DATE: __/__/____

Part II

Section - I

Q#2

(a)

Lipids

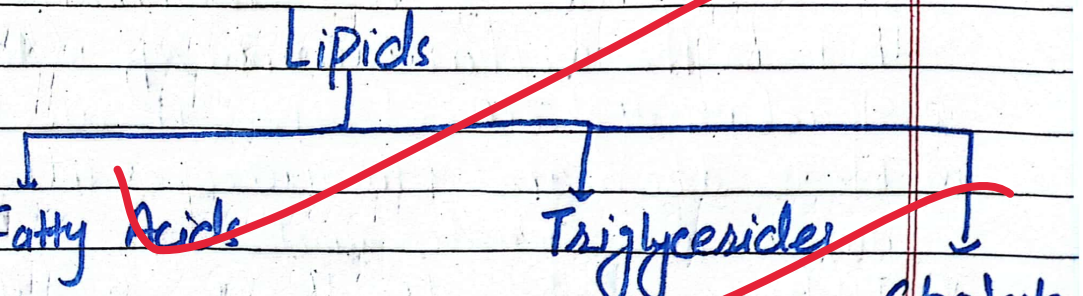
1) **Definition:**

"The macro biological molecules that are made up of glycerides and phosphate groups are called of lipids."

These are the organic compound that are present in the body and play important role in body.

2) **Types:**

Lipids are composed of or divided into following types.



i) FAtty Acid
ii) Triglycerides
iii) Cholesterol.

DATE: __/__/____

a) **Fatty Acids:**

These are further divided into following.

i) **Saturated Fatty Acid:**

The fatty acids / lipids that are solid at room temperature.

ii) **Unsaturated Fatty Acids:**

The fatty Acids that are liquid at room temperature.

b) **Triglycerides:**

The lipids that three glycerides are called triglycerides. These function is similar to that of lipids.

c) **Cholesterol:**

Cholesterol is wrongly termed as "bad fat". It is a kind of lipid that is not good for health and causes many problems in human body.

3) **Function of lipids:**

i) It provides energy to the body.
ii) It is a part of cell membrane that helps in maintenance of the
iii) structure of cell.
iv) It is the energy source for the non-human entities.
v) It helps in the strengthening of the immune system.
vi) It helps in the insulation of

DATE: __/__/____

the body.

vii) It is important for some body parts like hairs and nails to grow properly.

viii) It is important for normal brain functioning as it provides energy to brain.

viii) It is also a part of nerve cell / neuron that makes it to transmit it message swiftly.

(b)

Energy Conservation.

1) **Definition:**

"The process of saving and conserving energy for the future is called energy conservation."

2) **Reasons of energy conservations.**

In the world all the entities are limited. Their value is limited and if these things are consumed freely they would deplete. It includes all the non-renewable energy sources and other things.

3) **Measure for energy conservation.**

i) Use of renewable energy sources.

If renewable energy sources are utilized (i.e) Solar energy, wind energy and hydro energy, then it

DATE : __/__/____

will help in saving the energy.

ii) Normal bulbs replaced with filament lightning bulbs.

The normal bulbs are not energy efficient while filament bulbs are energy efficient and produce 5% of energy conservation. Besides, it saves 2000 pounds per year.

iii) Shift of transport:

The mode of transportation should be shift. It should be shift either to cycling, public transport or e-transport. It will conserve energy.

iv) Energy efficient gadgets:

If energy efficient gadgets are consumed not only in crockery but also in other electric devices it will save 1.5-2% energy annually.

v) Shift in housing structures.

If the houses are constructed in the vertical manner instead of expanded landscape, it will help to make other recreational areas like: ponds, gardens, green lands etc.

vi) Change in behaviour Patterns:

The most important aspect is

DATE: __/__/____

the change in the behavious patterns of people. It is individual's responsibility to conserve energy and utilize it wisely instead of ruining it.

vii) Government Reforms:

The government should change its patterns and laws should be implemented to make it possible

4) Sustainable use:

i) The renewable energy is sustainable. It cannot be depleted. So, it will help in energy conservation.

ii) The energy efficient gadget usage will ease both people and the environment.

iii) E-transport is utilized in all countries from West to East (i.e) EU, China, India. Pakistan utilizes E-buses in Islamabad and now in Rawalpindi as well.

iv) Change in housing structure and people's living patterns will help more in energy conservation.

v) If strict laws are implemented it will help to save the energy.

C Hydrogen Bonding

DATE: __/__/____

1) Definition:

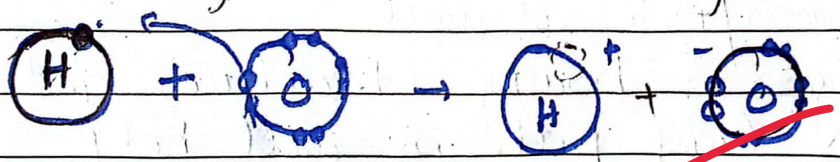
"The bond that is formed between hydrogen which is electropositive element with electronegative elements like O_2, N_2 etc is called hydrogen bond."

2) Explanation:

Hydrogen is an electron positive atom that contains one electron in the outermost shell. It has a capacity to loose its electron easily while the other element that will make bond with it will accept hydrogen bond's atom. The reason is that, both want to have a noble gases configuration/ stability.

3) Example:

Hydrogen being electropositive, readily loses its electron while Oxygen as electronegative will readily accept

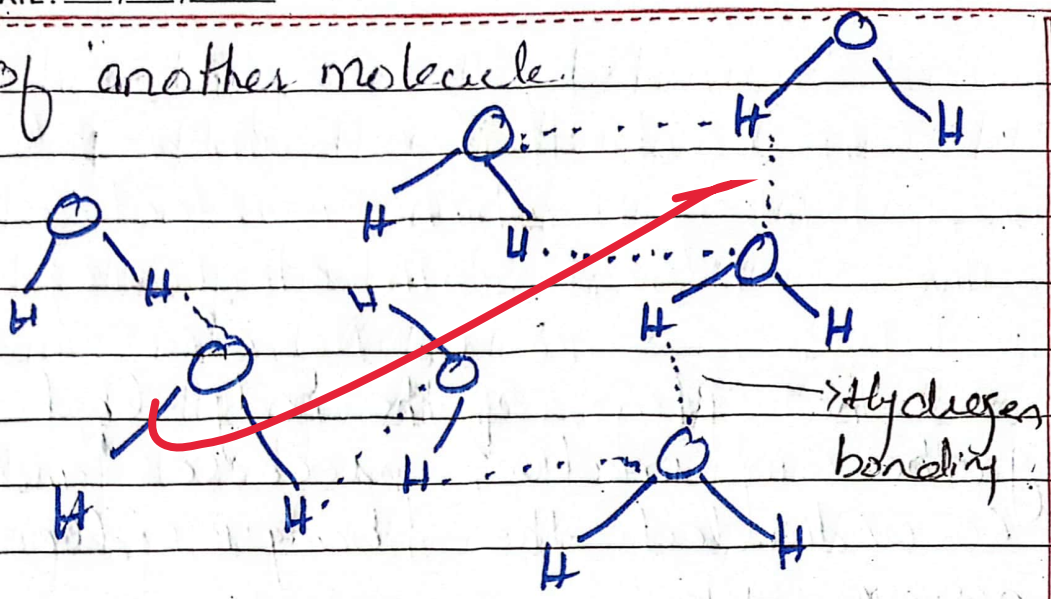


4) Structures of hydrogen bonding.

When the water molecules are formed. One hydrogen of one water molecule forms bond with another water molecule. In this way hydrogen atom of one molecule forms bond with another oxygen

DATE: __/__/____

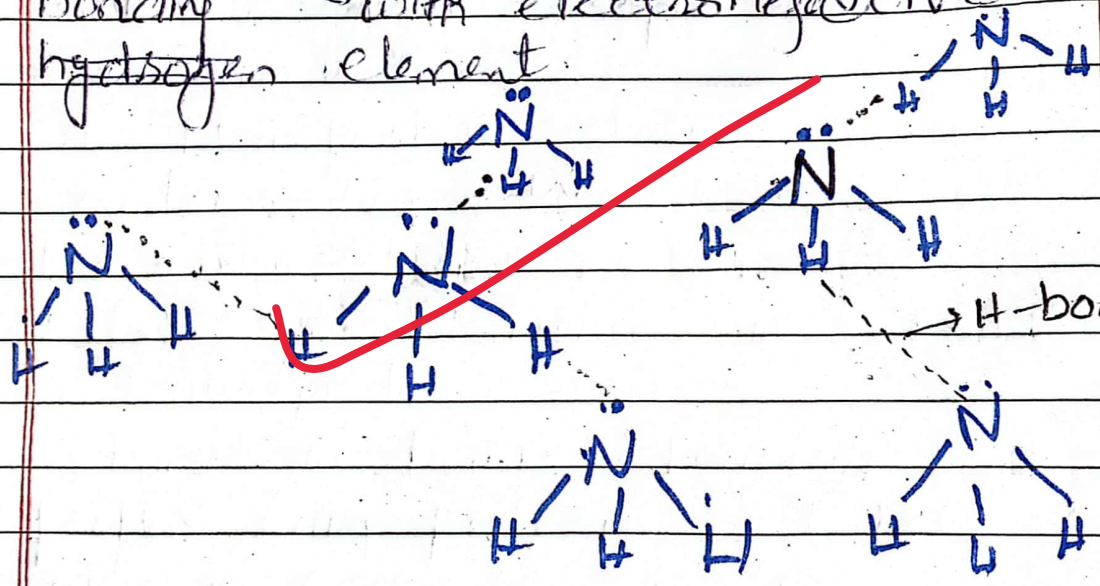
of another molecule.



In this way multiple hydrogen bonds formed between them and utilized hydrogen bonding.

4) **Example 2:**

Hydrogen forms hydrogen bonding with electronegative hydrogen element.



5) **Function:**

i) It maintains the structure of water

ii) The ice floats on water due to hydrogen bonding

It forms compounds like NH_3.

DATE : __/__/____

d

Nervous System of human body.

1) Definition:

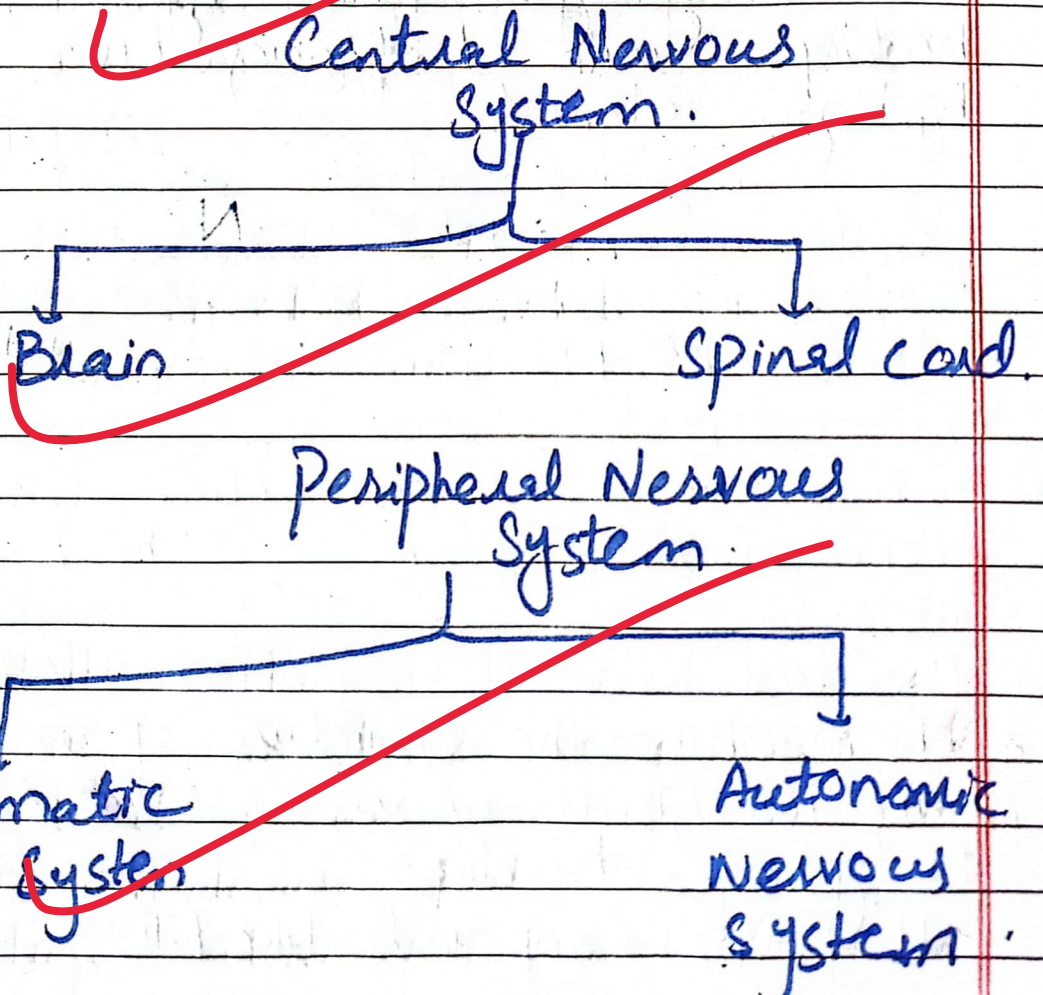
"The system of the body that gathers information, processes it and co-ordinated the body is called nervous system."

2) Structure:

Consists of the following.

i) Central Nervous system.

ii) Peripheral Nervous system.



DATE: __/__/____

1) Brain:

It is covered with ~~cerebrospi~~ meninges: triple layer to protect it along with skull. It is divided into:

i) Fore brain:

Further consists of:

a) Cerebrum / Cerebral cortex:

It does planning, reasoning, logic; visual in of auditory impulses. It further consists of

i) Frontal lobe cortex:

It does reasoning, logic and planning

ii) Parietal cortex:

Involves in movement and behavior

iii) Occipital cortex:

Involves in visual signals.

Temporal cortex:

Works on auditory senses.

b) Thalamus:

It does reasoning and planning

c) Hypothalamus:

It controls thirst, hunger, fear

d) Amygdala:

It controls fear, anxiety, tension, Sexual arousal.

Cerebral Cortex

Left hemisphere

Involves in logic

Right hemisphere.

Involves in reasoning

DATE: __/__/____

ii) **Mid brain:**

Acts as a bridge between fore-brain and hind brain as transfers messages.

iii) **Hind brain:**

Consists of

a) Cerebellum: Helps in movement, posture and co-ordination.

b) Pons:

Gets signals and stores them and transfers of for their task.

c) Hippocampus:

Sends signals to body, motor neurons.

2) Spinal cord.

"It starts out the base of brain and extends to the bottom that is involved in movement of the body."

1) **Parts:**

It Consists of cerebrospinal fluid acts as a cushion against the walls, and vertebral column.

2) **Function:**

i) Transfers information from brain to other parts.

ii) Helps in movements and proper co-ordination of all parts of body.

iii) Generates reflex action.

DATE : ___/___/_____

Peripheral Nervous system.

Somatic Neway System

Body's co-ordination, normal functioning.

Autonomic Nervous System.

Sympathetic Nervous System

→ Fight / flight mode
→ Dilates pupils, increase heart rate and reduced digestion

Parasympathetic N. System

Contract Pupil, relaxes body

Explain complex concepts in simple terms.
Use real-life examples.
Include diagrams and flowcharts for competitive edge.
Discuss practical applications of scientific concepts.
Work on paper presentation

Q # 5

(a) Eukaryotic and Prokaryotic cell.

CamScanner

DATE: __/__/____

1) Cell structure:

i) Eukaryotic cell.

The eukaryotic cell structure is organized and composed of membranes (i.e) cell wall / cell membrane.

ii) Prokaryotic cell.

The prokaryotic cell structure is not organized or double membrane.

2) Nucleus:

i) Eukaryotic cell.

The eukaryotic cell has organized cell nucleus that is membrane bounded and contain information.

2) Prokaryotic cell

They contain nucleus but not organized and not clear. May be scattered in cytoplasm.

3) Replication.

1) Eukaryotic cell.

The eukaryotic cells replicate by a process called mitosis.

2) Prokaryotic cell

They don't replicate but through diffusion or other process give a copy of itself.

4) Organelles:

1) Eukaryotic cell.

All the organelles are membrane bounded and work properly.

DATE: __/__/____

ii) Prokaryotic cell.

No membrane bound organelles and few structures scattered in cytoplasm.

5) Division of labour:

i) Eukaryotic cell: All the organelles are given a different work that is just performed by that (i.e) Mitochondria: to produce ATP.

ii) Prokaryotic cell

No proper organelles and no division of labour.

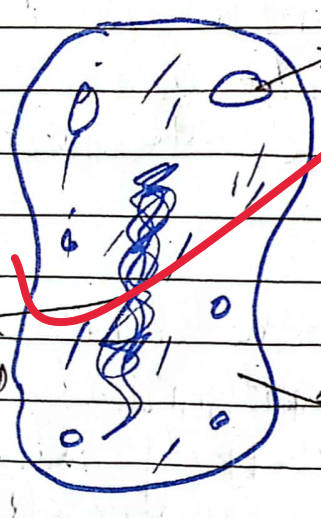
6) Examples.

1) Eukaryotic cell.

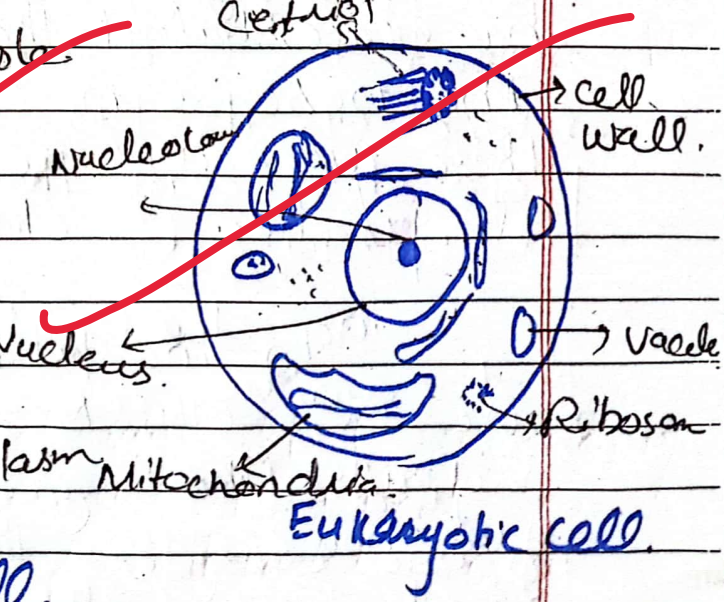
Plant cells and Animal cells.

2) Prokaryotic cell.

Bacterial cell or Amoeba cell



Prokaryotic cell.



Eukaryotic cell.

(b)

DATE: __/__/____

Global Warming

1) Definition:

"Increase in an overall temperature of the Earth that has caused a great negative impact on earth is called global warming"

2) Reason:

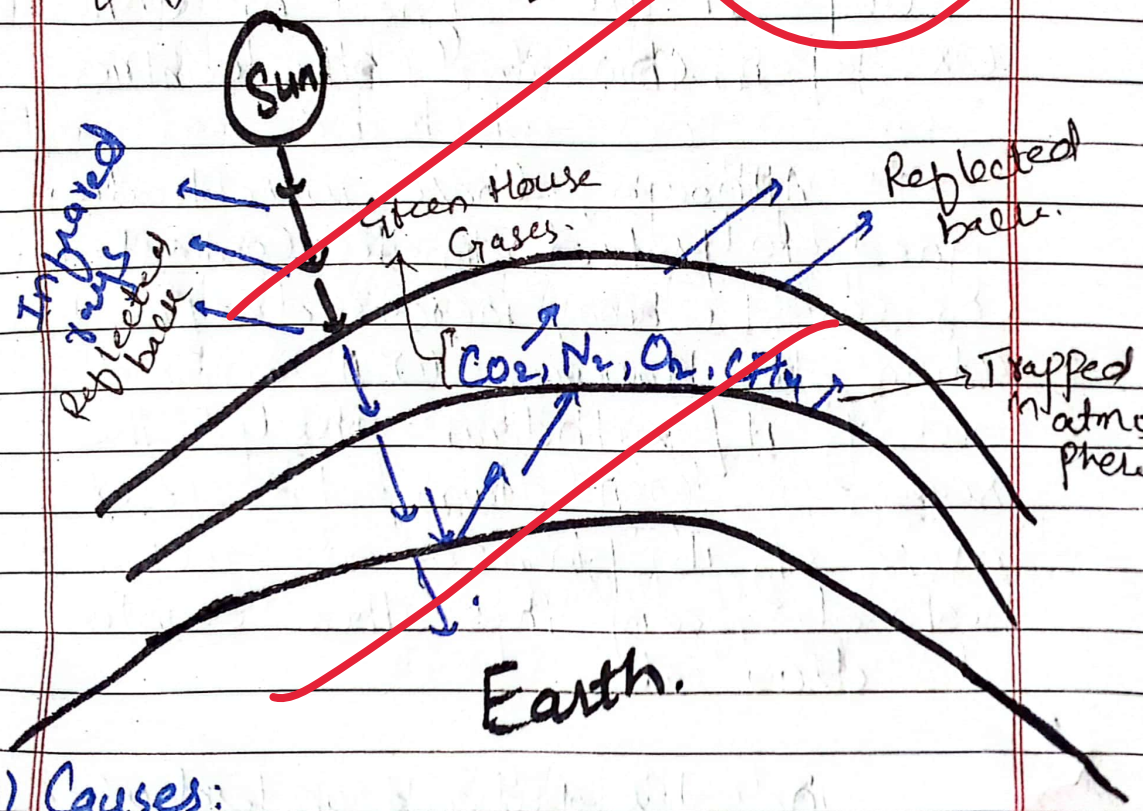
In the atmosphere there are few gases which are called Green House Gases: CO_2, CH_4, N_2, O_2, Water vapours. The concentration of these gases are increased over the period of time because of human activities. It has exacerbated the climate situation. The increase in concentration of these gases has increased the overall temperature of climate.

3) Green House Effect:

In the atmosphere there are CO_2, CH_4, N_2, O_2 and water vapours. These gases are called green house gases. These gases are important for the natural survival of the human beings and crops. These gases help trap the energy that is mandatory for the sustainability

DATE: __/__/____

of humans. **Increase Green House effect:** When the concentration of these gases increased over the period of time beyond limit. It has increased the Green House Effect. The Sun rays come from the sun is trapped and does not allow to go back. It resulted in increase of green house effect.



4) **Causes:**

The infrared rays that are coming out of the sun are trapped in the increased green house gases that increases the temperature of the Earth. The main reason is / cause is CFCs that is moved out from AC, refrigerators. Then transport and

DATE: __/__/____

all other also cause the same.

ii) Kyoto Protocol.

1) "The Protocol that was designed to control the increased global warming and exacerbated Climate Changes."

2) **Explanation:**

It occoursed in a city of Japan in the end of ~~20th~~ 20th century. It was signed by USA, UK, Japan, China and other countries

3) **Impacts:**

Although, these were treaties signed to protect Climate, Control Co_2 concentration, increased forestation etc. However, USA moved out of it/ withdraw itself. The reason is USA claims to spend more of its finances on such protocol. Seeing this other countries also drew out.

4) **Reason:**

The developed and undeskeveloped countries are more focused on industries and progress but no one considers Climate and environmental threats as real issues.

(D) Antioxidants.

DATE: __/__/____

1) Definition:

"The elements that are used to stop the oxidation of the compounds are called antioxidants."

2) Functions:

In the food preservation and pestilizess antioxidants are used. These are chemicals that avoid oxidation of elements.

3) How oxidation occous:

Sometimes the chemical elements and organisms they react with the chemical properties of the organisms/entities. The oxygen of one compound is removed. Then this oxygen less element interacts with another to form/removes another oxygen. In this way the cycle works. It will disturb the whole structure of a compound and it will end the/ deteriorate that edible or any other thing.

3) Role of antioxidants:

These are the compounds that are added in to the edible food or other items. These stop pathogens and other elements to interact with elements/

DATE : __/__/____

or chemical composition of that element. It denatures the structure of pathogens by deoxygenation / oxidation and make them imperfect to react.

Q#7 (a)

1) **I.Q:** I.Q stands for the intelligent quotient. It is a quantity that tells about the intelligence of a person. It varies from person to person and tells about the intelligence.

i) **Measuring of I.Q:**

It is for people of various group. A specific I.Q is set for children with Age 1 – 5, 5 – 10, 10 – 15. Similarly, for the people of older ages it is set. 15 – 25, 20 – 35. A person's age is observed and then his I-Q is checked according to the I-Q standard whether he falls into it or not.

2) **E.Q:**

DATE: __/__/____

It stands for emotional quotient. It tells about the emotional maturation of a person.

ii) **Measurement of E.Q:**

Like I.Q; E.Q tells about the emotional maturation. It tells after setting the emotions of a person in a standard. For instance: A standard is set for child's emotional quotient and then adult and then older people's emotional quotient. It will help them in understanding emotions, their growth and maturation.

Q # 7 (C)

1) Soln:

Peter mow lawn in 40 minutes.
John mow lawn in 60 minutes.
How long?

If they work together they can mow lawn in 60 minutes.

Reason:

Peter does it in 40 minute while John does in 60; so together they will take 60 minutes.