? Of what were the cogs of the large wheel made?

131. At what part of a screw-steamer is the pressure that propels it applied to the hull?

132. At what part of a paddle-steamer is the pressure that propels it applied to the hull?

133. About how much fuel per indicated horse-power per hour is required by modern steam-engines, common, compound, and triple expansion?

134. What is the explanation of the economy of the surface condenser?

135. What is the construction of a surface condenser? Of what are its tubes made? How are they fixed? How are they kept tight? What is done with a split tube?

136. Where do surface condensers foul? How are they cleaned?

137. What non-conducting substances are employed to prevent radiation, and how are they applied?

138. In the construction of smoke-box doors and of dry uptakes, what provision is made to lessen the amount of radiation?

139. How can the formation of black smoke be prevented? Describe smoke-preventing apparatus.

140. What is meant by "circulation" in a boiler, and what are the results of defective circulation?

141. What means are sometimes adopted to improve the circulation in a boiler?

142. By what arrangement is the circulation promoted in a "hay-stack" boiler?

143. Describe a ship's side air-pump discharge-valve. In what respects does it sometimes differ from a common stop-valve, and what attention does it require?

144. What is the construction of a feed escape-valve, to what is its discharge connected, and how is its loading regulated? Where should the escaping water flow?

145. When there is no feed escape-valve, what is the arrangement of the feed valves or cocks?

146. What is the measure of a horse-power? How is indicated horse-power ascertained?

147. Has "nominal horse-power" a fixed meaning? What is the use of this expression? What is generally taken as the measure of 1-horse power nominal?

148. What is "back pressure" in a cylinder? About how much is it in each of the cylinders in your last steamer? Is excessive cushioning ever a trouble under certain conditions in modern engines? Say when and why and in which cylinder this occurs.

149. What is meant by "speed of piston"? About how much is the speed of piston in modern marine engines?

150. What is "atmospheric pressure"? What is its average amount? What instrument tells this amount?

151. What is "gross pressure" or "absolute pressure"? What pressure is it that is shown by steam-gauge?

152. What is meant by "cutting off" steam? How is it done? What part of the valve regulates the cut-off?

153. What is a piston slide-valve? Describe its construction. Why are such frequently employed in place of the common slide-valve? Have they any advantages compared with a common slide-valve? If so, name them.

154. What fixes the time of closing the exhaust? After the exhaust is closed and before the port opens for steam, what becomes of the steam that is in the cylinder?

155. What is the "lead" of the valve? What is its object? About what amount is it?