The following parameter is not vital for a combustion reaction to progress

A) Auto-ignition temperature B) Combustible substance

C) Oxidizer D) Type of coolant

A crude oil is termed sweet if it contains less than

A) 0.5 wt. % of phosphorus B) 0.5 wt. % of sulphur

C) 0.5 wt. % of sodium D) 0.5 wt. % of strontium

API gravity for a fuel having a density 75% of that of water is

A) 57.17 B) 41.71

C) 434.5 D) 0.57

Measurement of dry exhaust products from a burner which uses natural gas and air reads 6 % oxygen and 8 % carbon dioxide. The excess air used in the burner is _____.

A) 35.6% B) 64.4%

C) 27.9% D) 44.8%

If a process takes place rapidly such that the species remain in their original state, then such an equilibrium is called _____

A) Shifting B) Drifting

C) Quasi D) Frozen

Auto ignition temperature of petrol is

A) 519 K B) 483 K

C) 509 K D) 678 K

Petroleum gas consists of_____gas at atmospheric pressure.

A) propane and butane B) propane and isobutane

C) methane and butane D) propane and methane

The flash point of 4 fuels are given below. Which among the following is most volatile fuel.

A) Propane 169 K B) n-Cetane: 135 °C

C) n-Octane 37 °F D) Ethanol: 13 °C

For the dissociation of carbon di oxide at 2000 K and pressure of 1 atm, Equilibrium constant K_p is

1. 0.0363
2. 0.0263
3. 0.0163
4. 0.0463

For the dissociation of carbon di oxide at 2000 K and pressure of 1 atm, mole fraction of CO_2 is

1. 0.9777
2. 0.8777
3. 0.7777
4. 0.6777

For the dissociation of carbon di oxide at 2000 K and pressure of 1 atm, mole fraction of CO is

1. 0.0149
2. 0.0249
3. 0.0349
4. 0.0449

For the dissociation of carbon di oxide at 2000 K and pressure of 1 atm, mole fraction of O_2 is

1. 0.0074
2. 0.0084
3. 0.0064
4. 0.0094

The rate of a chemical reaction tells us about

1. the reactants taking part in the reaction
2. the products formed in the reaction
3. how slow or fast the reaction is taking place
4. none of the above

Which of the following observations is incorrect about the order of a reaction?

1. Order of a reaction is always a whole number
2. The stoichiometric coefficient of the reactants doesn't affect the order
3. Order of reaction is the sum of power to express the rate of reaction to the concentration terms of the reactants.
4. Order can only be assessed experimentally

A reaction involving two different reactants can never be a

1. First order reaction
2. Second order reaction
3. Bimolecular reaction
4. Unimolecular reaction

What is indicated by negative sign before the term of reaction rate?

(a) The kinetic energy of the reaction decreases with time

(b) The energy barrier of reaction decreases with time

(c) The energy of activation of reaction decreases with time

(d) The concentration of reactants decreases with time.

Which of the following human activities contribute to an increased green house effect?

1. Harvesting energy from the sun.

2. Deforestation
3. Walking to work.
4. Switching to geothermal powered electricity

Which of the following air pollutants is the key ingredient in photochemical smog?

1. Carbon dioxide
2. sulfur dioxide
3. nitrogen oxide
4. ground level ozone

An effective dissemination tool to in inform people about air quality launched in India in 2014

1. Air quality management system
2. National air quality index
3. National ambient air quality standard
4. Air pollution management and modeling

The major contributor of Carbon monoxide is

1. Motor vehicles
2. Industrial processes
3. Stationary fuel combustion
4. None of the these

Carbon monoxide content in exhaust emission is lowest during

1. Steady speed
2. Idling
3. Deceleration
4. Unsteady speed

Lead compounds are added in petrol to

1. Reduce HC emission
2. Reduce NO_x emission
3. Reduce exhaust temperature
4. Increase power output

Incomplete combustion due to partial oxidation of HCs produces

1. Acetylene and Aldehydes
2. Acetylene
3. Aldehydes
4. None of these

The main cause for NO_x is

1. Lean air fuel mixture
2. Low compression ratio
3. Low engine speed
4. Rich air fuel mixture

Orsat apparatus

1. Gives flue gas analysis on dry basis
2. Determines N_2 in flue gas indirectly
3. Determines N_2 in flue gas directly
4. Gives flue gas analysis on dry basis and determines N_2 in flue gas indirectly

How is NO converted to NO_2 for analysis in Chemiluminescent analyser?

1. Treating sample gas with pressurized oxygen
2. Treating sample gas with ozone
3. Treating sample gas with oxygen at low pressure
4. Treating sample gas with water at high pressure

Dilution Tunnels is used for

1. Measuring particulate matter emission
2. Measuring NO_x
3. Measuring CO
4. Measuring CO_2

Hartridge smoke meter can measure

1. Black smoke
2. White smoke
3. Black smoke and white smoke
4. Blue white smoke

Oxides of nitrogen in the engine exhaust can be reduced by

1. Increase in Compression ratio
2. Exhaust gas recirculation
3. Use of 5 % rich mixture
4. Use of oxidation catalyst in intake manifold

Exhaust gas recirculation has disadvantage of

1. Decrease in thermal efficiency
2. Increase in HC emission
3. Both Decrease in thermal efficiency and Increase in HC emission
4. Increase in aldehydes

The three way catalytic convertor cannot control following emission

1. PM emission
2. HC emission
3. CO emission
4. NO_X emission

What is the acronym for DPF in exhaust emission system

1. Diesel pressure filter
2. Diesel primary filter
3. Diesel particulate filter
4. Diesel particulate filler