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***** EXAMINATION *****

**ORGANOMETALLIC POLYMER COATINGS FOR GEOTHERMAL-FLUID-SPRAYED
AIR-COOLED CONDENSERS**

1. **Researchers are developing polymer-based coating systems**
 - a) to reduce scaling of air-cooled condensers
 - b) to reduce corrosion of air-cooled condensers
 - c) Both and b
 - d) None of the above

2. **Some air-cooled condensers use a geothermal fluid spray**
 - a) for heat transfer augmentation
 - b) for heat evaporation
 - c) for heat dissipation
 - d) All of the above

3. **Eliminating corrosion in condensers**
 - a) protects aluminum fins
 - b) protects steel tubing
 - c) Both a and b
 - d) None of the above

4. **Coating systems are formulated to**
 - a) resist heat
 - b) resist strong attachment of scale
 - c) Both and b
 - d) None of the above

5. **Augmentation of air-cooled condensation can use**
 - a) clean brines
 - b) treated wastewater
 - c) Both a and b
 - d) None of the above

6. **Augmentation of air-cooled condensers is useful**
 - a) during summer
 - b) when binary plant power outputs drop
 - c) Both a and b
 - d) None of the above

7. **Some binary plants are using wetted pads**
 - a) that cool the air approaching the tube bundle
 - b) that cool the air near the cooling tower
 - c) Both a and b
 - d) None of the above
8. **Researchers are using spray nozzles well upstream of**
 - a) the condensers to cool the air by condensation
 - b) the condensers to cool the air by evaporation
 - c) the condensers to cool the air by dissipation
 - d) the condensers to cool the air by warming
9. **Greater increases in heat transfer rate can be obtained**
 - a) by spraying the finned tubes directly with alcohol
 - b) by spraying the finned tubes directly with water
 - c) by spraying the finned tubes directly with steam
 - d) by spraying the finned tubes directly with ice
10. **The most significant improvement to the plant's performance**
 - a) is obtained by spraying the tubes directly
 - b) is obtained by spraying the tubes with ice
 - c) is obtained by spraying the tubes with Freon
 - d) is obtained by spraying the tubes indirectly
11. **Using Figure 1, the most efficient cooling is using**
 - a) Deluge cooling
 - b) Munters cooling
 - c) Kirchners cooling
 - d) None of the above
12. **Direct water spray onto the finned tubes increases**
 - a) mean temperature difference
 - b) air-side heat-transfer coefficient
 - c) savings in capital cost
 - d) All of the above
13. **Direct water spray can result**
 - a) in significant scaling and corrosion problems
 - b) in significant molding and tin oxide deposits
 - c) Both a and b
 - d) None of the above
14. **When the finned tube is wet, insoluble salts will precipitate**
 - a) onto the heat exchanger surfaces with strong attachment
 - b) onto the condenser with strong attachment
 - c) onto the cooling tower with strong attachment
 - d) All of the above

15. **When the tube dries out, suspended or dissolved material in**
- a) the water crystallizes and accumulates on the tube
 - b) the water evaporates
 - c) the water condenses
 - d) All of the above
16. **The dissolved material tends to have a weaker bond to the**
- a) surfaces than the soluble salts
 - b) surfaces than the insoluble salts
 - c) surfaces than the nitrous salts
 - d) Any of the above
17. **Pitting corrosion of untreated aluminum is**
- a) rare
 - b) probable
 - c) common
 - d) Any of the above
18. **To eliminate pitting, the aluminum can be**
- a) treated with acid
 - b) treated with nitrogen
 - c) anodized and sealed
 - d) Both a and b
19. **Water-based organometallic polymers**
- a) are substitutes for conventional paints
 - b) are used to wash the aluminum surface
 - c) are used to clean the aluminum surface
 - d) None of the above
20. **Water-based organometallic polymers**
- a) may be used for car interiors
 - b) may be used for aircraft bodies
 - c) Both a and b
 - d) None of the above

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*** ANSWER SHEET *** U507 ORGANOMETALLIC POLYMER COATINGS FOR GEOTHERMAL-FLUID-SPRAYED AIR-COOLED CONDENSERS	<u>STATE BOARD</u>	<u>COURSE NO.</u>	<u>VALUE</u>
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