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1 Syllabus

1.1 Physics

1.1.1 Motion in one dimension

1.1.2 Laws of motion

1.1.3 Gravitation

1.1.4 Heat

1. Definition of temperature

- *Degree of hottness or coldness of an object.*
- *Average total kinetic energy in an object*

- *It determines the direction of flow of heat*

Unit - K, $0^{\circ}\text{C} = 273\text{k}$

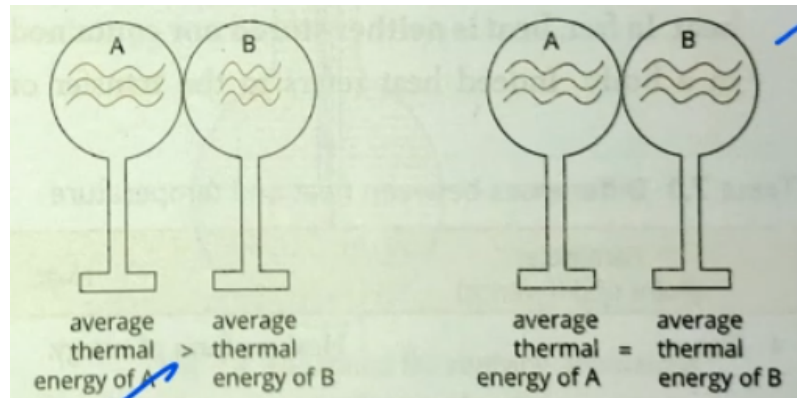
2. Definition of Heat

- Sum total energy of all the molecules in a substance

AKA: **Thermal Energy, Heat Energy**

Unit - Joule, Watt-Hour, cal $1 \text{ cal} = 4.186 \text{ Joule}$

3. Thermal equilibrium

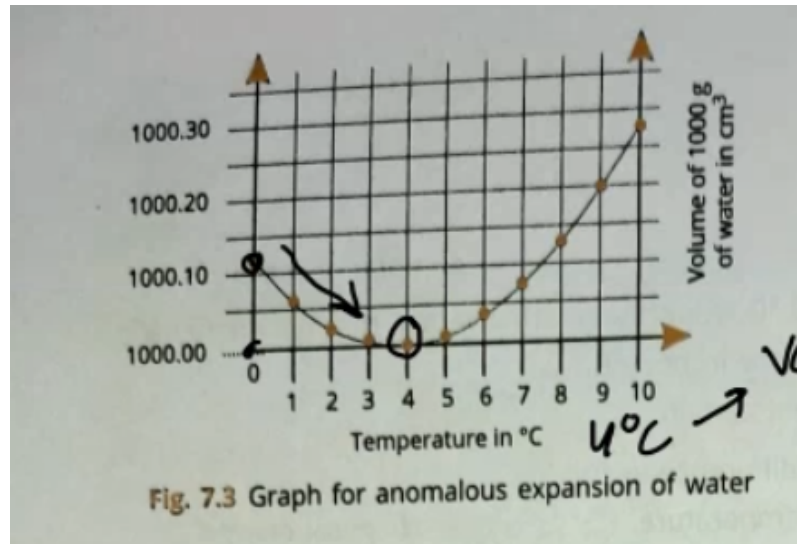


- The condition when objects in contact with each other do not further exchange heat is called *Thermal Equilibrium*

4. Difference between heat and temperature

No.	Heat	Temperature
1.	Heat is a form of energy	Temperature is a degree of hotness or coldness
2.	Heat is the cause of temperature	Temperature is an effect of heat
3.	-	Temperature determines the direction of heat.
4.	Unit - joule	Unit - kelvin

5. Anomalous Expansion of Water



- The expansion of water when it is cooled below 4°C

The Density of water is minimum at the temperature of 4°C at 1 gm/cc . Which is the standard density of water given in most places.

(a) Practical Applications

- Survival of Aquatic Creatures In Northern climates lakes would fully freeze over, rather than just the surface because the surface would be the last to freeze anyway, but because at 4°C the water sinks. Meaning at 4°C The lake would be uniformly heated.
- Water Pipes burst The expansion of water causes the pipes to burst
- Fruits Burst The water present in each of the cells expand causing great pressure
- Frost bite Similarly, for humans

(b) **TODO** Q1 Q7

1.1.5 Energy

1.1.6 Reflection of light

- The nature of light

- Light is a form of energy.
- Wave nature, particular nature, transverse

wave (transverse - perpendicular), (longitudinal is along the length).

- (a) **TODO** Speed of light 3×10^8 m/s (by definition, exact. 299,792,458)
) In air, same as vacuum, in glass 2, and in water 2.25

2. Reflection of light

- /Reflection is the phenomenon in which rays of light on striking a

surface are sent back into the same medium/

3. Definitions of Some terms

(a) Points

- Point of incidence Point where the ray strikes the mirror
- Point of reflection Point from which the ray emerges

(b) Rays

- Incident ray The ray that strikes the mirror's reflecting surface
- Reflected ray The ray that emerges from the mirror
- Normal A line drawn perpendicular to the mirror at the point of incidence

(c) Angles

- Angle of incidence Angle between the incident ray and normal
- Angle of reflection Angle between the reflected ray and normal
- Glance angle of incidence Angle between the incident ray and mirror
- Glance angle of reflection Angle between the reflected ray and mirror

4. Laws of Reflection

- (a) The incident ray, the normal, and the reflected ray are all in the same plane

- (b) The angle of incidence is equal to the angle of reflection

5. Types of Images

- (a) Real Image Can be obtained on a screen. Is inverted. Example cinema screen
- (b) Virtual Image Can not be obtained on a screen. Is erect. Example plane mirror.

6. Differences

Parameter	Real	Virtual
Formation	It is formed when two rays intersect at a point in front of the mirror	When two rays
Screen	It can be obtained on a screen	It can <u>not</u>
Nature	It is always inverted	It is always

7. Pair of mirrors formula

8. Parallel mirrors

9. Uses of plane mirrors

1.1.7 Sound

1.1.8 Electricity

1. Electricity

1.1.9 Magnetism

1. Natural Magnet

2. Magnet

3. Magnetic Poles

4. Magnetic and Non-Magnetic substances *Substances that are attracted to magnets are called magnetic*

5. Magnetic Compass

- *It is an instrument consisting of a suspended magnet which can be used for navigation*

6. Properties of Magnets
 - (a) Attractive Property
 - (b) Directive Property
 - (c) Attraction and Replulsion
 - (d) No such thing as a UniPole
7. Induced Magnetism
8. Earth's Magnetic Field
9. Uniform and Non Uniform Magnetic Fields Uniform - Center of bar magnet, lines are parallel Non Uniform - Everything else
10. MLOF
11. Null Points Points where the value of the magnetic field is 0.
12. Electro-Magnet
 - *A magnet whose magnetic field is induced by electric current*
13. Uses of Magnets
14. Electric Bell It works on the principle of electro magnetism.
 - On pressing the key the current starts flowing in the circuit of the electric bell.
 - When the current passes through the electromagnet it attracts the hammer towards itself which strikes the gong
 - When the hammer touches the gong the circuit breaks down. Current stops flowing, due to which the electromagnet loses its electromagnetism and returns to its original position
 - When the hammer comes back the setup is returned to its original position

1.2 English

1.2.1 Merchant of Venice

1. TODO Worksheets



Topic: The Merchant of Venice, Act I, Scene i

Name: _____

Class: IX

Date: _____

The answer to the following is to be written out in your English register.

Salarino: *Not in love neither? Then let us say you are sad
Because you are not merry—and 'twere as easy
For you to laugh and leap and say you are merry
Because you are not sad. Now, by two-headed Janus,
Nature hath framed strange fellows in her time.
Some that will evermore peep through their eyes
And laugh like parrots at a bagpiper,
And other of such vinegar aspect
That they'll not show their teeth in way of smile
Though Nestor swear the jest be laughable.*

- Who had just said that Antonio was in love? What was Antonio's reaction to that remark?
- What explanation does Salarino give in the extract for Antonio's sadness?
- Describe in your own words the two types of strange fellows who have been framed by nature, according to Salarino.
- Who is Nestor? Why is he mentioned in the extract?
- Who comes at the end of Salarino's speech? Why does Salarino leave then?



Topic: The Merchant of Venice, II (i)

Name: _____

Class: IX

Date: _____

The answer to the following is to be written out in your English register.

Answer the following question in about **150 words**:

1. Name and describe the suitors who came to woo Portia, as described by her to Nerissa in Act I, scene ii of the play *The Merchant of Venice*. Bring out the idiosyncrasies of each of these characters, as narrated by Portia with a touch of humour and mockery.



Topic: The Merchant of Venice, Act I, Scene iii

Name: _____

Class: IX

Date: _____

The answer to the following is to be written out in your English register.

Shylock :

When Jacob grazed his uncle Laban's sheep—

This Jacob from our holy Abram was,

As his wise mother wrought in his behalf,

The third possessor, ay, he was the third—

Antonio:

And what of him? Did he take interest?

Shylock:

No, not take interest—not as you would say

Directly interest. Mark what Jacob did:

When Laban and himself were compromised

That all the eanlings which were streaked and pied

Should fall as Jacob's hire, the ewes, being rank,

In the end of autumn turnèd to the rams.

(a) What is referred to in the extract? Who were Jacob and Abraham?

(b) Give the story of Jacob who got his share as his payment from Laban.

Lit-MOV, Act 1, Scene III /IX/012

[CUR/SS/005]

1/2

2. Act 1

- (a) Scene 1 Whole discussion about why antonio is sad, followed by bassanio revealing to antonio what he had wanted to talk about
 - i. Segment 1 Antonio → Salarino, Salanio: Reasons why antonio is sad
 - ii. Segment 2 Antonio → Gratiano, Lorenzo: Gratiano not letting lorenzo speak
 - iii. Segment 3 Antonio → Bassanio: Portia
 - iv. References

A. Middle Age References

- Jaundice
- Livers being the most important organ in the body

B. Greek References

- Nestor (Greek general, never laughed)
- Jason
- Oracle
- Golden fleece

C. Roman References

- Janus
- Portia (the other one)
- Brutus
- Cato

(b) Scene 2 Portia and nerissa discuss portia's suitor. First she cribs a little bit about her father's rules and then it's made clear she likes bassanio

i. Cribbing If it do was as easy as to know what were good to do, Chapels had been chruches as poor men's cottages princes' palaces. It is a good divine that follows his own instructions. I can easier teach twenty what were good to be done, that ne one of the twenty to follow mine own teaching. The brain may devise laws for blood, but a hot temper leaps o'er a cold decree: such a hare is madness of youth, to skit o'er the meshes of good counsel, the cripple

ii. Neapolitan Prince From naples, Italy (map)

Greatest Achievement: Shoeing his horse

Hobby: Talking about how he can shoe his horse.

iii. County palatine South Germany (does not exist yet), so palatinate

Future expectations: Going to live in the mountains abandoning humaity (**Heraclitus of Ephesus**)

Hobbies: Sulking

I had rather be married to death's head with a bone in his mouth

iv. Monsieur Le bon France

Stunning prince from france, beats down both County palatine *and* Neaplitan.... In being a horrible husband. He has

the temprement of Count plataine. And the boastfulness of the Neapolitan prince.

If he would despise me, I should forgive him. for if he love me to maddness, I shall never requite him

v. Baron Falconbridge From, England

Languages: *pas de Français, non latin, nessun italiano*

A. Clothes

- Italian Doublet(Jacket)
- French Breeches
- German Bonnet
- Everywherian behaviour

alas, who can converse with a dumb show

vi. *Scottish lord*

vii. Nephew of Duke Saxony

viii. Prince Morroco

(c) Scene 3

3. Act 2

(a) Scene 1

(b) Scene 2

(c) Scene 3

(d) Scene 4

(e) Scene 5

(f) Scene 6

(g) Scene 7

1.3 Biology

1.3.1 Red Cross

1. Origin Originated in Geneva, Switzerland The ICRC operates in over a 100 countries, providing relief to patients all over the world.

Jean-Henri Dunant, 1859 went to meet the french emperor napoleon the III, to talk about difficulties in bussiness in algeria, he arrived in the small town of Solferino. Dunant was horrified by the death he saw at the battle of solferino, every single day 40,00 soldiers died and for that dunant devoted himself to their aid .Before which there weren't

many aid Gustave Moynier in 1863 received denuna't book and but it for discussion at theosociety for public welfare in geneva.

Back at home he write a book called A memory of solferino

Since this was the 19th century, the international committee was attended by the autrian empire baden, bavaria, france, hanover, hesse, italy, netherlands, prussia, russia, saxony, spain, UK, sweden, norway

2. WW1 The red cross beign an international organisation does not have much power within countries, it has to work with the red cross organisations of various countries.

It is stunning to imagine that they were able to muster any effort at all considering the leading medical science had barely even accepted theories like germ theory, they were still in the age before anaesthesia. Practices like amputation was the de-facto response to any disease. Aroma theory was still prevalent. The sanitation revolution after the cholera epidemic had only recently started.

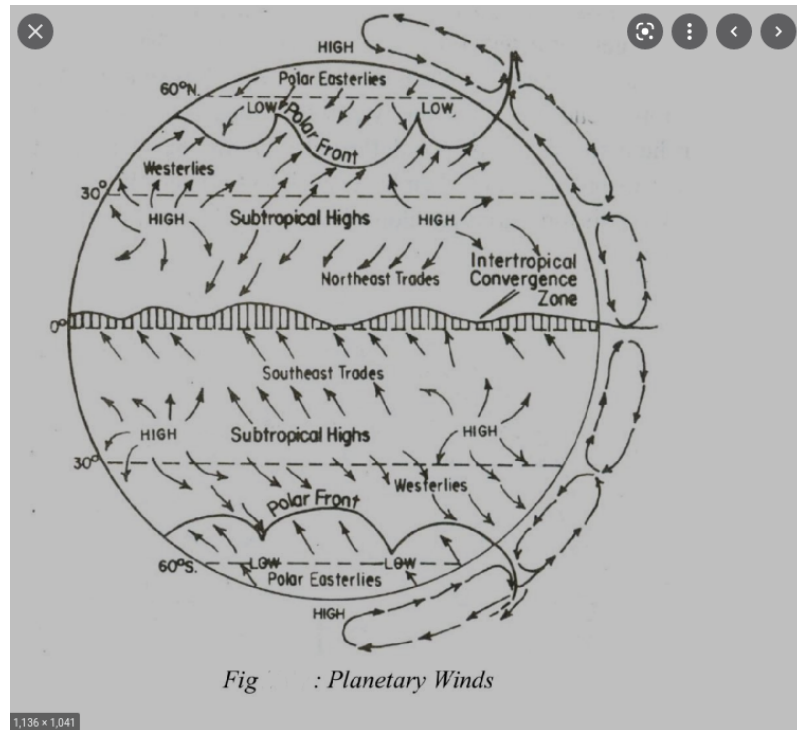
Regardless, They had to face one of the greatest disasters in world history WWI

1.4 Hindi

1.5 Geography

1.5.1 Atmosphere

1. Winds Static winds



- (a) Northern Hemisphere
 - i. North Easterlies Polar
 - ii. South Westerlies Variable
 - iii. North-East Trade Winds
 - (b) Southern Hemisphere
 - i. South-East Trade Winds
 - ii. North Westerlies Variable, AKA: Roaring Forties, Furious Fifties, Shrieking/Gloomy Sixties
 - iii. South Westerlies
2. Periodic winds Only during a certain part of the year, or season, or day.
- (a) Daily
 - i. Sea Breeze Sea -> Land
 - ii. Land Breeze Land -> Sea
 - (b) Seasonal

- i. Monsoon Same cause as land and sea breeze but they are on the seasonal scale.
 - A. Summer Monsoon Wind blows from the Sea to the land as in summer the land mass has lower pressure, coming from the ocean they bring rain and moisture to the coastal region
 - B. Winter Monsoon Much weaker, carries no water and is pretty much sporadic they winds are cold and dry coming from central asia.
- 3. Local Winds Localized only effect a small area
 - (a) Loo
 - (b) Chinook
 - (c) Feohn
 - (d) Mistral
- 4. Variable Winds They are caused occasionally due to the movement of pressure systems
 - (a) Cyclones
 - (b) Anti-Cyclones

Pressure Belts

- 1. Low pressure eq Makes Sense its pretty hot so low pressure. This forms clouds when the water rises and makes cloud, this also explains daily rainfall
- 2. High pressure Sub tropical Doesn't really make sense its still pretty hot. The air which has risen from the equator, will sink when it reaches slightly higher latitudes. This also means that there won't be any clouds because all the water leaves as the air cools, it evaporates off. This means that the sky is clear. No cloud cover means extreme temperatures.
Off hand: "*This is why there are deserts there*"
- 3. Low Pressure Sub Polar
- 4. High Pressure Polar Makes sense its pretty cold so high pressure

Pressure Cells

- Hadley cell Between the eq and subtropical belts
- Ferrel cell Between the Sub Polar and and Sub tropical Belts
- Polar cell Between the polar and sub polar belts