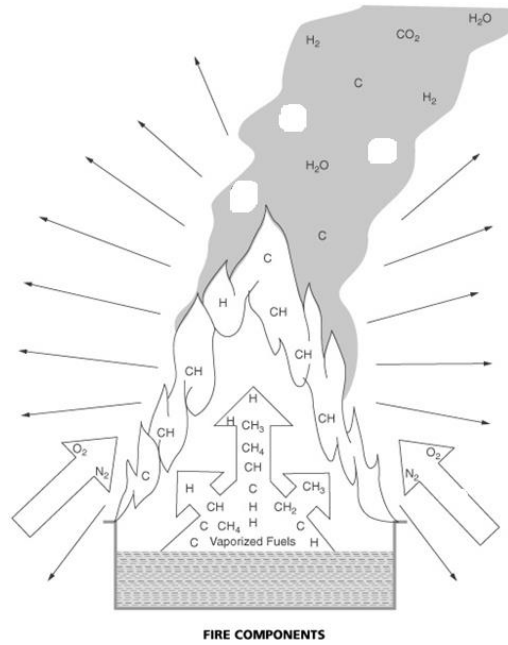


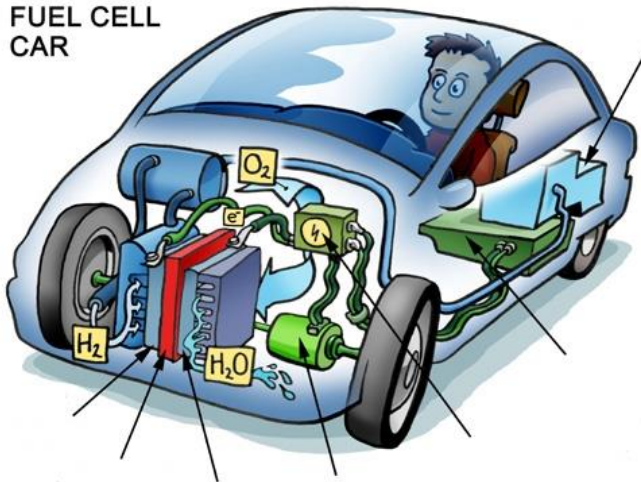
1. Find out?



Answer: Air,  $CO_2$ ,  $CO$ .

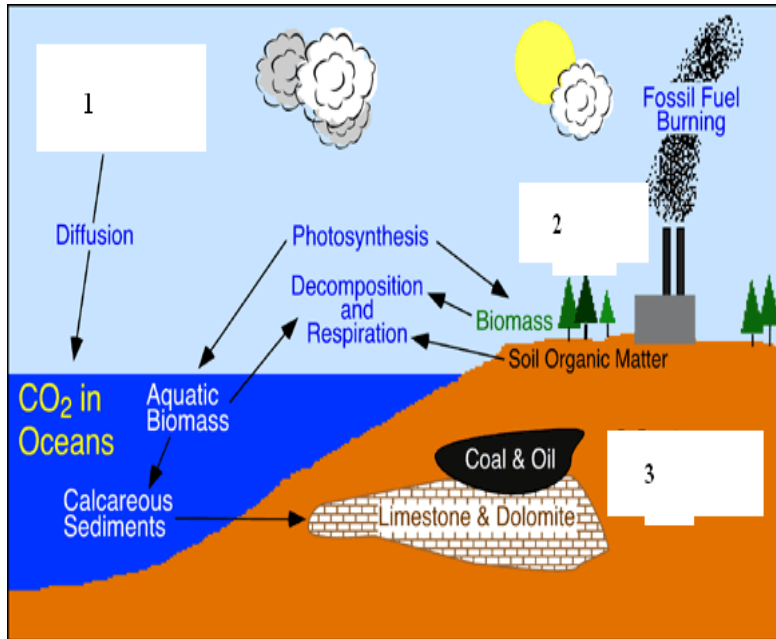
2.

FUEL CELL  
CAR



Answer: Anode, Membrane, Cathode, Electro engine, Power electronics, Batteries, Hydrogen tank.

3. Choose the correct answer



1 – a. CO<sub>2</sub> Lithosphere

2 – b. CO<sub>2</sub> Atmosphere

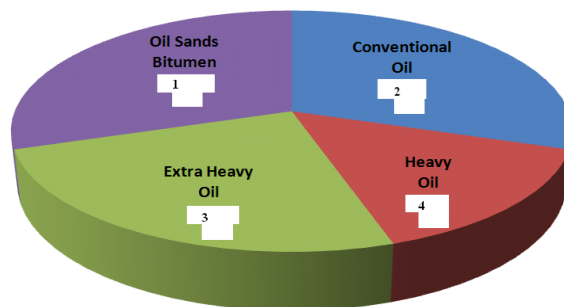
3 – c. CO<sub>2</sub> Biomass

Answer: 1-b, 2-c, 3-a.

4. Find out in order?

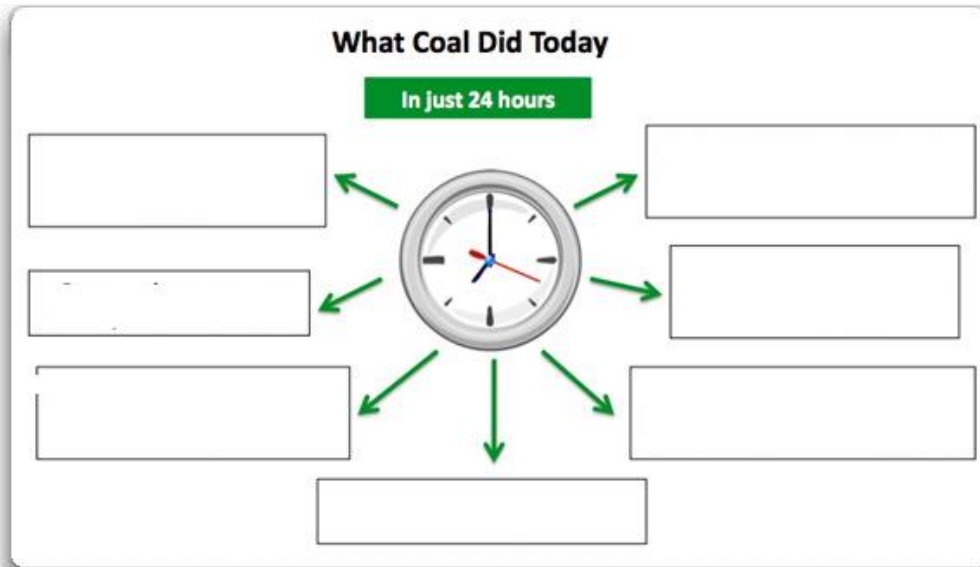
A) 30%, 15%, 25%, 30% B) 30%, 30%, 25%, 15% C) 15%, 25%, 30%, 30%

**Total World Oil Reserves**



Answer: B

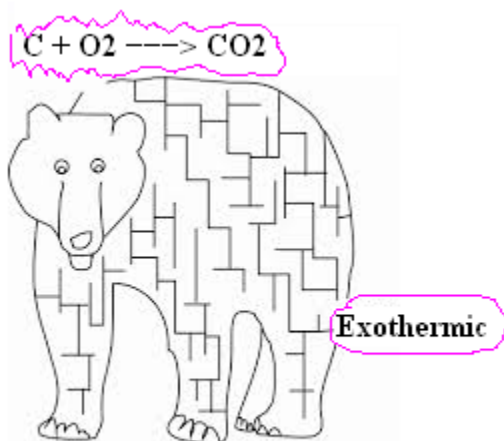
5.



**Answer:**

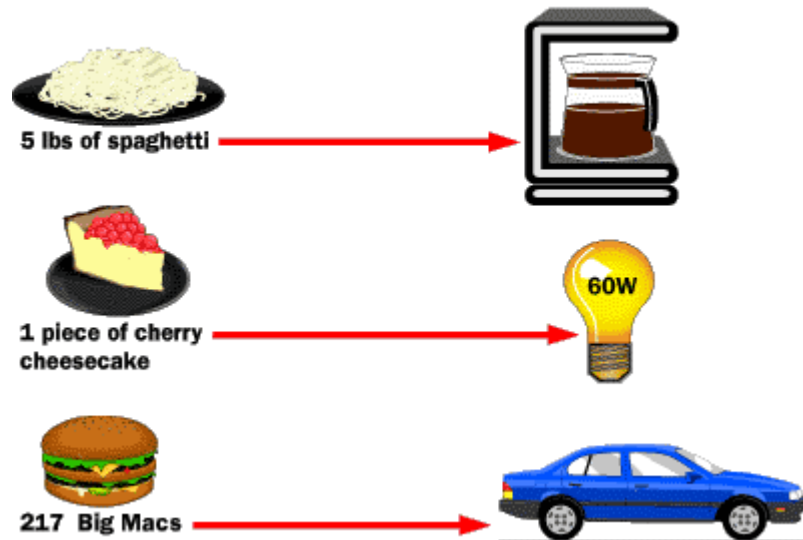
Provided over 40% of the power for over 300 billion e-mails	Produced 24 TWh of electricity—more than gas, wind, hydro and solar combined	Generated power equivalent to 1,350 nuclear power plants
Generated more power than 2,200 Hoover Dams	Enhanced energy security for dozens of nations across the globe	Provided more than half the electricity for 3 billion people— 10 times the population of the U.S
Enabled the production of 2.4 million metric tons of steel		

6. Find the way



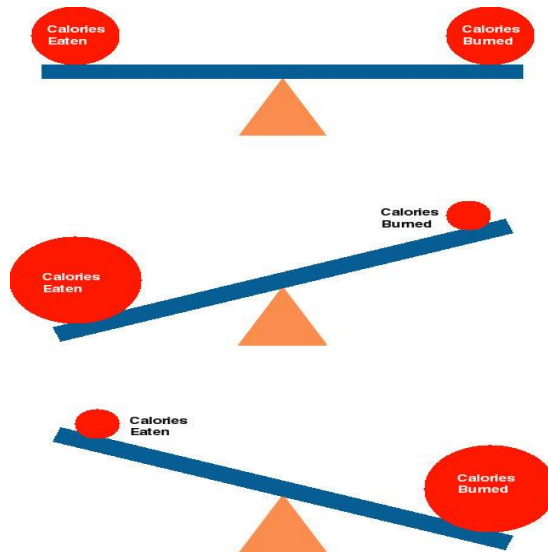
7.

**The Calories in these items could:**



Answer: Brew a pot of coffee, Light a bulb for 1.5 hours, Drive a car 88 miles.

8. Choose the correct



9. Weight gain, balance weight, weight loss, 2. Weight loss, balance weight, weight gain, 3. Balance weight, weight gain, weight loss

Answer : 3

10.

## Fuel

Q F M Q I G C L L Z B D R C V  
H K F G V J A S E V G E O G N  
K C P L G B R P U E Z M H A W  
H M J G Z Z B E F C B W I K V  
S A D L P M O Q P U O K J B M  
F Q H X W E N K S Q V E F E J  
I T Q A O U D T S L L U C K I  
N A B A M Y I E E P X N O K Z  
Z E J S D O O E I R O L A C T  
V N G O N F X M O K A F Z O M  
B F Z Y Z L I I V A Y K H B V  
D K A C X Y D G W W D G G U J  
X U W E P O E J J G W O G J O  
R O X T Q F R M L A T X R B Q  
R K Z V Q E X L R K L H W Y Z

CALORIE  
FUEL

CARBONDIOXIDE  
OXYGEN

COMBUSTION

11. Match the following

- |                                |                    |
|--------------------------------|--------------------|
| 1. potassium hydroxide –       | a. CO              |
| 2. alkaline pyrogallol –       | b. CO <sub>2</sub> |
| 3. ammoniacalcuprouschloride – | c. O <sub>2</sub>  |

Answer: 1. b, 2. C, 3. A

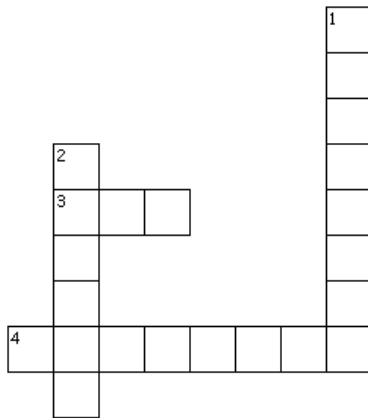
12. The calorific value of a fuel can be calculated if the percentages of the constituent elements are known

Substrate	Calorific value
?	8080
Hydrogen	?
?	2240

Answer: Carbon, 34500 and 2240

- 13.

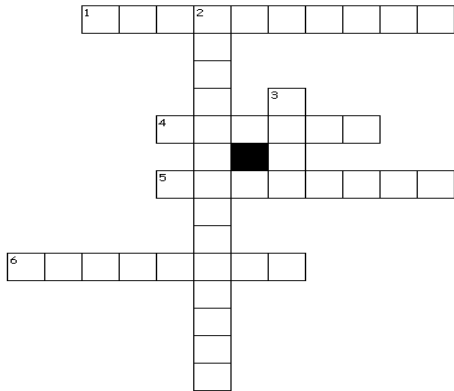
### Proximate Analysis



1. Moisture
2. Volatile
3. Ash
4. Carbon

14.

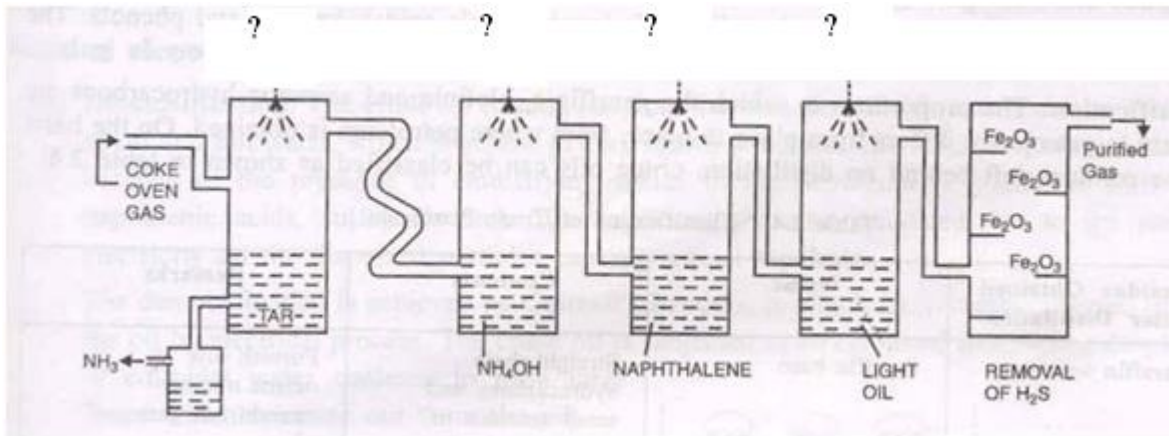
### Metallurgical coke



Answer:

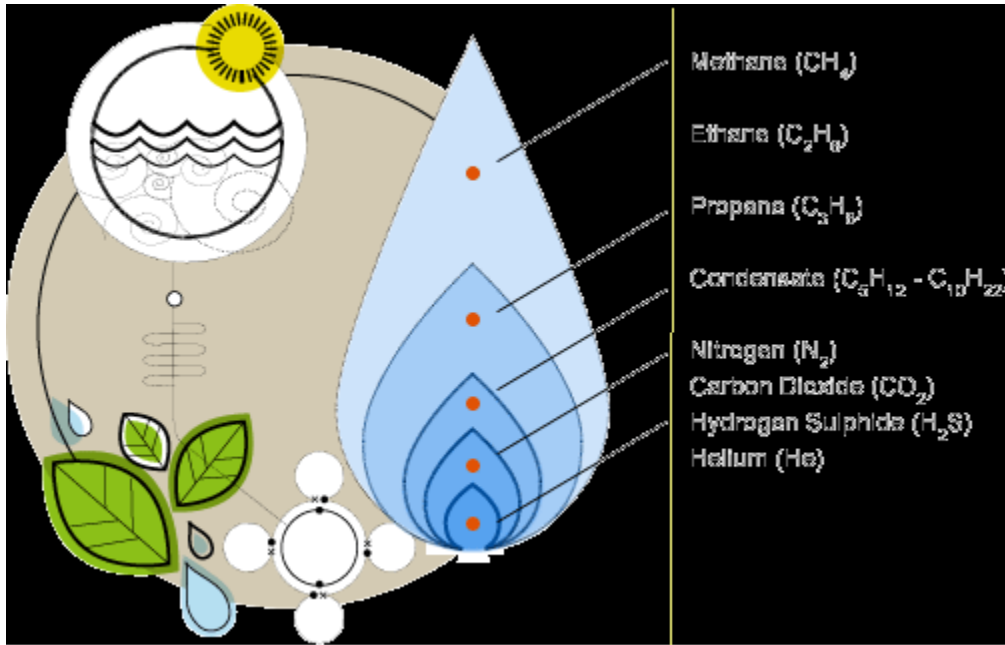
1. Porosity
2. Strength
3. Size
4. Combustibility
5. Reactivity

15.



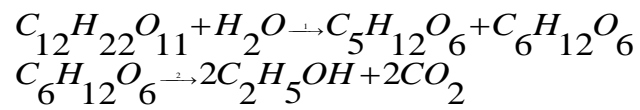
Answer: 1. Liquor Ammonia 2. Water 3. Water at low temperature 4. Wash oil

16. True or False



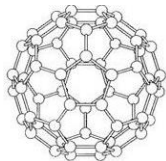
Answer : True

17. What are enzymes involved in Manufacture of Power Alcohol



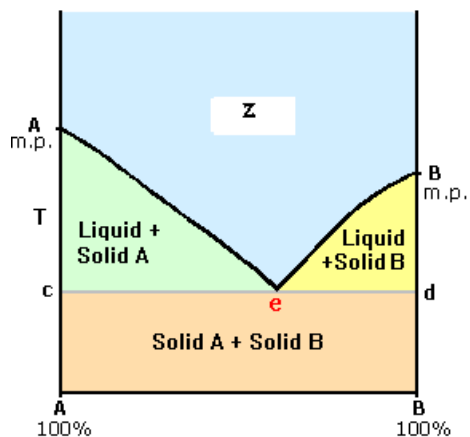
Answer : 1. Invertase , 2. Zymase

18. It is an allotropic form of carbon and a super conductor identify !!!!!

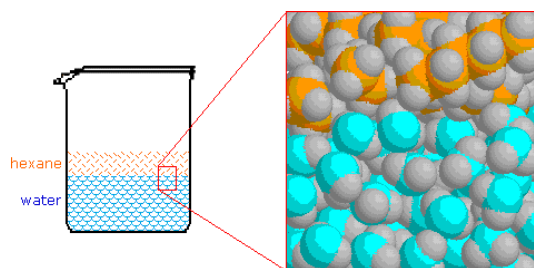


19. Locate the liquid phase and eutectic point in the phase diagram

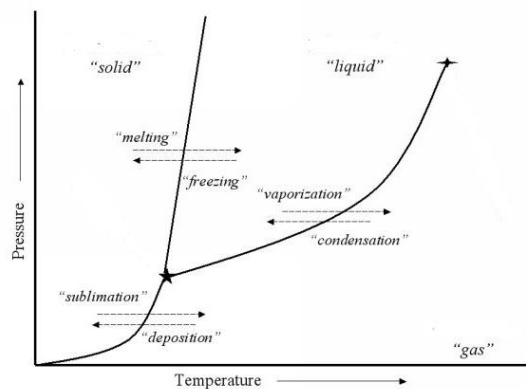




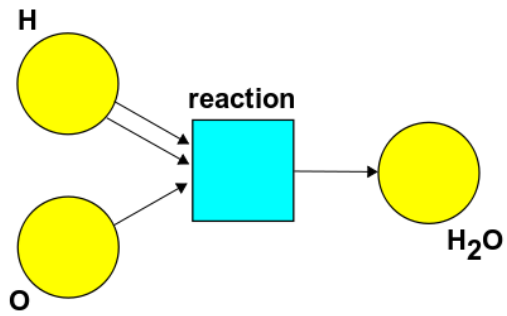
20. Find the polar solvent and identify the phase marked below.



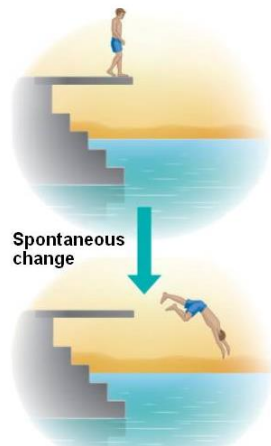
21. Locate the critical point, and triple point in the phase diagram.



22. Whether the reaction reversible or irreversible?



23. What happens to the free energy change when the diver jumps off the platform?



24. Name the polymers

used in making the following materials

1. PARACHUTE

2. COOKWARE



8. DISPOSABLE DIAPERS

4. TAKE OUT CONTAINERS



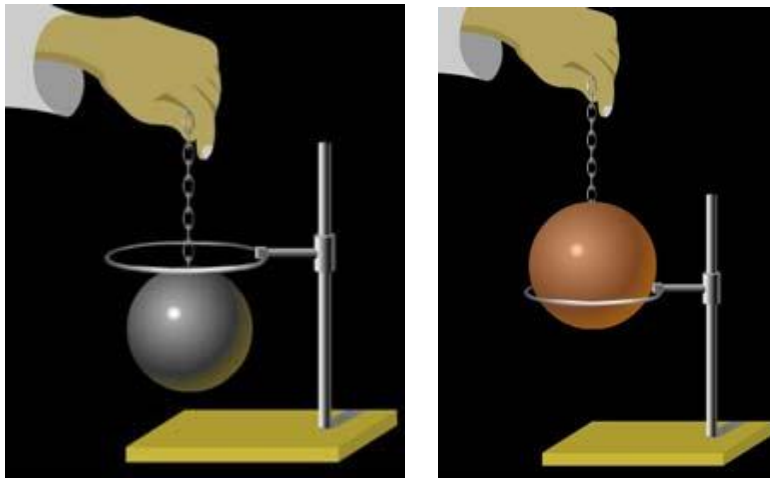
9.GLASSES



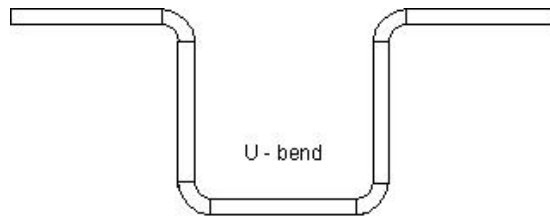
6.CREDIT CARDS



24. Why a ball when heated doesn't pass through the metal string.



25. Water and steam pipes often have a U-bend in them to allow \_\_\_\_\_



26. Identify RUL detector





27. The concrete cracking in the following figure is due to \_\_\_\_\_



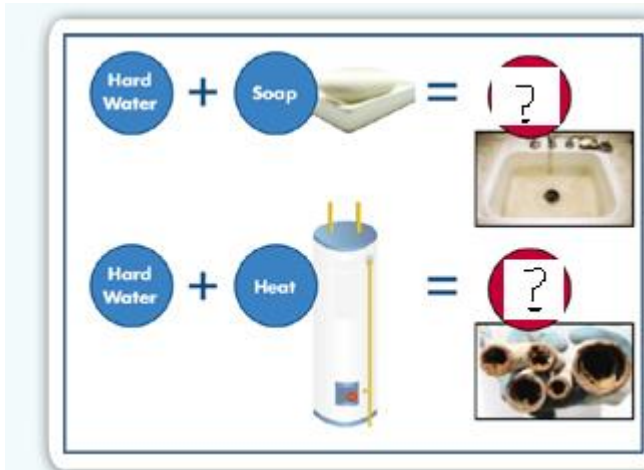
28.

$$\text{Porosity } (P) = \frac{?}{W - S}$$

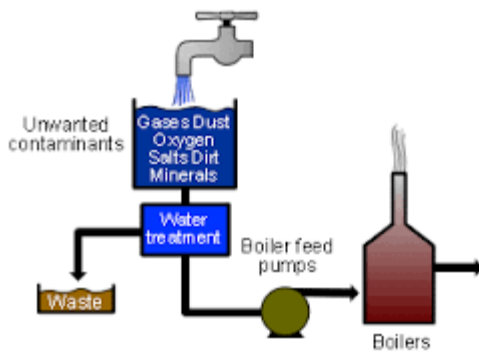
29. Name the following abrasive.



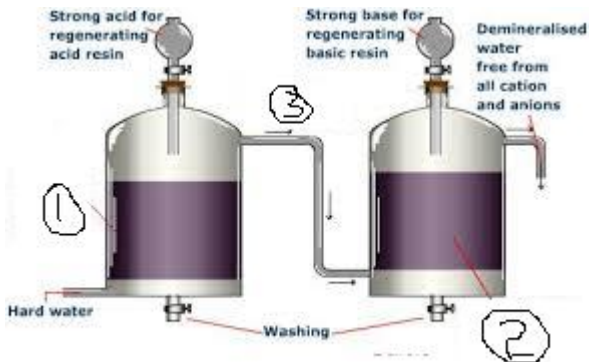
**30. Find out**



**31. Find out input and output**

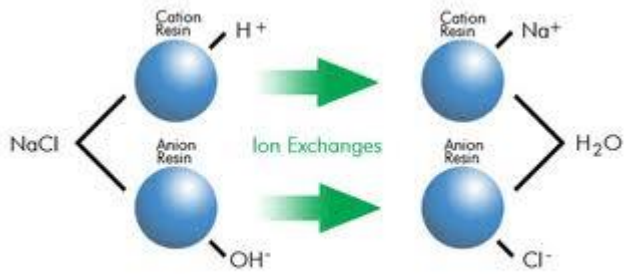


**32. Match the following**

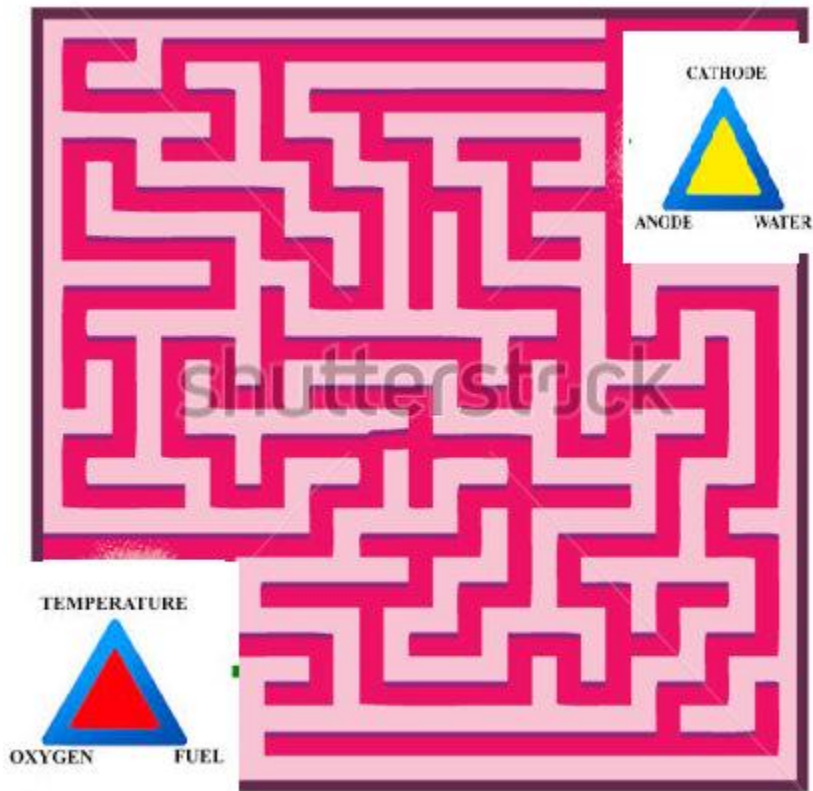


1. Water free from cations
2. Acid resin
3. Basic resin

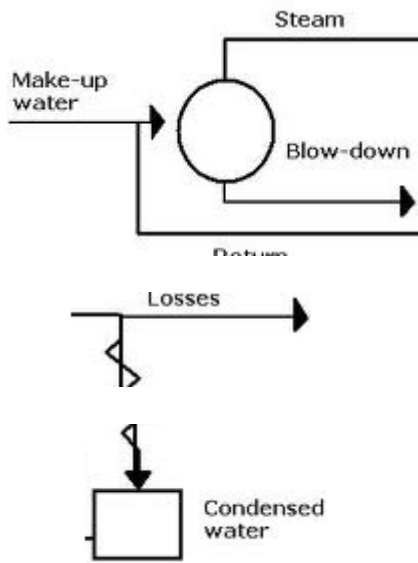
33. True or False



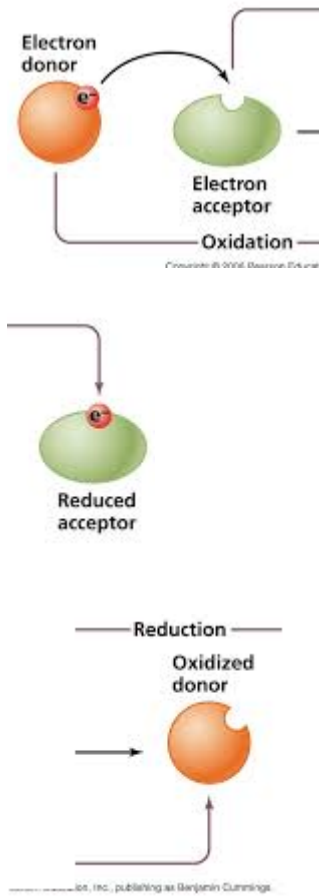
34. Find the way



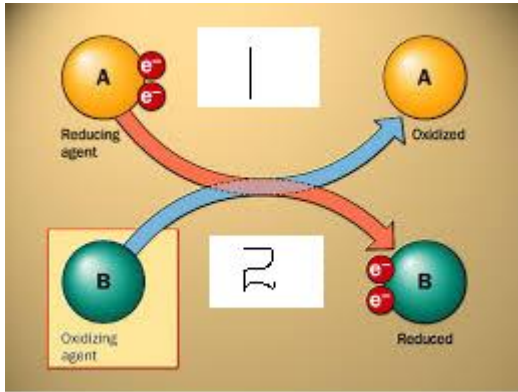
### 35. Match out



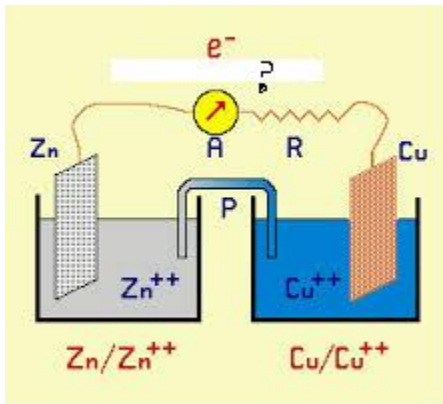
### 36. Arrange



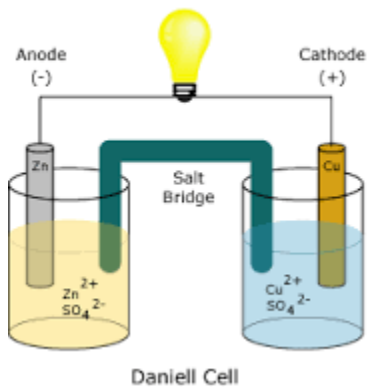
37. Find out loses of electron and gains electron



38. Draw the arrow mark for flow of electron



39. Bulb blow or not





#### 40. Word search

H H V S X D M S J S A X S T N Y Y L  
Y I I X I U O E T V C X F N S K O G  
X F J U I L L R M M I Y Q E J A Z C  
Z J Q N I U U E H Q D V K M M E E H  
X I A D C C E C E S A B O I S O M E  
L R U E T L S N N Y X Y H R A D R M  
U X L U E X G A C E X Q O E G W N I  
U O R M M E J T M R G Z W P Q V E S  
M E E N T O J S H O Y O S X H O N T  
U N E J I R G B D H T S R E H Z E J  
T N O B R A C U P Q M A T D K T R K  
O X Y G E N S S L X M C W A Y H G M  
D N U O P M O C S O D I U M L H Y R

ACID  
CARBON  
CRYSTAL  
EXPERIMENT  
LIQUID  
SODIUM  
SUBSTANCE

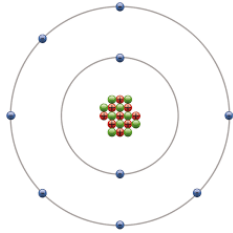
ATOM  
CHEMIST  
ELEMENT  
GAS  
MOLECULE  
SOLID  
URANIUM

BASE  
COMPOUND  
ENERGY  
HYDROGEN  
OXYGEN  
STRUCTURE

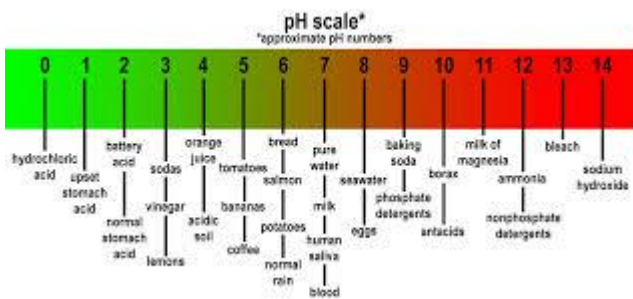
41. What is the first element on the periodic table?

Hydrogen <b>H</b> 1.00794	Helium <b>He</b> 4.002602	Lithium <b>Li</b> 6.941
---------------------------------	---------------------------------	-------------------------------

42. What is the centre of an atom called?



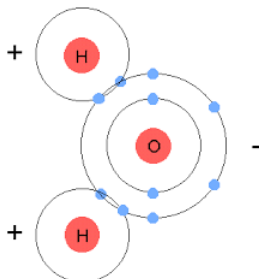
43. True or false? Acids have a pH level below 7.



44. What is the main gas found in the air we breathe?



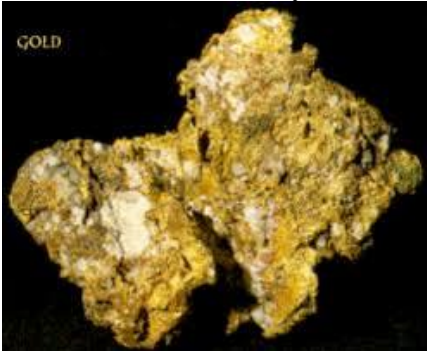
45. True or false? An electron carries a positive charge.



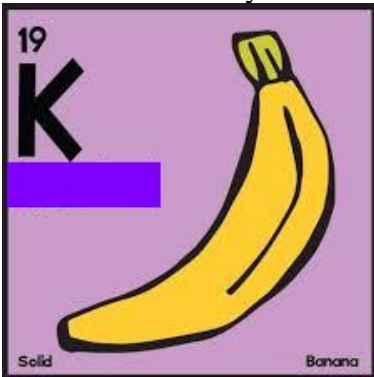
46. Famous New Zealand scientist Ernest Rutherford was awarded a Nobel Prize in which field?



47. What is the chemical symbol for gold?



48. K is the chemical symbol for which element?



49. What is it?



50. At room temperature, what is the only metal that is in liquid form?
51. True or false? A neutron has no net electric charge.
52. A nuclear reaction where the nucleus of an atom splits into smaller parts is known as nuclear fission or nuclear fusion?
53. What is H<sub>2</sub>O more commonly known as?



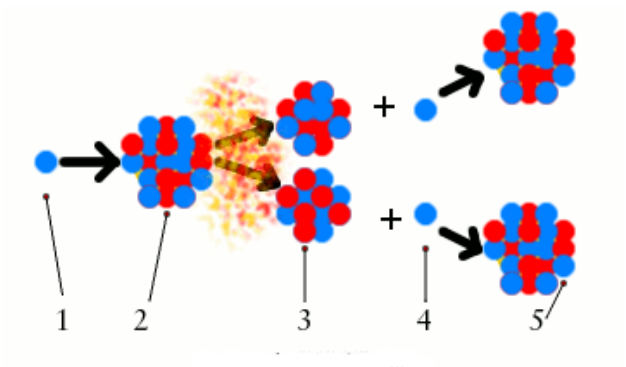
54. What is the third most common gas found in the air we breathe?



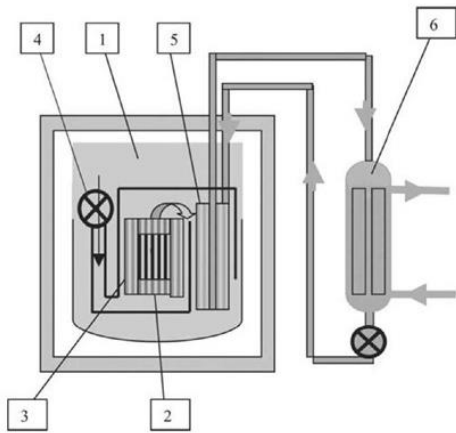
55. What is the name given to substances that are initially involved in a chemical reaction?
56. True or false? Bases have a pH level below 7.
57. Is sodium hydroxide (NaOH) an acid or base?
58. Atoms of the same chemical element that have different atomic mass are known as?
59. True or false? A proton carries a positive charge.
60. What is the fourth most abundant element in the universe in terms of mass?

41. Hydrogen	42. A nucleus	43. True	44. Nitrogen (around 78%)
45. False	46. Chemistry	47. Au	48. Potassium
49. Corrosion	50. Mercury	51. True	52. Nuclear fission
53. Water	54. Argon (around 1%)	55. Reactants	56. False
57. Base	58. Isotopes	59. True	60. Carbon

61. Find out



62. Find out



63. Name the label

<p>1</p>	<p>2</p>
<p>3</p>	<p>4</p>
<p>5</p>	<p>6</p>