INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)
Dundigal, Hyderabad - 500 043

MECHANICAL ENGINEERING

DEFINITIONS AND TERMINOLOGY QUESTION BANK

Course Name	:	**REFRIGERATION AND AIR CONDITIONING**
Course Code	:	**AME017**
Program	:	**B.Tech**
Semester	:	**VII**
Branch	:	**Mechanical Engineering**
Section	:	**A&B**
Academic Year	:	**2019– 2020**
Course Faculty	:	**Mr. A Somaiah, Assistant Professor** **Mr. M Prashanth Reddy, Assistant Professor**

COURSE OBJECTIVES:

I	Understand vapour compression, vapour absorption and air refrigeration systems.
II	Analyze the refrigeration cycles and methods for improving the performance using standard data hand book with p-h charts.
III	Familiarize the components of refrigeration system.
IV	Identify various psychometric properties and processes.

DEFINITIONS AND TERMINOLOGY QUESTION BANK

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
UNIT-I						
1	What is refrigeration	Refrigeration may be defined as the process of achieving and maintaining a temperature below that of the surroundings, the aim being to cool some product or space to the required temperature.	Understand	C0 1	CLO 1	AME017.01
2	Refrigeration efficiency defines with?	Refrigeration efficiency denoted with COP, coefficient of performance.	Remember	C0 1	CLO 2	AME017.02
3	What is cornot COP?	$COP = \frac{Q_2}{W} = \frac{T_0}{T_1 - T_0}$	Understand	C0 1	CLO 2	AME017.02
4	What is Enthalpy	Enthalpy is the sum of its internal energy and flow work and is given by: $H = u + Pv$	Remember	C0 1	CLO 1	AME017.01
5	Explain sensible heat	Change of enthalpy can be sensed as a change of temperature, it is called Sensible heat. This is expressed as specific heat capacity,	Understand	C0 1	CLO 4	AME017.04

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		i.e. the change in Enthalpy per degree of temperature change, in kJ/ (kg K).				
6	Explain latent heat	If there is no change of temperature but a change of state (solid to liquid, liquid to gas, or vice versa) it is called latent heat. This is expressed as kJ/kg but it varies with the boiling temperature	Remember	C0 1	CLO 4	AME017.04
7	Explain boyle's law	*Boyle's Law* states that, for an ideal gas, the product of pressure and volume at constant temperature is a constant: pV = constant	Understand	C0 1	CLO 1	AME017.01
8	Explain Charles ' Law	*Charles ' Law* states that, for an ideal gas, the volume at constant pressure is proportional to the absolute temperature: $\frac{V}{T}$ = constant	Understand	C0 1	CLO 1	AME017.01
9	Explain principle of air cycle refrigeration	Air cycle refrigeration works on the principle of reverse Brayton or Joule cycle	Understand	C0 1	CLO 3	AME017.03
10	Explain thermoelectric cooling	The passage of an electric current through junctions of dissimilar metals causes a fall in temperature at one junction and a rise at the other, the Peltier effect.	Understand	C0 1	CLO 3	AME017.03
11	What is the chemical name of R-134a	1,1,1,2-Tetrafluoroethane	Remember	C0 1	CLO 3	AME017.03
12	What is R717	R717 is the refrigerant indication for Ammonia	Understand	C0 1	CLO 3	AME017.03
13	What is R744	R744 is the refrigerant indication for carbon dioxide	Remember	C0 1	CLO 3	AME017.03
14	What is condenser	Condenser in a vapour compression cycle is to accept the hot, high-pressure gas from the compressor and cool it to remove first the superheat and then the latent heat, so that the refrigerant will condense back to a liquid. In addition, the liquid is usually slightly sub cooled. In nearly all cases, the cooling medium will be air or water	Understand	C0 1	CLO 6	AME017.06
15	What is condenser load	Evaporator load + compressor input power = condenser load	Remember	C0 1	CLO 6	AME017.06
16	Function of expansion valve	The purpose of the expansion valve is to control the flow of	Remember	C0 1	CLO 8	AME017.08

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		refrigerant from the high-pressure condensing side of the system into the low-pressure evaporator. In most cases, the pressure reduction is achieved through a variable flow orifice, either modulating or two-position. Expansion valves may be classified according to the method of control.				
17	Conductance	$\frac{\text{area} \times \text{thermal conductivity}}{\text{thickness}}$ $\frac{A \times k}{L}$	Understand	C0 1	CLO 3	AME017.03
18	COP	$\frac{1}{(r_k)^{r-1} - 1}$	Remember	C0 1	CLO 2	AME017.02
19	Explain TOR (ton of refrigeration	The amount of heat removed from 2000kg water at 0˚C to convert into ice at 0˚C in 24 hours.	Understand	C0 1	CLO 1	AME017.01
20	Explain air refrigeration	Adiabatic expansion of air from higher pressure to lower pressure produce very low temperature air.	Remember	C0 1	CLO 1	AME017.01
UNIT-II						
1	How does vapor compression refrigeration work?	Refrigerant flows through the compressor, which raises the pressure of the refrigerant. Next the refrigerant flows through the condenser, where it condenses from vapor form to liquid form, giving off heat in the process.	Understand	C0 2	CLO 5	AME017.05
2	What are the advantages of Vapour compression refrigeration system?	Volume of refrigerant circulated is low. Hence the running cost is low. The temperature at the evaporator can be easily controlled by regulating expansion valve. Latent heat involved in Phase change ensures high value of heat removal, while air refrigeration system has sensible heat only.	Remember	C0 2	CLO 6	AME017.06
3	Why does refrigerant need to be compressed?	The compressor does exactly as its name says: it compresses the refrigerant. The compressor receives low pressure gas from the evaporator and converts it to high pressure gas. As mentioned earlier, as the gas is compressed, the temperature rises. The hot refrigerant gas then flows to the condenser.	Understand	C0 2	CLO 7	AME017.07
4	What is simple Vapour	Pair compression cycle used for cooling in preference to gas cycles;	Remember	C0 2	CLO 8	AME017.08

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
	compression system?	using latent heat allows for much greater amount of heat to be recovered refrigerant flow. ... The heat is in a liquid state at low temperatures and pressures, providing the latent heat to make it to evaporate.				
5	What are the four stages of refrigeration?	The Vapor Compression Refrigeration Cycle involves four components: compressor, condenser, expansion valve/throttle valve and evaporator.	Understand	C0 2	CLO 8	AME017.08
6	What is Vapour absorption refrigeration?	The vapor absorption refrigeration system comprises of all the processes in the vapor compression refrigeration system like compression, condensation, expansion and evaporation. The refrigerant produces cooling effect in the evaporator and releases the heat to the atmosphere via the condenser.	Remember	C0 2	CLO 5	AME017.05
7	What is subcooling and superheating?	The term subcooling also called undercooling refers to a liquid existing at a temperature below its normal boiling point. A subcooled liquid is the convenient state in which, say, refrigerants may undergo the remaining stages of a refrigeration cycle.	Understand	C0 2	CLO6	AME017.06
8	Where is the expansion valve located in a refrigeration system?	The expansion valve removes pressure from the liquid refrigerant to allow expansion or change of state from a liquid to a vapor in the evaporator. The high-pressure liquid refrigerant entering the expansion valve is quite warm. This may be verified by feeling the liquid line at its connection to the expansion valve.	Remember	C0 2	CLO 7	AME017.07
9	Why ammonia is used in Vapour absorption refrigeration system?	The sub cooling heat exchanger, which is normally of counter flow type is used to increase the refrigeration effect and to ensure liquid entry into the refrigerant expansion valve. In the generator, heat is supplied to the solution (Qg). As a result vapour of ammonia and water are generated in the generator.	Understand	C0 2	CLO 8	AME017.08
10	What is simple Vapour	A Simple Vapor absorption system consists of evaporator, absorber,	Remember	C0 2	CLO 5	AME017.05

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
	absorption system?	generator, condenser, expansion valve, pump & reducing valve. In this system ammonia is used as refrigerant and solution is used is aqua ammonia. ... The compressor of vapor compressor system is replaced by an absorber, generator, reducing valve and pump.				
11	What is the function of rectifier in Vapour absorption refrigeration system?	If this water vapor is allowed to be carried to the evaporator, the capacity of the refrigeration system would reduce. The water vapor from ammonia refrigerant is removed by analyzer and the rectifier. The analyzer is a sort of the distillation column that is located at the top of the generator.	Understand	C0 2	CLO 6	AME017.06
12	What is the function of absorber?	Function of shock absorber. The main function of the shock absorber is to absorb the shocks and damp them as soon as possible so that a smooth ride can be obtained. It may sound a simple job but this is the main thing on which the comfort level of your ride depends.	Remember	C0 2	CLO 7	AME017.07
13	Why lithium bromide is used in absorption chiller?	In the absorber, the lithium bromide absorbs the water refrigerant, creating a solution of water and lithium bromide. ... The water-lithium bromide vapor absorption system is used in a number of air conditioning applications. This system is useful for applications where the temperature required is more than 32 degree F.	Understand	C0 2	CLO 8	AME017.08
14	What is steam jet refrigeration?	Definition of steam jet refrigeration. A method of cooling involving the use of steam nozzles to reduce the pressure in a water chamber so that the water boils at a low temperature; since heat is drawn from the water, it is thus cooled.	Understand	C0 2	CLO 5	AME017.05
15	What is the refrigerant used in Vapour absorption cycle?	In the vapor absorption system the refrigerant used is ammonia, water or lithium bromide. The refrigerant gets condensed in the condenser and it gets evaporated in the evaporator. The refrigerant produces cooling effect in the	Remember	C0 2	CLO 6	AME017.06

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		evaporator and releases the heat to the atmosphere via the condenser.				
16	What is Electrolux refrigeration system?	The main purpose of domestic electrolux refrigerator is eliminate the pump so that in the absence of moving parts ,the machine becomes noise less. This type of refrigerators is also called three fluid absorption system. The three fluid used in this system are ammonia,hydrogen and water.	Understand	C0 2	CLO 7	AME017.07
17	What is the function of Analyser?	A spectrum analyzer measures the magnitude of an input signal versus frequency within the full frequency range of the instrument. The primary use is to measure the power of the spectrum of known and unknown signals.	Remember	C0 2	CLO 8	AME017.08
18	What is the function of absorber in Vapour absorption refrigeration system?	The evaporator absorbs heat from the energy source. The energy absorbed evaporates some of the refrigerant vapour from the liquid absorbent. The vapour passes into the absorber where it is dissolved into the absorbent, releasing some energy and concentrating the solution.	Understand	C0 2	CLO 5	AME017.05
19	What is ejector refrigeration system?	Ejector or jet pump refrigeration is a thermally driven technology that has been used for cooling applications for many years. ... The high pressure vapour generated, known as the primary fluid, flows through the ejector where it accelerates through the nozzle.	Remember	C0 2	CLO 6	AME017.06
20	Why Hydrogen is used in Electrolux refrigerator?	this liquid ammonia used to enter into the evaporator, in this it contains hydrogen which is used to evaporate the liquid ammonia with low pressure and low temperature and passes to absorber, where ammonia used to absorve by water in the absorber and remaining hydrogen used return into the evaporator.	Understand	C0 2	CLO 7	AME017.07
UNIT - III						
1	What is the main purpose of a compressor?	The purpose of the compressor is to circulate the refrigerant in the system under pressure; this concentrates the heat it contains. At the compressor, the low	Remember	C0 3	CLO 9	AME017.09

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		pressure gas is changed to high pressure gas.				
2	What is difference between compressor and condenser?	The main difference between the compressor and condenser is indicated by their names, respectively. In a nutshell, the compressor compresses and the condenser condense. Keep in mind, the refrigerant is a gas as it travels through the compressor – still a gas, yet slightly altered in order to be made into liquid vapor.	Understand	C0 3	CLO 10	AME017.10
3	What is the purpose of a condenser?	In systems involving heat transfer, a condenser is a device or unit used to condense a substance from its gaseous to its liquid state, by cooling it. In so doing, the latent heat is given up by the substance and transferred to the surrounding environment.	Remember	C0 3	CLO 11	AME017.11
4	What are the three basic types of condensers?	The three main types of condensers used in general refrigeration systems are:air-cooled. water-cooled. evaporative.	Understand	C0 3	CLO 12	AME017.12
5	What happens to refrigerant heat in the condenser?	Refrigerant flows through the compressor, which raises the pressure of the refrigerant. Next the refrigerant flows through the condenser, where it condenses from vapor form to liquid form, giving off heat in the process. ... Finally, the refrigerant goes to the evaporator.	Remember	C0 3	CLO 9	AME017.09
6	What does an evaporator do?	An evaporator is a device in a process used to turn the liquid form of a chemical substance such as water into its gaseous-form/vapor. The liquid is evaporated, or vaporized, into a gas form of the targeted substance in that process.	Understand	C0 3	CLO 10	AME017.10
7	Where is the expansion valve located in a refrigeration system?	The expansion valve removes pressure from the liquid refrigerant to allow expansion or change of state from a liquid to a vapor in the evaporator. The high-pressure liquid refrigerant entering the expansion valve is quite warm. This may be verified by feeling the liquid line at its connection to the expansion valve.	Remember	C0 3	CLO 11	AME017.11

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
8	What is the heart of the refrigeration system?	The major components of a refrigeration system are the compressor, condenser, expansion valve, and evaporator. The compressor is the heart of a refrigerant system: it uses a small amount of energy to generate the necessary refrigerant flow and subsequent heat transfer as desired.	Understand	C0 3	CLO 12	AME017.12
9	What is flooded evaporator?	Evaporator is said to be flooded type if liquid refrigerant covers the entire heat transfer surface. This type of evaporator uses a float type of expansion valve. An evaporator is called dry type when a portion of the evaporator is used for superheating the refrigerant vapour after its evaporation.	Understand	C0 3	CLO 9	AME017.09
10	What is triple effect evaporator?	A multiple-effect evaporator, as defined in chemical engineering, is an apparatus for efficiently using the heat from steam to evaporate water. In a multiple-effect evaporator, water is boiled in a sequence of vessels, each held at a lower pressure than the last.	Remember	C0 3	CLO 10	AME017.10
11	What type of compressor uses Pistons?	A reciprocating compressor or piston compressor is a positive-displacement compressor that uses pistons driven by a crankshaft to deliver gases at high pressure.	Understand	C0 3	CLO 11	AME017.11
12	What is evaporator capacity?	The performance of a steam-heated evaporator is measured in terms of its capacity and economy. Capacity is defined as the number of kilogram of water vaporized per hour. ... The capacity is about n -times that of a single effect evaporator and the economy is about 0.8 n for a n -effect evaporators.	Remember	C0 3	CLO 12	AME017.12
13	What is boiling point rise in evaporators?	The evaporators produce concentrated solution having substantially higher boiling point than that of the solvent (of the solution) at the prevailing pressure. The increase in boiling point over that of water is known as boiling point elevation (BPE) of the solution.	Understand	C0 3	CLO9	AME017.09
14	What are the different types	There are seven main types of expansion devices:	Remember	C0 3	CLO9	AME017.09

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
	of expansion valves?	Thermal expansion valves (TEVs) Manual valves. Capillary tubes. Automatic valves. Electronic expansion valves. Low-pressure float valves. High-pressure float valves.				
15	What is an electronic expansion valve?	The electronic expansion valve (EEV) operates with a much more sophisticated design. EEVs control the flow of refrigerant entering a direct expansion evaporator. They do this in response to signals sent to them by an electronic controller. A small motor is used to open and close the valve port.	Understand	C0 3	CLO 10	AME017.10
16	What controls the expansion valve?	The expansion valve removes pressure from the liquid refrigerant to allow expansion or change of state from a liquid to a vapor in the evaporator. ... Under a greatly reduced pressure the liquid refrigerant is at its coldest as it leaves the expansion valve and enters the evaporator.	Remember	C0 3	CLO 11	AME017.11
17	What advantage does a thermostatic expansion valve have over a capillary tube?	Some of the advantages of a thermal expansion valve vs. a capillary tube include: Better efficiency – As temperatures fluctuate over time, a thermal expansion valve can adjust the refrigerant flow to accommodate a larger or smaller heat load. This allows the unit to operate more efficiently.	Understand	C0 3	CLO 12	AME017.12
18	What is automatic expansion valve?	The automatic expansion valve (AXV or AEV) is an expansion device that meters the refrigerant to the evaporator by using a pressure-sensing device. The AXV maintains a constant pressure in the evaporator.	Remember	C0 3	CLO 9	AME017.09
19	Can an expansion valve be cleaned?	In these cases, it is far more beneficial to the customer if the valve is replaced instead of cleaned. It is very difficult to determine if a Thermostat Expansion Valve is clean. ... Any debris or contamination at the TXV can prevent proper flow of lubricating oil through the system	Understand	C0 3	CLO 10	AME017.10

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		and its return to the compressor.				
20	How do you adjust a thermal expansion valve?	To adjust the static superheat, turn the valve's setting stem. Turning clockwise increases static superheat and effectively reduce refrigerant flow through the valve. Turning counterclockwise reduces static superheat and increases refrigerant flow.	Remember	C0 3	CLO11	AME017.11
UNIT-IV						
1	What is psychometrics in HVAC?	A psychrometric chart is simply a graphical representation of the properties of air which appear in steam or hygrometric tables. The psychrometric chart enables HVAC engineers to find the dry bulb temperature, moisture content and relative humidity of air.	Understand	C0 4	CLO 13	AME017.13
2	What is the purpose of a psychrometric chart?	A psychrometric chart is a graphical representation of the psychrometric processes of air. Psychrometric processes include physical and thermodynamic properties such as dry bulb temperature, wet bulb temperature, humidity, enthalpy, and air density.	Remember	C0 4	CLO 14	AME017.14
3	What is WBT and DBT?	Wet Bulb Temperature (WBT in short) is a measure of how much moisture or water vapour is present in the air. The difference between the dry bulb temperatureand this determines how much dry the air is. If DBT-WBT is large, then the air has lower relative humidity.	Remember	C0 4	CLO 15	AME017.15
4	At what condition the dehumidification process will start?	In the general the cooling and dehumidification process is obtained by passing the air over coil through which the cool refrigerant, chilled water or cooled gas is passed. During the cooling and dehumidification process the dry bulb, wet bulb and the dew point temperature of air reduces.	Understand	C0 4	CLO 16	AME017.16
5	How is wet bulb temperature determined?	It is defined as the temperature of a parcel of air cooled to saturation (100% relative humidity) by the evaporation of water into it, with the latent heat supplied by the parcel. A wet-bulb thermometer indicates a temperature close to the true (thermodynamic) wet-bulb	Remember	C0 4	CLO 13	AME017.13

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		temperature.				
6	What is dew point a function of?	In short, the dew point is an accurate measurement of the moisture content in the air. When talking about a certain day feeling “muggy” or “sticky,” the dew point temperature is the more accurate term to use.	Understand	C0 4	CLO 14	AME017.14
7	How many independent properties are required to define the state of moist air?	Based on Gibbs' phase rule, the thermodynamic state of moist air is uniquely fixed if the barometric pressure and two other independent properties are known. This means that at a given barometric pressure, the state of moist air can be determined by measuring any two independent properties.	Remember	C0 4	CLO 15	AME017.15
8	Is dew point and wet bulb the same?	The dew point will be the lowest number, and the wet bulb will fall between those two. If you were to add water vapor vapor (but not by evaporation directly within the air parcel), the dew point and the wet buld would climb, while the dry bulb temperature would stay the same.	Understand	C0 4	CLO 16	AME017.16
9	Is saturation temperature the same as dew point?	Dew point temperature is defined as the temperature to which the air would have to cool (at constant pressure and constant water vapor content) in order to reach saturation. ... Dew point temperature is never greater than the air temperature.	Remember	C0 4	CLO 13	AME017.13
10	What is thermal comfort in buildings?	Thermal comfort is the condition of mind that expresses satisfaction with the thermal environment and is assessed by subjective evaluation (ANSI/ASHRAE Standard 55). The human body will generate excess heat into the environment, so the body can continue to operate.	Understand	C0 4	CLO 14	AME017.14
11	How do you find the dew point temperature?	This can be expressed as a simple rule of thumb: For every 1 °C difference in the dew point and dry bulb temperatures, the relative humidity decreases by 5%, starting with RH = 100% when the dew point equals the dry bulb temperature.	Understand	C0 4	CLO 15	AME017.15

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
12	What is humidity ratio?	Specific humidity is approximately equal to the mixing ratio, which is defined as the ratio of the mass of water vapor in an air parcel to the mass of dry air for the same parcel. As temperature decreases, the amount of water vapor needed to reach saturation also decreases.	Remember	C0 4	CLO 16	AME017.16
13	What is meant by sensible heat?	Latent and sensible heat are types of energy released or absorbed in the atmosphere. Latent heat is related to changes in phase between liquids, gases, and solids. Sensible heat is related to changes in temperature of a gas or object with no change in phase.	Understand	C0 4	CLO 13	AME017.13
14	What is an example of latent heat?	″Latent heat″ is heat transferred in a process without change of the body's temperature, for example, in a phase change (solid/liquid/gas).	Remember	C0 4	CLO 14	AME017.14
15	What is the difference between absolute humidity and relative humidity?	Absolute humidity is the measure of water vapor (moisture) in the air, regardless of temperature. ... Warm air can hold far more moisture than cold air meaning that the relative humidity of cold air would be far higher than warm air if their absolute humidity levels were equal.	Understand	C0 4	CLO 15	AME017.15
16	Why is wet bulb temperature lower than dry bulb?	When people refer to the temperature (heat content) of the air, they are normally referring to the dry bulb temperature. ... The wet bulb temperature is always lower than the dry bulb temperature except when there is 100% relative humidity, making the wet bulb temperature a more accurate measurement of product temperature.	Understand	C0 4	CLO 16	AME017.16
17	How do you measure relative humidity?	Humidity is the measure of the amount of moisture in the air. A psychrometer is an example of a hygrometer. A psychrometer uses two thermometers to measure relative humidity; one measures the dry-bulb temperature and the other measures the wet-bulb temperature.	Remember	C0 4	CLO 13	AME017.13
18	What is the relationship between	All three -- relative humidity, temperature and dew point -- are bound together in the mathematical	Understand	C0 4	CLO 14	AME017.14

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
	humidity and dew point?	relationship below. Relative humidity changes when temperatures change. Because warm air can hold more water vapor than cool air, relative humidity falls when the temperature rises if no moisture is added to the air				
19	Why does fog occur?	Fog forms when the difference between air temperature and dew point is less than 2.5 °C (4.5 °F). Fog begins to form when water vapor condenses into tiny liquid water droplets that are suspended in the air. ... This occurs from either added moisture in the air, or falling ambient air temperature.	Remember	C0 4	CLO 15	AME017.15
20	What are the factors affecting human comfort?	Factors Affecting Human Comfort Include: Air temperature is the most significant ambient factor which affects our internal temperature and our level of comfort. But, it is not the only factor involved; air speed, humidity and mean radiant temperature must also be considered.	Understand	C0 4	CLO 16	AME017.16
UNIT-V						
1	What is difference between grill and diffuser?	There is a quite significant difference between the grille and diffuser. A grille generally has straight openings, and it is installed at the opening of the duct system. It provides air in directly without any diversion in a straight manner. Whereas, the diffuser has parallel angles plates which are moveable.	Remember	C0 5	CLO 17	AME017.17
2	What is the difference between a register and a grille?	A grille is a perforated cover for an air duct (used for heating, cooling, or ventilation, or a combination thereof). Grilles sometimes have louvers which allow the flow of air to be directed. A register differs from a grille in that a damper is included.	Understand	C0 5	CLO 18	AME017.18
3	What is VCD in air conditioning?	A zone damper (also known as a Volume Control Damper or VCD) is a specific type of damper used to control the flow of air in an HVAC heating or cooling system. In order to improve efficiency and occupant	Remember	C0 5	CLO 19	AME017.19

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		comfort, HVAC systems are commonly divided up into multiple zones.				
4	What is a return air grille?	A Return Air Grill Is An Essential Part Of Any HVAC System. A return air grill connects to ductwork that allows air to return to any cooling or heating system. The openings that connect to ducts and other spaces for the returning air are normally covered with grillwork.	Understand	C0 5	CLO 20	AME017.20
5	What is a transfer grille?	A transfer grille is a grille or register installed in the wall or above the door to connect the closed room with an open space such as a hallway or living room, thereby providing an additional pathway for stale air to reach the centrally located return. Transfer grilles may be installed by the framer or drywaller.	Remember	C0 5	CLO 17	AME017.17
6	what is the function of a blower in air conditioner?	The function of the blower is to produce air movement to the space that is being conditioned. There are basically four types of fan that are commonly used in the HVAC equipment.	Understand	C0 5	CLO 18	AME017.18
7	What is the difference between fan and blower?	A fan moves large amounts of gas with a low increase in pressure: you'll find these in your home. A blower is a machine used for moving gas with a moderate increase of pressure: a more powerful fan.	Remember	C0 5	CLO 19	AME017.19
8	What is the purpose of a dehumidifier?	Dehumidifiers remove moisture from the air. This curbs the growth of mold and dust mites. They are particularly useful in parts of the house where humidity collects like damp basements. Dehumidifiers draw air over cold coils, condensing out its moisture, before passing the air over warm coils and back into the room.	Understand	C0 5	CLO 20	AME017.20
9	What is the difference between a humidifier and dehumidifier?	The difference is how they function. If the air in your home is too humid, a dehumidifier works to remove excess moisture. On the other hand, if the air in your home is dry, a humidifier helps add moisture to the air by releasing	Remember	C0 5	CLO 17	AME017.17

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		water vapor throughout the room to increase the humidity level in your home.				
10	Can a dehumidifier be harmful?	Most dehumidifiers have an auto-shutdown feature that will prevent the machine from overflowing. This is good because you do not have to worry about water damage to your possessions. However, if the water in the bucket if left for a long period of time, it could cause black mold to start growing on your dehumidifier.	Understand	C0 5	CLO 18	AME017.18
11	What is the AC filter for?	Its job is to filter all of the air that comes through the car's HVAC system to prevent pollutants, such as dust, pollen, smog and mold spores from entering.	Understand	C0 5	CLO 19	AME017.19
12	What happens if AC filter is dirty?	A dirty air filter restricts the flow of cold air, causing it to build up inside the air conditioner and lower the internal temperature. ... Uneven Cooling: Even if it's not enough to cause freezing, that restricted airflow isn't good for your air conditioner's cooling power.	Remember	C0 5	CLO 20	AME017.20
13	How often should you clean air conditioner filter?	As a general rule, you should clean your air conditioner filters within the indoor unit every two weeks. In more dusty or polluted environments you should clean your filters more regularly. Cleaning your filters is the most important maintenance task you can do to care for your air conditioner.	Understand	C0 5	CLO 17	AME017.17
14	What is the use of heat pump?	For climates with moderate heating and cooling needs, heat pumps offer an energy-efficient alternative to furnaces and air conditioners. Like your refrigerator, heat pumps use electricity to move heat from a cool space to a warm space, making the cool space cooler and the warm space warmer.	Remember	C0 5	CLO 18	AME017.18
15	What are the advantages and disadvantages of a heat pump?	The fuel and electricity efficiency is the biggest advantage of heat pumps. The heating is not produced through fossil fuels or electricity, thus making this system eco-friendly as well as cost saving.	Understand	C0 5	CLO 17	AME017.17

S.No	QUESTION	ANSWER	Blooms Level	CO	CLO	CLO Code
		Heat pumps are most suited to temperate climates as below freezing temperatures can bring disadvantages.				
16	How do you defrost a heat pump in the winter?	Heat pumps will naturally ice-up in the winter but will periodically go into a defrost cycle to de-ice the coils. This keeps the unit running efficiently. If the coils are blocked by ice, proper heat transfer between the refrigerant and the outside air cannot occur.	Understand	C0 5	CLO 18	AME017.18
17	What is the difference between a register and a vent?	Similar to an air register, the air vent covers a hole in the wall of floor where the air duct enters the room. Unlike air registers, air vents do not have a damper to control air flow. They simply cover the air duct opening.	Remember	C0 5	CLO 19	AME017.19
18	What is a supply vent?	Supply vents are vents in the HVAC system that supplies air to a room or area inside a building. ... A return vent sucks in, or returns, the air back to the HVAC ductwork system. Many HVAC systems do not get their air from the outside. Instead, they get them from the inside the building through a return vent.	Understand	C0 5	CLO 20	AME017.20
19	Which gas is used in air conditioner for cooling?	A nonflammable gas, known as Freon, undergoes an evaporation process again and again within most refrigerators in order to keep the temperature low. The same cycle is used for air conditioners. This is how it works: First, a compressor in your air conditioner compresses cold Freon gas.	Remember	C0 5	CLO 17	AME017.17
20	Why refrigerant is used in AC?	Air conditioners contain refrigerant inside copper coils. As refrigerant absorbs heat from indoor air, it transitions from a low-pressure gas to a high-pressure liquid. Air conditioning components send the refrigerant outside where a fan blows hot air over the coils and exhausts it to the exterior.	Understand	C0 5	CLO 18	AME017.18

Signature of the Faculty

Signature of HOD