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Department : BE(E)

Semester : 02

Subject : Thermodynamics.

Submitted To : Mujtaba Ahsan.

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Q:NO: 01

Ans: The ideal gas law:

"The ideal gas law also called the general gas equestion as the equestion of state of a hypothetical ideal gas. It is a good approximation of the behavior of many gases under many conditions although it has several limitations."

~~MA~~ = Mathematically:

$$PV = nRT$$

where P, V and T are Pressure, Volume and temperature, "n" is the amount of substance, and 'R' is the ideal gas constant. It is same for all gases.

-(ii)-

Ans= Dalton Law of Partial Pressure=

"It states that in a mixture of non-reacting gases the total Pressure exerted is equal to the sum of the Partial Pressure of the individual gases."

Mathematically:

$$P_{total} = \sum_{i=1}^{n} P_i \quad \text{or}$$

$$P_{total} = P_1 + P_2 + P_3 + \ldots\ldots P_n$$

where $P_1, P_2 \ldots\ldots P_n$ represent the Partial Pressure of each component.

$$P_i = P_{total} x_i$$

where x_i is the mole fraction.

(ii) (B)

Ans = Carnot cycle:

The carnot cycle is a theoretical ideal thermodynamics cycle. It provide an upper by another limit on the efficiency that any classical thermodynamic engine can achive during the conversion. the efficieney of a refrigeration system. in creating temperature difference by the application of work to the system. It is not an actual thermodynamic cycle but is a theoretical construct.

Process of carnot cycle:

Four Processes of carnot cycle are

isothermal heat addition (happens in a boiler), isentropic expension happens in a turbine) isothermal heat rejection (happens in a condenser) isentropic compression happens in a compresser):

Importance of carnot cycle:

The carnot cycle is importante because describes a heat engine that uses reversible processes that can be handled theoretically. then we could use the real heat engine power a carnot cycle heat pump.

Question Number:= 2

— (a) —

Factors by buying refrigeration:=

we have compiled a list of the most important factors to consider when selecting a refrigerator. that you will be happy for yeass to come.

(i) Styles

Modern fridges come in a vasiety of layouts. The most common styles are side-by-side, freeze-on top, are freeze on buttom medon. Fredition refrigerators with freezers on top are often priced lower when other option, but are eng attractive.

(ii) = Refrigerator Features.

New refrigerator features add value and convenience. They also tend to come at a higher pricetag.

Some model offer special temperature controlled drawers to keep certain food fresher.

(iii) Energy Efficiency =

Newer refrigerators use less energy which translates into savings for you and less environmental impact. Look for refrigerators that are energy star certified. These model comply with stricter, efficiency guidelines, which can save your energy bills.

(iv) = Dimensions.

All the features in the world means nothing if the refrigerator doesn't fit in your space. Most fridges sit between two counters so make sure you measure the width.

(v) = Finish.

options for finishes seem to grow every year. Stainless

steel is still Popular, especially since the advent of new smutge-resistant versions.

Q=2 (b)

Vapour Absorption Refigeration System:

The vapour absorption refigeration system comprises of all the Process in vapour compression refrigeration system. like compression conclusation, expansion, evapouration. In the vapour absorption system. refrigerant use is ammonia, water and lithium, bromide. The refrigerant gets condensed in the condenser and it get evapourated. The refrigerant Produces cooling effect in the evapourator and releases heat to the atomsphere, via the condenser.

Date: / /

(i) = Condenser.

Just like in the traditional condenser of vapour compression cycle. enters high pressure and temperature get condensed.

(ii) = Expansion valve.

when refrigerant Passes throught expansion valves. Its pressure and temperature reduces suddenely.

(iii) = Evapourator:

At low Pressure and temperature water the evaporator and producing the cooling.

(iv) = Absorber:

The absorber is a sort of vessel consisting of water that acts absorbent and Previous absorbed refigerant.

Date:

Q NO = 3

Fire tube Boiler	water tube Boiler
(1) Fire tube boiler hot the gases pass through tube and water surrounds them.	(1) In water tube boiler water pass through tube and hot the gases.
(2) These are opareited at low pressure up to 20 bar	2= The working pressure high enough.
(3) = The rate of steam generation and quality of steam are very low.	3 = The rate of steam generation and quality are better.
(4) = load function cannot handle.	(4) = Load function can be easily handle.
(5) = It required more floor area for a given output.	(5) It requires less floor area.
(6) = These are bulky.	(6) There are light weight.

Khizra Paper Products

Checked By:.....Parents:.....Excellent ☐ Good ☐ Need Improvement

Date: / /

Q NO = 4

Ans = Meaning of Stroke:

A sudden change in the blood supply to a part of the brain. Same times causing a loss of the ability to move Particullar Parts of the body.

=> Four stroke engine.

A four stroke engine is an enternal combustion engine. In which the Pistion completes four ~~Separate~~ Stokes. while turning the Caranksyhaft. A Stroke refers. to the full travel of the Piston along the cylinder in either direction.

= The Four Separate Strokes are termed:

(I) = Intake:

Also known as induction are suction. This Stoke of the

Piston begins at top dead center and ends at button dead center. In this stroke the intake valve must be in open piston. while the piston pulls an air fuel mixture into the cylinder by producing vaccum pressure into the cylinder, through it downward motion.

(2)= Compression:

This stroke begain at B.D.C, are just at the end of the suction stroke and end at T.D.C. In this stroke the piston compresseges the air fuel mixture in preperation for ignition during the Power stroke.

(3)= Combustion:

Also known as Power are ignition. This is a start of the second

revolution of the four stroke cycle. At this point the crankshaft has completed a full 360° revolution. While the piston is at T.D.C, the compressed air fuel mixture is ignited by a spark plug. This stroke process mechanical work from the egine to turn the crankshaft.

(4)= Exhaust =

Also known as outlet. During the exhaust stroke the pistion one again returns from B.D.C to T.D.C. While the exhaust valves is open. This action expels the spent air, fuel mixture through the exhaust values.

Q NO = 05

Petrol engine	Diesel engine
(1)= Produce top torque at high rpm.	(1) Produce top torque at low rpm.
(2)= Petrol engine are quiet.	(2) Some diesel engine are noisy.
(3)= more mechanics understand Petrol engines.	(3)= Few mechanics understand diesel engines.
(4)= Less frequent Servicing required.	(4) more frequent servicing required.
(5)= More complex for electrical system.	(5)=More complex fuel system.
(6)= less economical, less range.	(6)=More economical more range.
(7)= less water Proof	(7) More water Proof

Day: M T W T F S

Date: __/__/__

Q NO= 05

(b)

The Provential government of Punjab banned 2' stroke rikshaws in 2011, at after a device a WHO. There are main cases.

(1)= Vehicular emission is one of the Principal anthropgenic source of air Pallution.

(2)= Major Problum for Physical and mental health.

(3)= Since 1960, world moter vehicles as been increasing faster than its Pollution.

(4)= Problem acute in big cites.

(5)= Accoreding to 2011, WHO reports Quetta, Sheares forth Place, Peshawar sixth Place, and Lahore tenth Place on most Populated Cities of world.

Day: M T W T F S

Date: / / /

(6)= About 60000 richsaws operating openly.

(7)= According to city goverment two stroke richsaws are causing 65% of the total vehicular in Lahore.

(8)= The major air Pollution due to heavy gases.

Nitrogen dioxide

Sulpher dioxide

Carbon monoxide

These are the major causes due to Preivence goverment bennd (ø) two stroke sicksaw.