Kentucky CTE

Advanced Manufacturing: Industrial Maintenance Technology: Refrigeration Fundamentals (For Maintenance) 470349 (2026–2027)

Practice and perform safe shop procedures at all times. 1

1 Practice and perform safe shop procedures at all times. 1

Apply the technical math required for employment opportunities in maintenance. 2

2 Apply the technical math required for employment opportunities in maintenance. 2

Perform all duties with emphasis on integrity, responsibility, quality, discipline and teamwork. 3

3 Perform all duties with emphasis on integrity, responsibility, quality, discipline and teamwork. 3

Explain the history of refrigeration. 4

4 Explain the history of refrigeration. 4

Compare the benefits of a closed vs. open system. 5

5 Compare the benefits of a closed vs. open system. 5

Identify and explain the operation of the four ma

6 Identify and explain the operation of the four major components. 6

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Identify the high and low sides of the system. 7	7 Identify the high and low sides of the system. 7
Define matter and heat. 8	8 Define matter and heat. 8
Distinguish between the three states of matter. 9	9 Distinguish between the three states of matter. 9
Explain the direction and rate of heat flow. 10	10 Explain the direction and rate of heat flow. 10
Describe the three methods of heat transfer. 11	11 Describe the three methods of heat transfer. 11
Identify the reference points of temperature: boiling point, freezing point, critical temperature, and absolute zero. 12	12 Identify the reference points of temperature: boiling point, freezing point, critical temperature, and absolute zero. 12
Explain the difference between heat and temperature. 13	13 Explain the difference between heat and temperature. 13
Explain the differences between latent and sensible heat. 14	14 Explain the differences between latent and sensible heat. 14
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19 Compare temperature with pressure (P/T Chart). 19

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20 Explain why fluids flow. 20

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21 Define the properties of refrigerants. 21

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22 Explain the uses of different refrigerants. 22

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23 Identify color coding of refrigerant cylinders. 23

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24 Explain classifications of refrigerants. 24

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25 List proper transfer and storage of refrigerants. 25

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26 Explain the four parts of the refrigeration cycle. 26

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27 Draw a refrigeration system on a Pressure-Enthalpy (PH) chart. 27

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28 Explain the benefits of superheat and subcooling. 28

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29 Identify the effects of improper refrigerant in a system. 29

Identify basic tools and accessories: various screwdrivers, nutdrivers, socket wrenches, Allen (hex) wrenches, open- and box-end wrenches, and flare wrenches. 30

30 Identify basic tools and accessories: various screwdrivers, nutdrivers, socket wrenches, Allen (hex) wrenches, open- and box-end wrenches, and flare wrenches. 30

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wrenches, open- and box-end wrenches, and flare wrenches. 30	
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Identify fasteners: bolts, screws, masonry anchors, various electrical connectors, conduit, pipe and cable clamps, and nails. 32	32 Identify fasteners: bolts, screws, masonry anchors, various electrical connectors, conduit, pipe and cable clamps, and nails. 32
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