BOILERS & THERMIC FLUID HEATERS

Test your knowledge on boilers and thermic fluid heaters through this quiz with ten multiple choice questions.

Name: 

Organization: 

Date: 

1. Which of the following boilers has emerged as an alternative to conventional boilers because of its higher combustion efficiency?

☐ a. Fluidized bed combustion boiler  ☐ c. Packaged boiler
☐ b. Stoker fired boiler  ☐ d. Chain grate boiler

2. Fluidized bed combustion has _____________ effect on SO$_x$ and NO$_x$ emissions

☐ a. Increased  ☐ c. No effect
☐ b. Decreased  ☐ d. Depends on type of solid fuel used

3. The largest heat loss from boilers are caused by

☐ a. Moisture in fuel  ☐ c. Radiation and convection
☐ b. Moisture in air  ☐ d. Dry flue gas

4. Which of the following statements is not correct?

☐ a. The higher the steam pressure, the higher the feed water purity  ☐ c. Increasing the % condensate recovery increases the boiler efficiency
☐ b. The maximum efficiency of boilers occurs at full load  ☐ d. It is generally more efficient to operate a few boilers at high loads than many boilers at low loads
5. An increase in the conductivity of the water inside the boiler indicates a rise in

☐ a. Purity ☐ c. Temperature
☐ b. Contamination ☐ d. None of the above

6. In a plant a boiler is generating a saturated steam of 2 tons/hour at a pressure of 7.0 kg/cm² g. The feed water temperature is 60 °C and furnace oil consumption is 150 kg/h. The calorific value of FO is 10,000 kCal/kg, enthalpy of steam is 660 kCal/kg. **What is the efficiency of the boiler by using direct method of efficiency evaluation?**

☐ a. 70 % ☐ c. 85 %
☐ b. 80 % ☐ d. 95 %

7. What is a benefit of boiler blow down control?

☐ a. Lower pre-treatment costs ☐ c. Increased boiler life
☐ b. Lower make-up water consumption ☐ d. All of the above

8. The purpose of de-aeration of boiler feed water is to

☐ a. Remove dissolved gases ☐ c. Remove silica
☐ b. Remove scales by blow down ☐ d. Treat phosphate of feed water

9. A 20 °C rise in combustion air temperature through waste heat recovery increases the boiler efficiency by

☐ a. 0.1% ☐ c. 1%
☐ b. 0.2% ☐ d. 10%

10. A 1mm thick scale deposit on the water-side of the boiler tubes can increase fuel consumption by

☐ a. 0.5 – 1 % ☐ c. 3 – 5 %
☐ b. 1 - 2 % ☐ d. 5 – 8 %
### ANSWERS

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