FINAL ANSWER KEY

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Exam:	Tradesman Refrigeration and Air Conditioning
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Question1:-Which one of the following is not a good safety practice ?

A:-Never walk under the suspended loads

B:-Clean your hand with coolant fluid

C:-Sweep away the metal cuttings

D:-Never lean on the machine

Correct Answer:- Option-B

Question2:-The golden period of an medical emergency is

A:-First 30 minutes

B:-First 45 minutes

C:-First 60 minutes

D:-First 1.5 hours

Correct Answer:- Option-A

Question3:-Which one of the following file have two different curve on its each side ?

A:-Barrette file

B:-Tinker's file

C:-Riffle file

D:-Crossing file

Correct Answer:- Option-D

Question4:-Least count of a general purpose vernier caliper is

A:-0.02”

B:-0.01”

C:-0.001”

D:-0.002”

Correct Answer:- Option-C

Question5:-Name the drilling machine, that can be able to drill around it's pillar.

A:-Sensitive bench drilling machine

B:-Sensitive pillar drilling machine

C:-Radial drilling machine

D:-Gang drilling machine

Correct Answer:- Option-C

Question6:-What is the cutting angle of Tinmans shears ?

A:-45°

B:-87°

C:-64°

D:-72°

Correct Answer:- Option-B

Question7:-The allowance for a grooved seam is

A:-Width of the seam + two times the thickness of the sheet

B:-Width of the seam + four times the thickness of the sheet

C:-Width of the seam + thickness of the sheet

D:-Width of the seam + three times the thickness of the sheet

Correct Answer:- Option-D

Question8:-Which type of oxyacetylene flame is used for welding brass ?

A:-Carburising flame

B:-Oxidising flame

C:-Air acetylene flame

D:-Neutral flame

Correct Answer:- Option-B

Question9:-Copper tube should not be used for acetylene passage, the reason is

A:-Copper is a weak metal

B:-Copper has high thermal expansion

C:-Acetylene gas cannot be compressed

D:-Copper reacts with acetylene to form an explosive substance

Correct Answer:- Option-D

Question10:-The commercial unit of electrical energy is

A:-KVA

B:-KWH

C:-KW

D:-Joule/sec.

Correct Answer:- Option-B

Question11:-A copper/aluminium disc is attached to the spindle of measuring instrument to

A:-deflecting torque

B:-Gravity control

C:-Air friction damping

D:-Eddy current damping

Correct Answer:- Option-D

Question12:-The instrument used to measure the insulation resistance of an installation is called

A:-Ohm meter

B:-Watt meter

C:-Megger

D:-Multi meter

Correct Answer:- Option-C

Question13:-What is the formula to find synchronous speed of a AC 3 phase induction motor ?

A:-Synchronous speed $=\frac{120F}{P}$

B:- Synchronous speed $=\frac{120P}{F}$

C:-Synchronous speed $=\frac{120}{PF}$

D:-Synchronous speed $=\frac{PF}{120}$

Correct Answer:- Option-A

Question14:-What is the electrical degree of 6 pole stater of motor ?

A:-360°

B:-270°

C:-1080°

D:-1440°

Correct Answer:- Option-C

Question15:-Which device is used to test starter winding short and open fault ?

A:-Tong tester

B:-Internal growler

C:-Ohm meter

D:-Digital multi meter

Correct Answer:- Option-B

Question16:-Which type of motor is used to provide high starting torque at variable speed ?

A:-3 phase slipering induction motor

B:-Universal motor

C:-Permanent capacitor motor

D:-3 phase squirrelcage induction motor

Correct Answer:- Option-A

Question17:-What happens to a 3 phase induction motor if one phase fails during running ?

A:-Motor runs normally

B:-Motor stops instantaneously

C:-Motor runs slowly, finally it burns

D:-Motor runs with irregular speed

Correct Answer:- Option-C

Question18:-The device used as voltage regulator

A:-PNP transistor

B:-NPN transistor

C:-Capacitor

D:-Zener diode

Correct Answer:- Option-D

Question19:-In a half wave rectifier, the load current flows for

A:-Only for the positive half cycle

B:-Complete cycle of input

C:-More than half cycle

D:-Less than half cycle

Correct Answer:- Option-A

Question20:-What is the purpose of a psychrometer ?

A:-To measure refrigerant pressure in the system

B:-To measure the humidity and temperature of the air

C:-To detect leaks in the refrigeration system

D:-To measure the flow rate of refrigerant

Correct Answer:- Option-B

Question21:-What is the primary function of a compound gauge ?

A:-To measure only the high side pressure of the refrigeration system

B:-To measure both vacuum and low side pressure of the refrigeration system

C:-To regulate the flow of refrigerant in the system

D:-To test the temperature of the refrigerant

Correct Answer:- Option-B

Question22:-What does Charles's Law state about the behavior of gases ?

A:-The pressure of a gas is directly proportional to its volume at constant temperature

B:-The volume of a gas is directly proportional to its absolute temperature at constant pressure

C:-The volume of a gas is inversely proportional to its pressure at constant

temperature

D:-The temperature of a gas is inversely proportional to its pressure at constant volume

Correct Answer:- Option-B

Question23:-Which of the following is the primary purpose of a vacuum pump ?

A:-To measure the pressure inside the refrigeration system

B:-To remove air and moisture from the refrigeration system

C:-To charge the system with refrigerant gas

D:-To test for leaks in the system

Correct Answer:- Option-B

Question24:-What does the term "Superheating" refer to in refrigeration and air conditioning systems ?

A:-The temperature of a refrigerant when it is below its boiling point

B:-The process of increasing the pressure of the refrigerant

C:-The temperature of the refrigerant above its boiling point in the vapor state

D:-The cooling of refrigerant to change it into a liquid state

Correct Answer:- Option-C

Question25:-Which of the following is the correct unit of heat in the International System of Units (SI) ?

A:-Watt (W)

B:-Joule (J)

C:-Calorie (cal)

D:-Volt (V)

Correct Answer:- Option-B

Question26:-What does sub-cooling refer to in a refrigeration system ?

A:-The cooling of refrigerant below its saturation temperature after condensation

B:-The cooling of refrigerant below its boiling point before evaporation

C:-The increase in refrigerant temperature above its saturation temperature

D:-The process of converting refrigerant from liquid to vapor in the evaporator

Correct Answer:- Option-A

Question27:-The heat transfer takes place according to

A:-Zeroth law of thermodynamics

B:-First law of thermodynamics

C:-Second law of thermodynamics

D:-Kirchoff's law

Correct Answer:- Option-C

Question28:-What does the Coefficient of Performance (COP) of a refrigeration system represent ?

A:-The ratio of the work input to the heat extracted from the cold reservoir

B:-The ratio of the heat rejected to the work input in the system

C:-The ratio of the useful refrigeration effect to the work input required

D:-The ratio of the total energy consumption to the cooling capacity

Correct Answer:- Option-C

Question29:-What is the temperature of dry ice at standard atmospheric pressure ?

A:--78.5°C

B:--50°C

C:--100°C

D:--25°C

Correct Answer:- Option-A

Question30:-What is the primary working principle of a vapor absorption refrigeration system ?

A:-It uses a compressor to increase the pressure of the refrigerant vapor

B:-It uses an absorbent to absorb refrigerant vapor and a generator to release it

C:-It relies solely on mechanical energy to drive the refrigeration cycle

D:-It uses a heat pump to transfer heat from one place to another

Correct Answer:- Option-B

Question31:-When using a flaring tool to create a flare on a copper tube, what is the correct angle for the flare to ensure a proper seal and connection ?

A:-20°

B:-30°

C:-45°

D:-90°

Correct Answer:- Option-C

Question32:-Swash plate compressors are used with

A:-Inverter refrigerators

B:-Individual Quick freezers

C:-Automobile Air conditioners

D:-Blast freezers

Correct Answer:- Option-C

Question33:-In a vapour compression system, the ratio between actual volume of gas pumped and theoretically calculated volume is known as

A:-Volumetric efficiency

B:-Mechanical efficiency

C:-Compression ratio

D:-Efficiency ratio

Correct Answer:- Option-A

Question34:-The branch of science which deals with the study of lubrication in moving systems is known as

A:-Psychrometry

B:-Tribology

C:-Optics

D:-Acoustics

Correct Answer:- Option-B

Question35:-The compressor uses whirl vein mechanism for controlling capacity

A:-Rotary

B:-Screw

C:-Scroll

D:-Centrifugal

Correct Answer:- Option-D

Question36:-Then term represents the wax separation temperature in lubricants

A:-Floc point

B:-Pour point

C:-Flow point

D:-Melting point

Correct Answer:- Option-A

Question37:-How the condenser capacity is expressed ?

A:-kcal/hr

B:-kcal/ton

C:-kcal/kg

D:-kg/kcal

Correct Answer:- Option-A

Question38:-What is the formula for finding mass flow rate in a water cooled condenser ?

A:-Condenser capacity × cp × dT

B:-Condenser capacity × cp ÷ dT

C:-Condenser capacity ÷ cp × dT

D:-Condenser capacity ÷ cp ÷ dT

Correct Answer:- Option-C

Question39:-Which desiccant is filled in the drier filter of hydrocarbon charged RAC unit ?

A:-Sodium chloride

B:-Capilla D

C:-Mineral oil

D:-Silica gel

Correct Answer:- Option-D

Question40:-During operation of mechanical draft cooling towers, the air takes away the fine droplets of water from cooling tower. This water loss is known as

A:-Blow down

B:-Bleed off

C:-Breeze loss

D:-Drift loss

Correct Answer:- Option-D

Question41:-The benefit of "Bleed off" water in cooling tower is

A:-To bring makeup water

B:-To decrease water contamination

C:-To reduce scale deposit

D:-All of the above

Correct Answer:- Option-D

Question42:-Which type of cooling tower is NOT suitable for indoor installations ?

A:-Natural draft

B:-Forced draft

C:-Induced draft

D:-Mechanical draft

Correct Answer:- Option-A

Question43:-Which type of sensors used with the microprocessor to actuate EEV in Air conditioning system ?

A:-PTC

B:-NTC

C:-VFD

D:-VRF

Correct Answer:- Option-B

Question44:-In Automatic Expansion Valve, which pressure opposing the spring pressure ?

A:-Liquid line pressure

B:-Discharge pressure

C:-Suction pressure

D:-Condenser pressure

Correct Answer:- Option-C

Question45:-Which of the following method is used to prevent flooding of compressor in RAC system using thermostatic expansion valve ?

A:-Decrease cabinet temperature

B:-Control super heat in suction line

C:-Control flash gas in suction line

D:-None of these

Correct Answer:- Option-B

Question46:-Which lines are clamped together to act as a heat exchanger in a refrigeration system ?

A:-Discharge line and suction line

B:-Discharge line and liquid line

C:-Liquid line and suction line

D:-Bypass line and discharge line

Correct Answer:- Option-C

Question47:-Which type of evaporator is used in storage type water cooler ?

A:-Plate and Tube

B:-Shell and Tube

C:-Shell and Coil

D:-Fins and Tube

Correct Answer:- Option-A

Question48:-Which property is desirable for an ideal refrigerant ?

A:-High specify volume

B:-High boiling point

C:-High latent heat value

D:-High freezing point

Correct Answer:- Option-C

Question49:-What is the category of R 502 refrigerant ?

A:-Hydrocarbon

B:-Azeotropes

C:-Organic compounds

D:-Halocarbon

Correct Answer:- Option-B

Question50:-Which gas is universally taken as the basic reference for GWP ?

A:-NH_3

B:-SO_2

C:-AIR

D:-CO_2

Correct Answer:- Option-D

Question51:-What is the ozone depleting potential of R 134a refrigerant ?

A:-0

B:-3

C:-2

D:-1

Correct Answer:- Option-A

Question52:-What is the effect of releasing HCFC refrigerants to atmosphere ?

A:-Decreases TEWI

B:-Increases ODP and GWP

C:-Decreases GWP and ODP

D:-Inactive to TEWI

Correct Answer:- Option-B

Question53:-What is the purpose of accumulator in a refrigerator ?

A:-Prevents surging of refrigerant

B:-Avoids hunting of refrigerant

C:-Prevents liquid flood back to compressor

D:-Avoids hunting of refrigerant

Correct Answer:- Option-C

Question54:-Which type of motor drive is used in hermetic compressor in refrigerator ?

A:-Belt drive

B:-Direct drive

C:-Push drive

D:-Gear drive

Correct Answer:- Option-B

Question55:-The suction line and the capillary tube are some times soldered together to

A:-evaporate moisture dmined from the evaporator

B:-Avoid vibration

C:-Serve as a heat exchanger

D:-Increase temperature of the liquid refrigerant in capillary tube

Correct Answer:- Option-C

Question56:-Which electrical control cuts off heating element in frost free refrigerator ?

A:-Timer

B:-Thermostat

C:-OLP

D:-Bimetal thermo

Correct Answer:- Option-D

Question57:-Which component actuates the defrost cycle in frost free refrigerator ?

A:-Timer

B:-Relay

C:-Defrost heater

D:-Bimetal thermo

Correct Answer:- Option-A

Question58:-What is the working condition of component during defrost cycle in inverter type frost free refrigerator ?

A:-Relay activated

B:-Compressor is not working

C:-Evaporator fan motor is running

D:-Thermostat cuts off

Correct Answer:- Option-B

Question59:-Why the water dispensing is stopped from water cooler ?

A:-Over charged refrigerant

B:-Compressor is not working

C:-Main water supply cut off

D:-Leak in the system

Correct Answer:- Option-C

Question60:-Which arrangement is made in a storage type water cooler to stop the cool water from flowing upwards ?

A:-Bottleneck

B:-Float

C:-Tap

D:-Bubbler

Correct Answer:- Option-B

Question61:-Which of the following is not present in the CSIR wiring of a visible cooler ?

A:-Running capacitor

B:-Starting capacitor

C:-OLP

D:-Relay

Correct Answer:- Option-A

Question62:-Which gas is used for leak testing of deep freezer before evacuation ?

A:-Carbon tetrachloride

B:-Liquid nitrogen

C:-Dry nitrogen

D:-Dry oxygen

Correct Answer:- Option-C

Question63:-What happens if excessive ice is formed in the inner compartment of deep freezer ?

A:-More heat removal

B:-Acts as insulation

C:-System short cycles

D:-More cooling

Correct Answer:- Option-B

Question64:-What is the reason for excess cooling in ice cubes ?

A:-OLP is not tripping

B:-High atmospheric pressure

C:-Thermostat is not functioning

D:-Ambient temperature is very low

Correct Answer:- Option-C

Question65:-Which part of the window air-conditioner allows atmospheric air entry into the condenser heated surfaces by condenser fan ?

A:-Fins

B:-Inner louvers

C:-Outer louvers

D:-Blower

Correct Answer:- Option-C

Question66:-Where the normally closed contacts are internally connected in voltage relay ?

A:-Across 1 and 5

B:-Across 1 and 2

C:-Across 2 and 5

D:-Across 2 and 4

Correct Answer:- Option-B

Question67:-What material is usually used for make sleeve/bush bearings in split AC ?

A:-Bronze

B:-Brass

C:-Cast iron

D:-Stainless steel

Correct Answer:- Option-A

Question68:-What process is done first in shifting split-AC from one place to another ?

A:-Flushing

B:-Evacuation

C:-Pump down

D:-Vacuumization

Correct Answer:- Option-C

Question69:-What is the major draw back of multi split-AC ?

A:-Inability to provide individual control

B:-It cannot operate both heating and cooling mode

C:-Compressor noise is very high

D:-Malfunctioning while in heating mode

Correct Answer:-Question Cancelled

Question70:-What is cause of poor cooling in multi split-AC ?

A:-Window or door may be open

B:-The circuit breaker may be turned off

C:-There has been a power failure

D:-Timer may be damaged

Correct Answer:- Option-A

Question71:-Which technology is used in VFD motor control systems ?

A:-MPWM

B:-PWM

C:-MOSFET

D:-IGBT

Correct Answer:-Question Cancelled

Question72:-Which is not an advantage of inverter technology in split AC ?

A:-It saves space

B:-It saves buying cost

C:-It saves electricity cost

D:-It saves refrigerant quantity

Correct Answer:- Option-B

Question73:-Which type of compressor is used in car air conditioner ?

A:-Open type

B:-Sealed type

C:-Swash plate

D:-Scroll type

Correct Answer:- Option-C

Question74:-Which type of drive is used to connect engine and car AC compressor ?

A:-Rope drive

B:-Chain drive

C:-Flat belt drive

D:-V belt drive

Correct Answer:- Option-D

Question75:-The AC coaches in trains are equiped with

A:-Split type AC

B:-AHU

C:-RMPU

D:-FCU

Correct Answer:- Option-C

Question76:-How many independent refrigerant circuit in one locomotive PAC unit ?

A:-One

B:-Two

C:-Three

D:-Four

Correct Answer:- Option-B

Question77:-Which refrigerant is used in Bus Air conditioning system ?

A:-R134a

B:-NH3

C:-R12

D:-CFC

Correct Answer:- Option-A

Question78:-Which statement is true in case of an ice candy plant ?

A:-Primary refrigerant absorb latent heat directly from ice candy mixture

B:-Primary refrigerant absorb sensible heat directly from ice candy mixture

C:-Secondary refrigerant absorb latent heat and sensible directly from ice

candy mixture

D:-Secondary refrigerant absorb only sensible heat directly from ice candy mixture

Correct Answer:-Question Cancelled

Question79:-Which statement is true in case of a suction service valve ?

A:-In front seat position, no connection between compressor and suction line

B:-In front seat position compressor and suction line are connected

C:-In middle position compressor port will be closed

D:-In back seat position, gauge port and compressor port will be connected

Correct Answer:- Option-A

Question80:-What is the function of agitator used in an ice plant ?

A:-Circulate fresh water in trays to make ice quickly

B:-Circulate secondary refrigerant to make ice quickly

C:-Circulate primary refrigerant to make ice quickly

D:-Both 1 and 2

Correct Answer:- Option-B

Question81:-PSC fan motors are provided with

A:-Relay and starting capacitor only

B:-Relay, starting capacitor and running capacitor only

C:-Relay only

D:-Running capacitor only

Correct Answer:- Option-D

Question82:-Which are the two pressures acting in an oil pressure cutout switch ?

A:-Oil pressure and discharge pressure

B:-Oil pressure and suction pressure

C:-Discharge pressure and suction pressure

D:-Oil pressure and atmospheric pressure

Correct Answer:- Option-B

Question83:-Where purge valves are installed in cold storage plants ?

A:-Evaporator

B:-Oil separator

C:-Expansion device

D:-Liquid receiver

Correct Answer:- Option-D

Question84:-Which refrigerant has the highest value of latent heat of evaporation ?

A:-R1234yf

B:-R32

C:-R717

D:-R134a

Correct Answer:- Option-C

Question85:-Humidification process is indicated in psychrometric chart by

A:-Inclined line

B:-Horizontal line

C:-Curved line

D:-Vertical line

Correct Answer:- Option-D

Question86:-Horizontal lines in psychrometric chart indicates

A:-Dew point temperature

B:-Absolute humidity

C:-Relative humidity

D:-Dry bulb temperature

Correct Answer:- Option-A

Question87:-Which statement is true in saturated condition of air ?

A:-Wet bulb temperature less than dry bulb temperature

B:-Dry bulb temperature less than wet bulb temperature

C:-Wet bulb temperature equals to dry bulb temperature

D:-Dry bulb temperature less than dew point temperature

Correct Answer:- Option-C

Question88:-The dry bulb temperature of air in a room is 30°C. Wet bulb temperature is 25°C and dew point temperature is 22°C. What will be the wet bulb depression ?

A:-3°C

B:-8°C

C:-0°C

D:-5°C

Correct Answer:- Option-D

Question89:-Which secondary refrigerant is used in chiller air conditioning system ?

A:-R718

B:-R717

C:-R744

D:-R764

Correct Answer:- Option-A

Question90:-FCU in centralised air conditioning means

A:-Fan Cooling Unit

B:-Fully Controlled Unit

C:-Fan Coil Unit

D:-Fully Closed Unit

Correct Answer:- Option-C

Question91:-The dry bulb temperature of ambient air is 35°C. Wet bulb temperature is 30°C what will be the approach of cooling tower if the outlet water temperature is 28°C ?

A:-0°C

B:-2°C

C:-7°C

D:-5°C

Correct Answer:- Option-B

Question92:-The sensing bulb of thermostatic expansion valve used in package AC is clamped to

A:-Liquid line

B:-Suction line

C:-Discharge line

D:-Evaporator inlet

Correct Answer:- Option-B

Question93:-Which are the two thermodynamic processes done in winter air conditioning ?

A:-Heating and dehumidification

B:-Heating and humidification

C:-Cooling and humidification

D:-Cooling and dehumidification

Correct Answer:- Option-B

Question94:-The flow of air in radial fan is

A:-flows parallel to the impeller

B:-flows axially through impeller

C:-Flows perpendicular to the axis

D:-Flows at 60° angular to axis

Correct Answer:- Option-C

Question95:-What is the expansion of HVAC ?

A:-Heavy Vehicle Air Conditioning

B:-High Velocity Air Conditioning

C:-High Velocity Air Cooling

D:-Heating Ventilation and Air Conditioning

Correct Answer:- Option-D

Question96:-How velocity pressure in a duct is calculated ?

A:-Static pressure – Atmospheric pressure

B:-Total pressure – Static pressure

C:-Total pressure – Atmospheric pressure

D:-Total pressure + Atmospheric pressure

Correct Answer:- Option-B

Question97:-Which part controls the air flow through a duct ?

A:-Grill

B:-Register

C:-Diffuser

D:-Damper

Correct Answer:- Option-D

Question98:-Efficiency of absolute filter is

A:-99.97%

B:-90.97%

C:-89.97%

D:-50%

Correct Answer:- Option-A

Question99:-At what pressure drop, hepa filters are to be replaced ?

A:-1 MMWG

B:-2 MMWG

C:-10 MMWG

D:-50 MMWG

Correct Answer:- Option-D

Question100:-In a rectangular duct long side (width) is 500 mm and short side (height) is 300 mm. What will be the aspect ratio of the duct ?

A:-3 : 5

B:-5 : 3

C:-5 : 2

D:-3 : 2

Correct Answer:- Option-B