COMBUSTION:-

- A CHEMICAL PROCESS IN WHICH A SUBSTANCE REACTS WITH THE OXYGEN OF AIR TO GIVE HEAT & LIGHT IS CALLED COMBUSTION.
- OXYGEN IS NECESSARY FOR COMBUSTION TO TAKE PLACE.
- RESPIRATION IS A KIND OF SLOW COMBUSTION OF FOOD WHICH TAKES PLACE IN THE BODY TO PRODUCE ENERGY.
- RUSTING OF IRON IS AN EXAMPLE OF SLOW COMBUSTION.

COMBUSTIBLE SUBSTANCES:-

- THOSE SUBSTANCES WHICH CAN BURN ARE CALLED COMBUSTIBLE SUBSTANCES.
- EXAMPLES ARE PAPER, PETROL, KEROSENE, WOOD, COAL, COW DUNG CAKES, DIESEL, CHARCOAL ETC.

NON-COMBUSTIBLE SUBSTANCES:-

- THOSE SUBSTANCES WHICH DO NOT BURN ARE CALLED NON-COMBUSTIBLE SUBSTANCES.
- EXAMPLES ARE STONE,GLASS,CEMENT,BRICKS,SOIL,SAND,WATER,IRON NAILS,COPPER,ASBESTOS,ETC.,

CONDITIONS NECESSARY FOR COMBUSTION:-

- PRESENCE OF THE COMBUSTIBLE SUBSTANCES (A SUBSTANCE WHICH CAN BURN)
- PRESENCE OF A SUPPORTER OF OXYGEN (I.E. AIR)
- HEATING THE COMBUSTIBLE SUBSTANCES TO ITS IGNITION TEMPERATURE.

HOW DO WE CONTROL FIRE:-

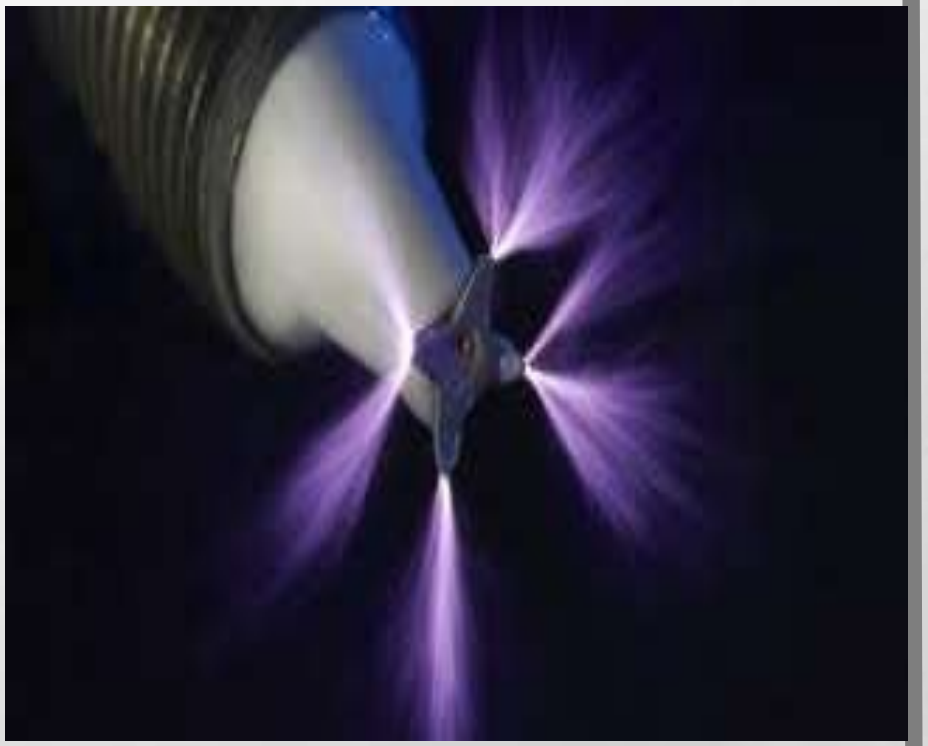
- BY REMOVING THE FUEL (COMBUSTIBLE SUBSTANCES)
- REMOVE THE HEAT
- CUT OF THE AIR SUPPLY

TYPES OF COMBUSTION:-

- THERE ARE 3 TYPES OF COMBUSTION:-
- RAPID COMBUSTION
- SPONTANEOUS COMBUSTION
- EXPLOSIVE COMBUSTION

RAPID COMBUSTION:-

- THE COMBUSTION REACTION IN WHICH A LARGE AMOUNT OF HEAT & LIGHT ARE PRODUCED IN A SHORT TIME IS CALLED RAPID COMBUSTION



SPONTANEOUS COMBUSTION:-

- THE COMBUSTION REACTION WHICH OCCURS ON ITS OWN (WITHOUT THE HELP OF ANY EXTERNAL HEAT) IS CALLED SPONTANEOUS COMBUSTION.

EXPLOSIVE COMBUSTION:-

- A VERY FAST COMBUSTION REACTION IN WHICH A LARGE AMOUNT OF HEAT, LIGHT & SOUND PRODUCED IS CALLED EXPLOSIVE COMBUSTION.

CALORIFIC VALUE OF FUELS:-

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Fuel	Unit	Higher heating value (kWh/unit)
Biomass	t	5,489
Coal	t	9,356
Diesel (#2 oil) - gal	gal	40.36
Diesel (#2 oil) - L	L	10.66
Electricity	MWh	1,000.00
Gasoline - gal	gal	35.43
Gasoline - L	L	9.36
Kerosene - gal	gal	38.49
Kerosene - L	L	10.17
Natural gas - 100 ft^3	100 ft^3	29.49
Natural gas - GJ	GJ	277.78
Natural gas - m^3	m^3	10.41
Natural gas - mmBtu	mmBtu	293.07
Oil (#6) - gal	gal	42.6
Oil (#6) - L	L	11.25
Propane - gal	gal	27.94
Propane - kg	kg	14.47
Propane - L	L	7.38

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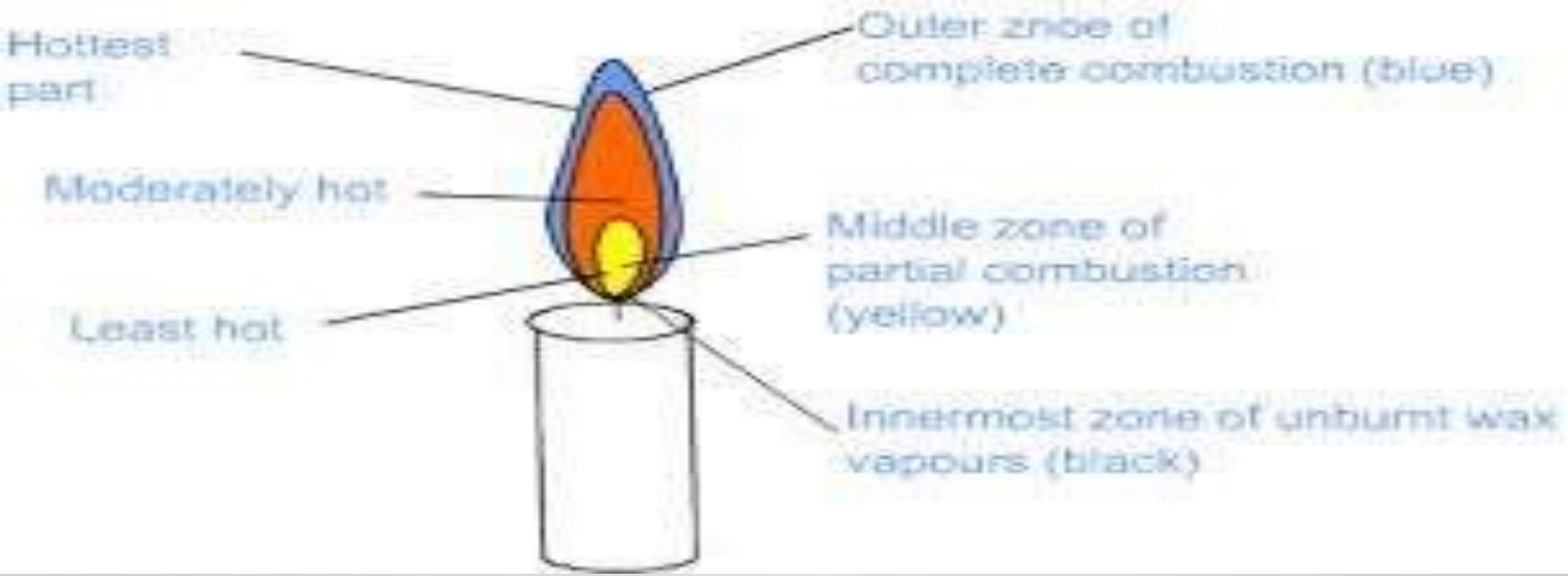
FLAME

- A FLAME IS A REGION WHERE COMBUSTION (OR BURNING) OF GASEOUS SUBSTANCES TAKES PLACE.
- SOME OF THE SUBSTANCES WHICH BURN BY PRODUCING FLAMES ARE;LPG,BIOGAS,WAX,CAMPHOR,MAGNESIUM,KEROSENE OIL AND MUSTARD OIL.

STRUCTURE OF A FLAME:-



BURNING OF FUEL LEADS TO HARMFUL PRODUCTS

- THE BURNING OF FUEL LIKE WOOD,COAL RELEASES UNBURNT CARBON PARTICLES IN THE AIR.
- INCOMPLETE COMBUSTION OF FUEL (DUE TO INSUFFICIENT AIR) PRODUCES A VERY POISONOUS GAS CALLED CARBON MONOXIDE.
- BURNING OF FUELS RELAESES CARBONDI OXIDE INTO AIR ENVIRONMENT.
- BURNING OF FUEL PRODUCES SULPHUR DI OXIDE GAS WHICH GOES INTO THE AIR.

CASE OF CNG:-

- THE USE OF PETROL & DIESEL AS FUELS IN AUTO-MOBILES IS BEING REPLACED BY CNG.
- THIS IS BECAUSE WHEN CNG BURNS IT PRODUCES VERY SMALL AMOUNT OF HARMFUL PRODUCTS.

CASE OF WOOD:-

- WOOD HAS BEEN USED AS A DOMESTIC & INDUSTRIAL FUEL FOR CENTURIES.
- SOME OF THE DIS ADVANTAGES OF WOOD ARE
- IT PRODUCES A LOT OF SMOKE
- IT INCREASES DEFORESTATION
- IT IS HARMFUL TO ENVIRONMENT