**Demo PDF file. This file includes questions: 10 from 208. Full version of file looks the same as demo, but full version includes all questions. You may download file with all questions by link on bottom of this page**

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## Q611 - Steam Plants

### 1. The leakage of air into the pump casing by way of the packing gland of a condensate pump, is prevented by __________.

- **a water seal line to the packing gland**
- an air seal line from the compressed air line
- special packing in the stuffing box
- the vacuum in the pump suction

Note:
*Air leakage through a condensate pump's packing gland is prevented by a water seal line to the packing gland, which floods the packing and blocks air ingress due to the vacuum on the pump suction.*

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### 2. Which of the conditions listed could prevent a centrifugal condensate pump from developing its rated capacity?

- Flooding of the main condenser hotwell.
- Operating the pump with a positive suction head.
- Venting the pump to the vacuum side of the condenser.
- **Closing the water seal line to the packing gland.**

Note:
*Closing the water seal line to the packing gland allows air to enter the pump, leading to air-binding and preventing it from achieving its rated capacity.*

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### 3. Which of the following statements is true concerning lube oil coolers?

- Magnets are installed in the tube sheets to remove metal particles.
- The temperature of the oil is less than that of the cooling water.
- **The pressure of the oil is greater than that of the cooling water.**
- The pressure of the oil is less than that of the cooling water.

Note:
*Lube oil coolers maintain higher oil pressure than cooling water to prevent water contamination of the lubricating oil system in the event of a leak; fluid always flows from the higher-pressure side to the lower-pressure side.*

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### 4. The primary source of steam to the auxiliary exhaust system is typically supplied directly from __________.

- the main engine LP bleed
- **turbine driven and reciprocating steam pumps**
- the turbine gland exhaust system
- all of the above

Note:
*Turbine driven and reciprocating steam pumps are the primary source of steam for the auxiliary exhaust system due to their large, continuous exhaust volumes.*

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## 5. High-pressure steam drains are normally discharged to the __________.

- **DC heater**
- reserve feed tank
- drain and inspection tank
- atmospheric drain line

Note:
*High-pressure steam drains are routed to the DC heater to recover heat and water within the feedwater cycle.*

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## 6. Excessively hot water returning to an atmospheric drain tank indicates __________.

- The condensate recirculating valve is open
- A heating coil has ruptured
- **A steam trap is hung open**
- There is a loss of circulating water

Note:
*A hung-open steam trap allows live steam to enter the drain line, causing the water returning to the atmospheric drain tank to overheat.*

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## 7. A contaminated steam generator is used to produce saturated vapor from collected __________.

- sanitary water
- condenser cooling water
- **fuel oil heating return drains**
- bilge water

Note:
*Fuel oil heating return drains are contaminated with oil and require a dedicated contaminated steam generator to safely produce saturated vapor, preventing contamination of the main boiler system.*

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## 8. Which statement listed represents a vital function of the main condenser?

- Cooling of the exhaust steam from the auxiliary exhaust system before it enters the deaerating feed tank.
- **The recovery of feedwater for reuse.**
- Condensing of the exhaust steam from the main feed turbine pumps.
- Storage of feedwater for immediate use in the boilers.

Note:
*The main condenser's primary function is to recover feedwater from exhaust steam for reuse, maintaining a closed-loop system and conserving water and treatment chemicals. This distinguishes it from other functions like cooling auxiliary exhausts, condensing pump exhausts, or storing feedwater, which are secondary to its core purpose of condensate recovery.*

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## 9. While underway, vacuum in the main condenser is primarily caused by the __________.

- suction drawn by the condensate pump
- **condensing of the exhausting steam**
- main air ejector
- aftercondenser loop seal

Note:
*The vacuum in a main condenser is primarily created by the volume reduction resulting from the condensing of exhaust steam.*

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**10. If the main condenser were operating at a vacuum of 28.7"Hg, a condensate discharge temperature of 81°F, a seawater inlet temperature of 72°F, and a seawater outlet temperature of 79°F, what would be the condensate depression**

**SG-0026**

**SG-0026**

**Properties of Saturated Steam**

| Vacuum Inches of Hg Gage | Temperature °C | Temperature °F |
|---|---|---|
| 29.51 | 11.74 | 53.14 |
| 29.41 | 15.17 | 59.30 |
| 29.31 | 18.04 | 64.47 |
| 29.21 | 20.52 | 68.93 |
| 29.11 | 22.70 | 72.86 |
| 29.00 | 24.66 | 76.38 |
| 28.90 | 26.43 | 79.58 |
| 28.70 | 29.56 | 85.21 |
| 28.49 | 32.27 | 90.08 |
| 28.29 | 34.66 | 94.38 |
| 28.09 | 36.80 | 98.24 |
| 27.88 | 38.74 | 101.74 |
| 27.48 | 42.18 | 107.92 |
| 27.06 | 45.14 | 113.26 |
| 26.66 | 47.77 | 117.99 |
| 26.26 | 50.13 | 122.23 |
| 25.85 | 52.27 | 126.08 |
| 25.44 | 54.23 | 129.62 |
| 25.03 | 56.05 | 132.89 |
| 24.63 | 57.74 | 135.94 |
| 24.22 | 59.33 | 138.79 |
| 23.81 | 60.82 | 141.48 |
| 22.79 | 64.21 | 147.57 |
| 21.78 | 67.21 | 152.97 |
| 20.76 | 69.91 | 157.83 |
| 19.74 | 72.36 | 162.24 |
| 18.72 | 74.61 | 166.30 |
| 17.70 | 76.70 | 170.06 |
| 16.69 | 78.64 | 173.56 |
| 15.67 | 80.47 | 176.85 |
| 14.65 | 82.14 | 179.86 |
| 13.63 | 83.81 | 182.86 |
| 12.61 | 85.36 | 185.64 |
| 11.60 | 86.82 | 188.28 |
| 10.58 | 88.22 | 190.80 |
| 9.56 | 89.57 | 193.21 |
| 7.52 | 92.08 | 197.75 |
| 5.49 | 94.42 | 201.96 |
| 3.45 | 96.60 | 205.88 |
| 1.42 | 98.64 | 209.56 |

Adapted for testing purposes only

- 0.2 inches Hg
- 0.3 inches Hg
- **4.0 degrees Fahrenheit**
- 12 degrees Fahrenheit

Note:
*The condensate depression is 4.0F, calculated as the difference between the saturation temperature at 28.7" Hg vacuum (approximately 85F) and the condensate temperature of 81F. Seawater temperatures are irrelevant to this calculation; condensate depression is a temperature difference, not a pressure measurement.*

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