Is the most common dryer used which consist of rotating cylinder inside which the materials flow while getting contact with hot gas.

a. Tower dryer

b. Centrifugal dryer

c. Tray dryer

d. Rotary dryer

Is the ratio of the mass of water-vapor in air and the mass of air if it is saturated is called:

a. Humidity ratio

b. Mass ratio

c. Vapor ratio

d. Relative humidity

The hands feel painfully cold when the skin temperature reaches.

a. 8 ˚C

b. 12 ˚C

c. 10 ˚C

d. 14 ˚C

The refrigerant used in the steam jet cooling system:

a. Steam

b. Ammonia

c. R-11

d. Water

The total heat of the air is the function of:

a. WB Temperature

c. DB Temperature

b. DP Temperature

d. WB Depression

Boiling point of Freon-12 at atmospheric pressure is:

a. 21 F

c. 5 F

b. 15 F

d. 14 F

Which of the following is NOT a type of water cooled condenser:

a. Double pipe

c. Shell and coil

b. Double shell

d. Shell and tube

Componentof absorption refrigeration sytem in which the solution is cooled condenser in refrigeration?

a. Rectifier

c. Evaporator

b. Generator

d. Absorber

Cascade refrigeration cycle is often used in the industrial process where objects must be cooled condenser to the temperature below:

a. -46 C

c. -66 C

b. -56 C

d. -76 C

Type of refrigerant control designed to maintain a pressure difference while the compressor is operating.

a. Thermostatic expansion valve
b. Using low side float flooded sytem
c. Automatic expansion valve
d. Capillary tube

As a rule of thumb, for a specified amount of compressed air, the power consumption of the compressor decreases _____for each 3 C drop in the temperature inlet of air to the compressor.

a. 1 percent

c. 2 percent

b. 1.5 percent

d. 2.5 percent

Modern way of detecting air compressor leak is by using:

a.Soap and water
b. Air leak detector
c. Acoustic leak detector
d. Ammonia

For foundation of stacks, the maximum pressure on the soil is equal to the pressure due to weight and the _____.

a. Soil movement
b. Wind movement
c. Ground movement
d. Engine movement

Foundation bolts of specialized size should be used and surrounded by the pipe sleeve with an inside diameter of atleast.

a. 3 times the diameter of the engine bolt
b. 2 times the diameter of the engine bolt
c. 3 times the diameter of the anchor bolt
d. 2 times the diameter of the anchor bolt

For multi stage compression of an brayton cycle, the back work ratio will.

a. increase

c. remains the same

b. decrease

d. None of these

Type of turbine that has a specific speed below 5.

a. Impulse turbine

c. Francis turbine

b. Propeller turbine

d. Deriaz turbine

A high discharge type turbine.

a. Impulse turbine

c. Propeller turbine

b. Francis turbine

d. Deriaz turbine

Use to minimize the speed rise due to a sudden load rejection.

a. Needle valve

b. Wicket gate

c. Shut-off valve

d. Jet deflector

Is the speed of the turbine when the head on the turbine is one meter.

a. Specific speed

b. Rated speed

c. Utilized speed

d. Unit speed

Is a fluid property which refers to the intermolecular attraction by which the separate particles of the fluid are held together

a. Cohesion

c. Surface tension

b. Adhesion

d. hypertension

Which of the following is not the cause of black smoke in diesel engine?

a. Valve open to low
b. High compression pressure
c. Carbon in exhaust pipe
d. Overload on engine

Which of the following is not a method of starting a diesel engine?

a. Manual:rope, crank and kick
b. Electric (battery)
c. Compressed air
d. Using another generator

Two-stroke engine performs _____ to complete one cycle.

a. Suction and discharge stroke
b. Power and exhaust stoke
c. Compression and power stroke
d. Suction and exhaust stroke

A type of geothermal plant used when there is a presence of brine extracted from the underground.

a. Dry geothermal plant
b. Double-flash geothermal plant
c. Single flash geothermal plant
d. Binary geothermal plant

Is the most important safety device on the power boiler.

a. Check valve

c. Safety valve

b. Gate valve

d. Globe valve

During the hydrostatic test, the safety valves should be:

a. Removed

c. Open

b. Closed

d. Partially closed

Where deaerating heaters are not employed, it is recomended that the temperature of the feed water be not less than _____.

a. 197 C

c. 104 C

b. 102 C

d. 106 C

Is the reaction during which chemical energy is released in the form of heat.

a. Cosmic reaction
b. Endothermic reaction
c. Ethnic reaction
d. ExotHermic reaction

By reheating the steam in an ideal rankine cycle the heat rejected will:

a. Increased

c. Remains the same

b. Decreased

d. None of the above

By increasing the boiler pressure in rankine cycle the moisture content at the boiler exit will:

a. Increased

c. Remains the same

b. Decreased

d. None of the above

Presently the highest steam temperature allowed at the turbine inlet is about:

a. 340 C

c. 620 C

b. 520 C

d. 1020 C

The most common gases employed in the Stirling and Ericsson cycles are:

a. Air and helium

b. Oxgen and helium

c. Hydrogen and helium

d. Nitrogen and helium

In the most common designs of the Gas turbine, the pressure ratio ranges from.

a. 10 to 12

c. 12 to 18

b. 11 to 16

d. 15 to 20

In Brayton cycle, the heat is transformed during what process?

a. Constant temperature c. Isobaric process

b.Isentropic process d. Isochoric process

The fuel injection process in diesel engine starts when the piston _____.

a. Is at TDC

c. Approaches TDC

b. Leaving TDC

d. Halfway of the stroke

If the cut-off ratio of diesel cycle increases, the cycle efficiency will

a. Decreased

b. Increased

c. Remains the same

d. None of the above

The fuel used in the power plant during peak periods.

a. gas

c.liquid

b. solid

d. None of these

Typical compression ratio of Otto cycle is

a. 6

c. 10

b. 8

d. 12

Joule thompson coefficient is equal to zero, then the process will become?

a. Isentropic

b. Isenthalpic

c. isobaric

d. isothermal

If the fluid passes through the nozzle, its entropy will:

a. Increase

b. Decrease

c. Remains the same

d. None of these

Refrigerants consisting of mixture of two or more different chemical compunds, often used individually as refrigerants for other applications.

a. Suspension

c. Blends

b. Compound reaction

d. Mixing of refrigerants

Pairs of mating stop valves that allow sections of a system to be joined before opening these valves or separated after closing them

a. Check valve

c. Safety valve

b. Gate valve

d. Companion valve

An enclosed passageway that limits travel to a single path.

a. Corridor

c. Lobby

b. Hallway

d. Tunnel

For immediate dangerous to life or health (IDHL) the maximum concentration from which unprotected persons are able to escape within_____without escape-impairing symtoms or irreversible health.

a. 15 minutes c. 20 minutes

b. 1 minute d.30 minutes

The volume as determined from internal dimensions of the container with no allowance for the volume of internal parts

a. Internal allowance fits
b. Internal interference volume
c. Internal gross volume
d. Internal fits volume

The quantity of refrigerant stored at some point is the refrigeration system for operational, service, or standby purposes.

a. Average of aggress

c. Mean of aggress

b. Hallway of aggress

d. Pathway of aggress

Any device or portion of the equipment used to increase refrigerant pressure.

a. Pressure vessel
b. Pressure-imposing element
c. Pressure lift device
d. Pressure limiting device

The quantity of refrigerant stored at some point is the refrigeration sytem for operational, service, or standby purposes.

a. Pressure vessel
b. Pumpdown charge
c. Liquid reciever
d. Accumulator

Secondary refrigerant is a liquid used for the transmission of heat, without a change of state, and having no flash point above _____ as determined from ASTM.

a. 150 F
b. 160 F
c. 180 F
d. 200 F

A service valve for dual pressure-relief devices that allows using one device while isolating the other from the system, maintaining one valve in operation at all times.

a. Three way valve
b. Two way valve
c. One way valve
d. Four way valve

Tubing that is unenclosed and therefore exposed to crushing, abrasion, puncture, or similar damage after installation.

a. Protected tubing
b. Bare tubing
c. Open tubing
d. Unprotected tubing

Refers to blends compromising multiple components of different volatile that, when used in the refrigeration cycles, change volumetric composition and saturation temperature as they (evaporate) boil or condense at constant pressure

a. zeotropic
b. blending
c. composistion
d. zeotropic

Is the premises or that portion of premise from which, because they ar disable, debilitated or confined, occupants cannot readily leave without the assistance of others.

a. Institutional occupancy
b. Public assembly ocupancy
c. Residential occupancy
d. Commercial occupancy

Is one secondary coolant is in direct contact with the air or other substance to be cooled or heated.

a. Double indirect system spray
b. Indirect closed system
c. Indirect open spray system
d. Indirect vented closed system

Refigerant number R -744 is:

a. Butane
b. Carbon monoxide
c. Propane
d. Carbon dioxide

Refrigerant number R- 1150 is:

a. propylene
b. ethene
c. ethane
d. Methyl formate

Refrigerant number R-40 is:

a. chlorodiflouromethane
b. diflouromethane
c. ammonia
d. chloromethane

When air duct system serves several enclosed spaces, the permissible quantity of refrigerant in the system shall not exceed the amount determined by using the total volume of those spaces in which air flow cannot be reduced to less than _____ of its maximum when the fan is operating.

a. One-quarter
b. One half quarter
c. Three quarter
d. One fourth quarter

The space above a suspended ceiling shall not be included in calculating the permissible quantity of refrigerant the system unless such space is continuous and is part of air return system.

a. Partition
b. Plenums
c. Separator
d. Plate divider

Which of the following is NOT a possible location of service valves?

a. Suction of compressor
b. Discharge of compressor
c. Outlet of reciever
d. Outlet of condenser

A coil in series with evaporator that is used to prevent the liquid refrigerant entering the compressor

a. Accumulator
b. Liquid condenser
c. Drier loop
d. Liquid suction heat exchanger

A type of valve connected from discharge of compressor directly to suction that is normally closed and will open automatically only if there is high discharge pressure.

a. Check valve
b. Solenoid valve
c. King valve
d. Relief valve

Use to increase the capacity of condenser.

a. Liquid subcooler
b. Condenser subcooler
c. Desuperheating coils
d. Liquid reciever

Which of the following is NOT a part of low pressure side in the refrigeration system.

a. Liquid line
b. Refrigerant flow control
c. evaporator
d. Suction line

Which of the following is NOT a part of high pressure side in the refrigeration system.

a. Liquid line
b. Refrigerant flow control
c. evaporator
d. Suction line

Which of the following is NOT a condensing unit?

a. Compressor
b. Discharge line
c. Condenser
d. Liquid line

By subcooling the refrigerant in the refrigeration sytem, the compressor power per unit mass will.

a. Increase
b. Decrease
c. Remains the same
d. None of the above

Superheating the refrigerant in the refrigeration system without useful cooling, the refrigeration effect per unit mass will.

a. Increase
b. Decrease
c. Remains the same
d. None of the above

By subcooling the refrigerant in the refrigeration sytem, the specific volume at comressor suction will.

a. Increase
b. Decrease
c. Remains the same
d. None of the above

Pressure loss due to friction at the condenser, the compressor power will unit mass will.

a. Increase
b. Decrease
c. Remains the same
d. None of the above

Which of the following is NOT type of air cooled condenser

a. Shell and tube
b. Natural draft
c. Forced draft
d. Induced draft

A type of refrigerant control typically used in household refrigeration.

a. Thermostatic expansion valve
b. Automatic expansion valve
c. Capillary tube
d. High side float

Type of condenser that operates like a cooling tower.

a. Air cooled condenser
b. Evaporative condenser
c. Shell and tube condenser
d. Water-cooled condenser

The major problem of the heat pump is

a. Refrigerant used
b. Outside air
c. Supply air
d. frosting

Dominant refrigerant used in the commercial refrigeration system.

a. R-11
b. R-12
c. R-22
d.R-502

Cascade refrigeration system are connected in

a. series
b. parallel
c. Series-parallel
d. Parallel-series

Is use to heat in the solution partially before entering the generator in absorption refrigeration system

a. rectifier
b. absorber
c. regenerator
d. pump

The COP of actual absorption refrigeration sytem is usually

a. Less than 1
b. Less than 2
c. Less than 3
d. Less than 4

Sight glass is often located

a. Discharge line
b. Liquid line
c. Between condenser and liquid receiver
d. Suction line

Use to detect vibration in current caused by ionization of decomposed refrigerant between two opposite-charge platinum electrodes.

a. Electronic detector
b. Halide torch
c. Bubble method
d. pressurizing

The ability of oil to mix with refrigerants

a. carborization
b. purging
c. mixing
d. miscibility

Joint and all refrigerants-containing parts of a refrigerating system located in an air duct carrying conditioned air to and from an occupied space shall be constructed to withstand a temperature of without _____ leakage into the airsteam

a. 550 F
b. 600 F
c. 650 F
d. 700 F

Refrigerant piping crossing an open spaced that affords passageway in any building shall not less than _____ above the floor unless the piping is located againts the ceiling of such space and is permitted by the authority jurisdiction.

a. 2.2 m
b. 3.2 m
c. 4.2 m
d. 5.2 m

Methyl chloride shall not be in contact with:

a. aluminum
b. zinc
c. magnesium
d. All of these

Should not be in contact with any halogenated refrigerants.

a. aluminum
b. zinc
c. magnesium
d. All of these

Are suitable for use in ammonia system:

a. Copper
b. Aluminum and its alloy
c. Plastics
d. Cast iron

If a pressure-relief device is used to protect a pressure vessel having an inside dimension of 6in or less, the ultimate strength of the pressure vessel so protected shall be sufficient to withstand a pressure at least _____ the design pressure.

a. 2 times
b. 3 times
c. 4 times
d. 5 times

Seats and disk shall be limited in distortion, by pressure or other cause, to set pressure change of not more than _____ in a span of five years

a. 1%
b. 5%
c. 10%
d. 50 %

Liquid receivers, if used, or parts of a system designed to recieve the refrigerants charge dumping pumpdown charge. The liquid shall not occupy more than _____ of the volume when temperature of the refrigerant is 90˚F

a. 80%
b. 85%
c. 90 %
d. 95%

The discharge line (B4) shall be vented to the atmosphere through a _____ fitted to its upper extremity

a. Nozzle
b. Convergent-divergent nozzle
c. Pipe
d. diffuser

Convert fossil fuels into shaft work

a. Nuclear power plant
b. Gas turbine power plant
c. Dendrothermal power plant
d. Thermal power plant

Ultimate strength drops by 30% aas steam temperature raises from _____ for unalloyed steel.

a. 300 to 400 C
b. 400 to 500 C
c. 600 to 700 C
d. 700 to 800 C

Recent practice limits steam temperature

a. 438 C
b. 538 C
c. 638 C
d. 738

In a closed feed water heater, the feed water pass through:

a. Inside the tube
b. Outside the tube
c. Inside the shell
d. Outside the shell

Is use if extracted steam upon condensation gets subcooled:

a. Trap
b. Dearator
c. Filter
d. Drain cooler

Needs only single pump regardless of number of heaters

a. Open heater
b. Closed heater
c. Mono heater
d. Regenerative heater

Also known as dearator

a. Open heater
b. Closed heater
c. Mono heater
d. Regenerative heater

Dissolve gases like _____ makes water corrosive react with metal to form iron oxide

a. O_2 and N_2
b. O_2 and CO
c. O_2 and CO_2
d. N_2 and SO_2

A cycle typically used in paper mills, textile mills, chemical factories, sugar factories and rice mills

a. Cogeneration cycle
b. Combined cycle
c. By- product cycle
d. Regenerative heater

When process steam is basic need and power is by product, this cycle is known as:

a. Cogeneration cycle
b. Combined cycle
c. By-product cycle
d. Cascading cycle

Type of turbine employed where steam continuously extracted for process heating

a. Back pressure turbine
b. Gas turbine
c. Steam turbine
d. Passout turbine

The cooling water is made to fall in series of baffles to expose large surface area for steam fed from below to come in direct contact.

a. Spray condenser
b. Surface condenser
c. Jet condenser
d. Barometric condenser

Show the variation of river flow (discharge) with time

a. hydrograph
b. hytograph
c. Mass curve
d. Flow duration curve

Is an open channel erected on a surface above the ground

a. canal
b. tunnel
c. penstock
d. flume

Type of turbine used to up to 300 m head

a. Impulse turbine
b. Francis turbine
c. Propeller turbine
d. Deriaz turbine

Type of turbine that has diagonal flow

a. Impulse turbine
b. Francis turbine
c. Propeller turbine
d. Deriaz turbine

Oil is atomized either by air blast or pressure jet at about

a. 60 bar
b. 70 bar
c. 80 bar
d. 90 bar

Type of solid injection that use single pump supplies fuel under high pressure to a fuel header

a. Common rail injection
b. Distributor system
c. Individual pump injection system
d. Single rail injection

Water flow in diesel engine that is caused by density differential

a. Thermosiphon setting
b. Evaporative cooling
c. Thermostat cooling
d. Pressurized water cooling

Type of lubrication system in diesel engine in which oil is from pump is caaried to a separate storage tank outside the engine cylinder and used for high capacity engine

a. Mist lubrication system
b. Wet sump lubrication system
c. Splash system
d. Dry sump lubrication sysytem

Produces extreme pressure differentials and violent gas vibration

a. vibration
b. detonation
c. explosion
d. knocking

In a spark ignition engine the detonation occurs near the

a. End of combustion
b. Middle of combustion
c. Beginning of combustion
d. Beginning of interaction

In a compression ignition engine the detonation occurs near the

a. End of combution
b. Middle of combustion
c. Beginning of combustion
d. Beginning of interaction

Ignition delay can be minimized by adding _____ to decrease engine knocking

a. Ethel ether
b. Ethyl chloride
c. Ethyl nitrate
d. Ethyl oxide

For a submerged plane surface, the point on the surface where the resultant force acts is called the

a. Center of bouyancy
b. Center of gravity
c. Center of pressure
d. Center of attraction

At any point in fluid at rest the pressure is the same in all directions. This principle is known as:

a. Bernoulli principle
b. Archimedes principle
c. Pascal’s law
d. Torrecelli’s law

The hot wire manometer is used to measure

a. Pressure in gasses
b. Pressure in liquids
c. Wid velocities at airports
d. Gas velocities

The pitot static tube measure

a. The static pressure
b. The gage pressure
c. The total pressure
d. The dynamic pressure

The terminal velocity of a small sphere setting in a vicous fluid varies as the

a. First power of its diameter
b. Inverse of fluid viscosity
c. Inverse square of the diameter
d. Inverse of the diameter

Pressure drag results from

a. Skin friction
b. Deformation drag
c. Breakdown of potential flow near the forward stagnation point
d. Occurences of wake

The pressure coefficient is the ratio of pressure forces to:

a. Viscous forces
b. Inertia forces
c. Gravity forces
d. Surface tension forces

A waiting room or large hallway serving as a waiting room.

a. terrace
b. Rest room
c. Compound room
d. lobby

Is used to subcool the refrigerant from the condenser.

a. Liquid subcooler
b. Condenser subcooler
c. Desuperheating coils
d. Liquid receiver

Morse test is used to measure the _____ of multi-cylinder engine.

a. Brake power
b. Indicated power
c. Friction power
d. Motor power