

UNIT-5: Air Conditioning refrigeration system

1. Air refrigeration systems generally work on which cycle?

- A) Carnot cycle
- B) Vapour compression cycle
- C) Bell-Coleman cycle
- D) Rankine cycle

2. Another name for the Bell-Coleman cycle is:

- A) Reversed Brayton cycle
- B) Otto cycle
- C) Diesel cycle
- D) Stirling cycle

3. Air is used as the refrigerant in:

- A) Vapour compression system
- B) Air refrigeration system
- C) Absorption system
- D) Steam jet system

4. Air refrigeration systems are mainly used in:

- A) Domestic refrigerators
- B) Aircraft cooling
- C) Water coolers
- D) Deep freezers

5. In a Bell-Coleman cycle, the refrigerant is:

- A) Ammonia
- B) R134a
- C) Air
- D) Freon

6. The main components of an air refrigeration system include:

- A) Compressor, condenser, expansion valve, evaporator
- B) Compressor, cooler, expander, refrigerated space
- C) Boiler, turbine, condenser, pump
- D) Absorber, generator, pump, condenser

7. During compression in an ideal Bell-Coleman cycle, the process is:

- A) Isothermal
- B) Isochoric
- C) Isentropic
- D) Isobaric

8. Heat rejection in the Bell-Coleman cycle occurs at:

- A) Constant pressure
- B) Constant volume
- C) Constant temperature
- D) Constant entropy

9. The expansion process in an ideal air refrigeration cycle is:

- A) Isothermal
- B) Isentropic
- C) Isobaric
- D) Isochoric

10. The COP of an air refrigeration system is generally:

- A) Very high
- B) Infinite
- C) Lower than vapour compression systems
- D) Equal to Carnot COP

11. The cooling effect in an air refrigeration system is produced by:

- A) Condensation of refrigerant
- B) Evaporation of refrigerant
- C) Expansion of air
- D) Absorption process

12. The unit of COP is:

- A) kW
- B) TR
- C) Dimensionless
- D) kJ/kg

13. Which process occurs after the compressor in a Bell-Coleman cycle?

- A) Expansion
- B) Heat rejection
- C) Evaporation
- D) Absorption

14. Air refrigeration systems are preferred in aircraft because:

- A) Air is readily available
- B) Low weight
- C) Simplicity of system
- D) All of the above

15. In aircraft refrigeration systems, ram air is used for:

- A) Compression
- B) Expansion
- C) Cooling the compressed air
- D) Heating the cabin

16. The pressure of air increases during:

- A) Expansion
- B) Compression
- C) Cooling
- D) Refrigeration effect

17. The refrigeration effect is obtained in the:

- A) Compressor
- B) Cooler
- C) Expander
- D) Condenser

18. Which of the following is an advantage of air refrigeration systems?

- A) Low COP
- B) Simple construction
- C) Large size
- D) High operating cost

19. The efficiency of the air refrigeration cycle mainly depends on:

- A) Compression ratio
- B) Colour of refrigerant
- C) Size of condenser
- D) Type of oil used

20. The Bell-Coleman cycle consists of:

- A) Two isentropic and two constant-pressure processes
- B) Two isothermal and two constant-volume processes
- C) Four constant-pressure processes
- D) Two constant-volume and two isothermal processes