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**(Q)A**

**Ans:** as we know that a normal body temperature id 37⁰c and ice is 0⁰c.energy always move from higher potential to low potential, when we applied ice on body the body temperature moves towards ice and they become melt.

If we convert the ice into water it consumes 491j energy.

If we apply cold water on body it consumes 115j energy.

**(b)** there are two types receptors involve to conduct fibers cold and warm receptor, the cold receptor have large diameter and warm receptor have short diameter.

So cold receptor compressed the warm receptor and slows down its conduction.

**(c)** Because it cause vasoconstriction and increase the BP.

**(d)** Uses of ice cube massage:

* Reduce inflammation
* Reduce redness
* Reduce puffiness
* Improve circulation
* Reduce pain
* Reduce acnes
* Reduce oiliness.

**Q2 :( a)**

Pain receptor have small diameter and cold receptor have large diameter, when we apply cold it compress the pain receptor and reduce the pain.

**(b)**

When we apply ice therapy it slow down the nerve conduction which reduce the signals which are going towards the anterior horn which reduce the nerve firing and finally decrease the muscle tone and reduce the spasticity.

**Q3 :( a) Non- luminous generator:** simple type of element for producing infra-red rays consist of a coil of wire on a cylinder of some insulating material such as the fireclay.

When an electric current is passed through the wire and produces heat.

Infra-red rays are emitted from the hot wire and from the fireclay which is heated by conduction

Non-luminous elements require some time to heat up before the emission reaches maximum intensity.

Lamps must therefore be switched on an appropriate time before they are required.

**Luminous generator:**

The rays emitted from the luminous generators are produced by one or more incandescent lamp.

The passage of an electric current through the filament produces heat; infra-red visible and a few ultra-violet rays are emitted.

**(b)**

Yes because it produce deep effects.

Infra-red therapy improves the blood circulation and provides nutrients to the cell and enabling them to perform its function properly and can also stimulate the repair and regeneration process of tissue and reducing the pain and process of inflammation

<https://www.news-medical.net/health/How-Does-Infrared-Therapy-Work.aspx>

infra-red provides warning effects in the for of pain.

On the other hand ultra-violet produce superficial effects.

<http://www.ishn.com/articles/94815-dangers-of-overexposure-to-ultraniolet-infrared-and-high-energy-visible-light>