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Continuing Education Course #163
Heat Load Calculations for Refrigerated Spaces

1. What is the ideal storage temperature for milk?
 - a. 45°F
 - b. 32°F
 - c. 28°F
 - d. Between 28 to 45°F
2. Where can one find ambient weather conditions for design purposes?
 - a. ASHRAE climatic data
 - b. Internet sources such as Weather Underground
 - c. The Old Farmer's Almanac
 - d. Both, a & b
3. Solar loading will affect which transmission loads?
 - a. The North facing exposed wall
 - b. The cooler walls inside of a larger building
 - c. The floor load
 - d. The East facing exposed wall
4. Is under floor heating required on all freezers?
 - a. Yes
 - b. No
 - c. It depends on the local water table height
5. Which of the following insulations is no longer commonly used in refrigerated building construction?
 - a. Urethane
 - b. Fiberglass
 - c. Expanded polystyrene
 - d. Extruded polystyrene
6. Refrigeration equipment that is rated in Tons does not need a stated set of temperatures
 - a. True
 - b. False
 - c. Only compressors
7. When calculating the U or R value for the walls in a refrigerated space, the film coefficients are always used.
 - a. True
 - b. False
8. What is the minimum typical R value used in the walls of a -10°F freezer in a 95°F design environment?

- a. 30
- b. 32
- c. 28
- d. 25

9. Why is a vapor barrier important in cold storage construction?

- a. To prevent saturation of the insulation
- b. To reduce the latent heat load in the refrigerated space
- c. To prevent icicles from forming on the ceiling
- d. All of the above

10. The air exchange velocity through a door opening is strictly temperature dependent.

- a. True
- b. False

11. What is the typical relative humidity range of a refrigerated space?

- a. 30-50%
- b. 90-95%
- c. 70-80%
- d. 30-40%

12. Which of the following devices do not significantly reduce the air exchange in door openings?

- a. Strip curtains
- b. Vestibules
- c. Air curtains
- d. Infrared heaters

13. Is the latent heat of a product a factor in 35°F cooler heat load calculations?

- a. Yes
- b. No

14. Can the thermal properties of a food product be estimated if the percent water content is known?

- a. Yes
- b. No

15. All vegetables respire at the same rate.

- a. True
- b. False

16. How much heat does a brisk walking person give off?

- a. None
- b. 300 BTU/hr
- c. 1,200 BTU/hr
- d. 1 Ton

17. How does the heat allowance for LED lighting in a refrigerated space compare to 1 W/ft²?

- a. More
- b. Less
- c. The same

18. A processing room has five 2 HP conveyor drive motors, 85% efficient. What is the load in Tons?

- a. 2 Tons
- b. 0.5 Tons
- c. 2.5 Tons
- d. 2.1 Tons

19. The fan power of a fan and coil evaporator is always accounted for in that unit's capacity rating.

- a. True
- b. False

20. Upon completion of the spreadsheet, a large -10°F freezer load of 600 ft²/ton is calculated, is this within industry norms?

- a. Yes
- b. No

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