

2017-18



T. R. R. Degree College
Kandukur

Politics

S. Srilekha

I BA (HEP)

Roll No:- 40

Political Science

Assignment

Sem - II



ఏక కేవల ప్రకృత్య లక్షణాల మీద ఆధారపడి?

ఎక సంవత్సర ప్రభుత్వ లక్ష్యము:-

* వె ఆర్థిక కేంద్రం:- వె కేంద్ర ప్రభుత్వం పాలనా అంతా
చేతనా కేంద్ర ప్రభుత్వం కా వంద సర్వ దేశ సం
ప్రభుత్వ అధికార దేశ సం ప్రభుత్వ

→ పరిపాక వ్యత్రవ:- మరేదీ ప్రభుత్వ నిధానంగా పరిపాక సాంఘిక సేవ
ఇది "పాలన వ్యత్రవ" విధానం చేయవచ్చు. అయితే వారి అధికారం నిధులు
"కేంద్ర ప్రభుత్వం" పై అధికారం ఉంటుంది.

* ఎడో ఉదో పూర్తే గానో కేంద్ర ప్రభుత్వో రెండో లెక్కగడై
 జూడో ఉంటుంది. నాలో నేరం ప్రతిపత్తి ఉండును. "కేంద్రం వత్తం" చీసిన
 విషయం మాత్రమే భారతీయ విద్యుత్తులు.

[illegible]

→ ప్రతిజ్ఞ విధియే ఉండదు:- సర్వభూతములకు బోధనార్హులైన ఉండడం వల్ల ప్రతిజ్ఞ విధియే ప్రశ్న లేదు. సాయ శాలివర్షం కిసం "సరిసాలిన క్షేత్రం" లేదా క్షేత్ర సంస్కరణ ఎవ్వరూ చేయలేక ఇంకా అభివృద్ధి వ్రతం చేయడం దెలుచుతుంది. అవసరం తరువాత తాత్పర్య వల్లనే ఉపసంహరించుకుంటుంది.

* ఒక పాఠశాల:- ఒక కేంద్ర ప్రభుత్వంలోని పాఠశాల ఒక పాఠశాల ఉంటుంది. క్రిందిగంటల పాఠశాల విద్య "మత, భాష, ప్రాంతం" నిబంధిత క్రింది విధి ఉన్న సరికొత్త పాఠశాల లాంటి "ఒక పాఠశాల" వుంటుంది.

→ ఒక కేంద్ర ప్రభుత్వ వివక్ష (ప్రయోజనం) ఏకాంశ:-

"ఒక కేంద్ర ప్రభుత్వ వివక్షకు ఇది కేంద్ర ప్రయోజనం"

* విలక్షిత ప్రభుత్వం:- "ఒక కేంద్ర ప్రభుత్వంలో" అన్ని అధికారాలు కేంద్ర ప్రభుత్వం కలిగి వుంటుంది వల్ల "సంస్థాపన", "సంఘటనలను" ప్రభుత్వ యంత్రంగం పరిపాలిస్తుంది. కేంద్రానికి సాంకేతి భక్త్యర్థం కావడం వల్లనే చివరి చురుకులైన ప్రమాదాన్ని ఎదుర్కొనడం వల్లనే "సమాధి వంతనా పులి చేర్చి జోళ్ళు బిర్రు తాగడం వదులుతుంది."

* తరువాత విషయం:- ఒక కేంద్ర ప్రభుత్వంలో "ఒక శాసన సభ", "ఒక రాష్ట్రపతి" వుంటుంది "జాతీయ స్థాయి" ఎక్కడి పులి చేస్తుంది. అవసరం ప్రభుత్వ నిర్మాణం పరిపాలన "విద్యుత్ బాలా తరువాత" ఉంటుంది.

→ సరిపాలన ఒక రూపం:- ఒక కేంద్ర ప్రభుత్వంలో ఒక కేంద్ర ప్రభుత్వం మొత్తం చివరి పరిపాలిస్తుంది. అవసరం అన్ని ప్రాంతాల ఒక నిర్మాణ అభివృద్ధి పరిపాలన ప్రకాశమవుతుంది.

సంబంధించిన విధానం - అంబుల యొక్క ప్రయోగం:- వా కేంద్ర ప్రభుత్వం విధానం చాలా
 సరళమైనది. సో కాల పరిస్థితుల "ప్రయోగం" చూపుట కేవలం "చాలా సరళం" కావున
 "ప్రయోగం" పరిస్థితులకు సరిపోయినది.

ప్రతిపత్తి విధానం:- మొత్తం హాల్ బే విధానం "కానీ" "ప్రయోగం" వంటి
 వ్యక్తి "ప్రయోగం" తీసుకుని సమర్థవంత పరిష్కారం చేసినట్లు ఉంటుంది.

ప్రతిపత్తి విధానం ప్రయోగం:- ప్రయోగం, విధానం, "ప్రయోగం" వా కేంద్ర విధానం
 ప్రయోగం-ఉంటుంది. "ప్రయోగం" విధానం చూపుట ప్రయోగం వంటిది.

* వా కేంద్ర ప్రభుత్వం ప్రయోగం - విధానం:- "ప్రయోగం", "ప్రయోగం", "ప్రయోగం" వంటివి
 కేంద్ర "ప్రయోగం" వా కేంద్ర ప్రయోగం చూపుట కేవలం ప్రయోగం. ప్రయోగం విధానం విధానం
 ప్రయోగం "ప్రయోగం" ప్రయోగం పరిష్కారం. ప్రయోగం వా కేంద్ర ప్రయోగం ప్రయోగం
 ప్రయోగం ప్రయోగం.

⇒ కేంద్ర ప్రభుత్వం పరిష్కారం:- ప్రభుత్వం ప్రయోగం విధానం విధానం కేంద్ర ప్రభుత్వం
 వా కేంద్ర ప్రభుత్వం పరిష్కారం ప్రయోగం విధానం. ప్రయోగం ప్రయోగం విధానం
 ప్రయోగం ప్రయోగం విధానం.

* కేంద్ర ప్రభుత్వం ప్రయోగం విధానం:- ప్రయోగం వా కేంద్ర ప్రభుత్వం ప్రయోగం
 ప్రయోగం ప్రయోగం ప్రయోగం ప్రయోగం ప్రయోగం ప్రయోగం ప్రయోగం ప్రయోగం

⇒ కేంద్ర ప్రభుత్వం ప్రయోగం విధానం:- వా కేంద్ర ప్రభుత్వం ప్రయోగం ప్రయోగం
 ప్రయోగం ప్రయోగం ప్రయోగం ప్రయోగం ప్రయోగం ప్రయోగం ప్రయోగం ప్రయోగం
 ప్రయోగం ప్రయోగం ప్రయోగం ప్రయోగం ప్రయోగం ప్రయోగం ప్రయోగం ప్రయోగం

గురి తీవ్రతలు. "శ్రీమద్ వేదము" ఈ తాత, ప్రభువం ఎంతో ముఖ్యమైనది. కేవల
"వేదము" అని పిలుస్తారు. దీనిని ప్రతి ఒక్కరూ చదివే అవకాశం ఉంది.

* ఉత్తర భాగం ప్రాంతం:- ఈ భాగం వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు.
అది వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు.
అది వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు.
అది వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు.

⇒ దక్షిణ భాగం:- ఈ భాగం వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు.
అది వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు.
అది వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు.

* ఉత్తర భాగం ప్రాంతం:- ఈ భాగం వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు.
అది వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు.
అది వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు.

⇒ "ఈ భాగం వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు."

శ్రీమద్ వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు.
అది వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు. అది వేదము ప్రభువం కాదు.

— Assignment — 1

T.R.R Government Degree
College, Kandukur

Name of the student : P. Pratyusha

Year : Ist

Group : BSc [MPCS]

Register No. : Y203037060

Name of the Topic : Flow chart

Submitted by :
P. Pratyusha

Submitted to :
J. Hanumantha Rao Sir

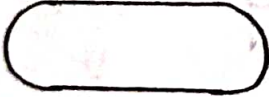
1) what is flow chart? what are the symbols used to draw flow chart? Explain.

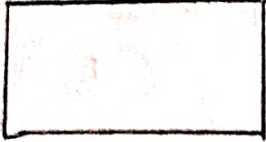
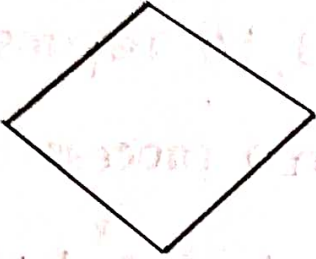
05
05

Flow chart:

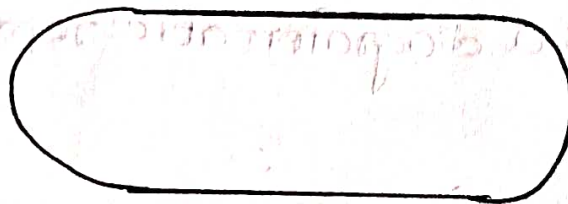
Flowcharts use special shapes, to represent different types of actions or steps in a process. Lines and arrows show the sequence of the steps, and the relationships among them. These are known, as flow chart.

Flowchart is a diagrammatic representation of an algorithm.

Symbol	Name	Function
	Start / end	An oval represents a start or end point.
	Arrows	A line is a connector that shows relationships between the representative shapes.
	Input / output	A parallelogram represents input or output.

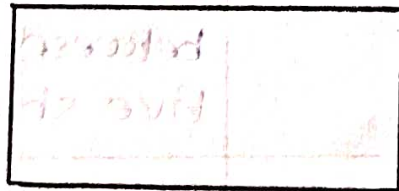
	Process	A rectangle represents a process
	Decision	A diamond indicates a decision

Explanation for each flowchart symbol individually:



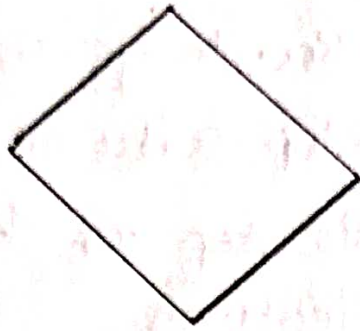
Start/End symbol

The terminator symbol marks the starting or ending point of the system. It usually contains the word "start" or "End".



Action or Process symbol

A box can represent a single step ("add two cups of flour"), or an entire sub-process ("make bread") within a larger process.



Decision symbol

A decision or branching point. Lines representing different decisions emerge from different points of the diamond.



Input / output symbol

Represents material or information entering or leaving the system, such as customer order (input) or a product (output).

Uses of a flowchart:

Following are the uses of a flowchart:

- It is a pictorial representation of an algorithm that increases the readability of the program.
- Complex programs can be drawn in a simple way using a flowchart.

- It helps team members get an insight into the process and use this knowledge to collect data, detect problems, develop software, etc.
- A flowchart is a basic step for designing a new process or add extra features.
- Communication with other people becomes easy by drawing flowcharts and sharing them.

When to use flowchart:

Flowcharts are mainly used in the below scenarios:

- It is most importantly used when the programmers make projects. As a flowchart is a basic step to make the design of projects pictorially, it is preferred by many.
- When the flowcharts of a process are drawn, the programmer understands the non-useful parts of the process. so flowcharts are used to separate useful logic from the unwanted parts.
- Since the rules and procedure of drawing a flowchart are universal, flowchart serves as a communication channel to the people who are working on the same project for better understanding.

- Optimizing a process becomes easier with flowcharts. The efficiency of code is improved with the flowchart drawing.

Advantages of flowchart:

- It is the most efficient way of communicating the logic of system.
- It act like a guide for blueprint during program designed.
- It also helps in debugging process.
- Using flowchart we can easily analyze the program.
- Flowcharts are good for documentation.

Disadvantages of flowchart:

- Flowcharts are difficult to draw for large and complex programs.
- It does not contain the proper amount of details.
- Flowcharts are very difficult to reproduce.
- Flowcharts are very difficult to modify.

Sample Example:

* Flowchart to find the greatest number among 2 numbers.

Algorithm:

1. start

2. Input 2 variables from user.

3. Now check the condition if $a \geq b$, goto step 4, else goto step 5.

4. Print a is greater, goto step 6.

5. Print b is greater.

6. Stop



Assignment

TRR Government degree
college, Kandukur.

Name of the student :- M. Kusuma

Year :- 1st

group :- BSC (MPCs)

Register NO :- Y203037055

Name of the Topic :- Linked List

Submitted by

M. Kusuma,

Submitted to

J. Hanumanth Rao

Linked list

05/05

Linked list :-

A linked list is a sequence of data structures, which are connected together via links. It is a sequence of links which contains items. Each link contains a connection to another link. Linked list is the second most-used data types structure after array.

Following are the important terms to understand the concept of linked list.

- Link :- Each link of a linked list can store a data called an element.
- Next :- Each link of a linked list contains a link to the next link called Next.
- Linked list :- A linked list contains the connection link to the first link called First.

Types of Linked list :-

- (1) Simple Linked list :- Item navigation is forward only.
- (2) Doubly Linked list :- Items can be navigated forward and backward.
- (3) Circular linked list :- Last item contains link.

Operations of linked list :-

- (1) Traversal :- Access each element of the linked list.
- (2) Insertion :- adds a new element to the linked list.
- (3) Deletion :- Removes the existing elements.
- (4) Search :- Find a node in the linked list.
- (5) Sort :- Sort the nodes of the linked list.

(1) Traversal :-

Displaying the contents of a linked list is very simple. we keep moving the temp node to the next one and display its contents.

When `temp` is `NULL` we know that we have reached the end of the linked list so we get out of the while loop.

(2) Insertion :-

We can add elements to either the beginning, middle or end of the linked list.

Insert at the beginning :-

- Allocate memory for new node
- Store data
- Change next of new node to point to head.
- Change head to point to recently created node.

Insert at the end :-

- Allocate memory for new node
- Store data
- Traverse to last node
- Change next of last node to recently created node.

Insert at the Middle :-

- Allocate memory and store data for new node.
- Traverse to node just before the required position of new node.
- Change next pointers to include new node in between.

(3) Deletion :-

We can delete either from the beginning, end or from a particular position.

Delete from beginning :-

- point head to the second node.

Delete from end :-

- Traverse to second last element.
- Change its next pointers to null.

Delete from middle :-

- Traverse to element before the element to be deleted.
- Change next pointers to exclude the node from the chain.

(4) Search :-

we can search an element on a linked list using a loop using the following steps. we are finding item on a linked list.

- Make head as the current node.
- Run a loop until the current node is NULL because the last element points to NULL.
- In each iteration, check if the key of the node is to item. If it the key matches the item, return true otherwise return false.

(5) Sort :-

we will use a simple sorting algorithm, Bubble Sort to sort the elements of a linked list in ascending order below.

- Make the head as the current node and create another node index for later use.
- If head is null, return.
- Else, run a loop till the last node (i.e. NULL).
- In each iteration, follow the following step 5-6.
- Store the next node of current in index.
- Check if the data of the current node is greater than the next node. If it is greater, swap current and index.



T. R. R. Govt Degree And P.G. College

1st UNIT History Assignment

Name :- O. Biskilla

class :- 3rd BA (H.E.P) Roll No :- 29

Sub :- History

Topic :- ಮರಣಾಂತರ ವಿಜ್ಞಾನ

Date :- 08-03-2022



Submitted to,
Ramanjaneyulu,
Sir.

ಮರಿಶ್ರಾಮಿತ ವಿಸ್ತಾರ, ತಾರಣ್ಯ, ಗುರುತು, ಸ್ವರೂಪ :-

ವಿಸ್ತಾರ :- ವಿಸ್ತಾರವು ಎಂದರೆ ಮೂಲವಾಗಿ ಅನಿವಾರ್ಯವಾಗಿ, ರಕ್ತವು
ತೆರಿ ಎಂದರೆ ಮೂಲವಾಗಿ ಗುರುತು ಮಾಡಲು. ತಾನೆ ಎಂದರೆ ತಾನು.

18 ವ ಗುಣವು ಎಂದರೆ ಮೂಲವಾಗಿ ಅನಿವಾರ್ಯವಾಗಿ, ರಕ್ತವು
ತೆರಿ ಎಂದರೆ ಮೂಲವಾಗಿ ಗುರುತು ಮಾಡಲು. ತಾನೆ ಎಂದರೆ ತಾನು.

ವಿಸ್ತಾರವು ಎಂದರೆ ಮೂಲವಾಗಿ ಅನಿವಾರ್ಯವಾಗಿ, ರಕ್ತವು
ತೆರಿ ಎಂದರೆ ಮೂಲವಾಗಿ ಗುರುತು ಮಾಡಲು. ತಾನೆ ಎಂದರೆ ತಾನು.

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ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ
ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ

ತಾರಣ್ಯ :-

→ ಗಾತ್ರ ಪರಿಮಾಪನ - ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ

→ ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ

→ ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ ಮೂಲವಾಗಿ

→ ದಿವ್ಯೋತ್ಸವ ಉದ್ಘಾಟನೆಯಲ್ಲಿ ಯಶಸ್ವಿವಾದಿಗಳಿಗೆ ಪ್ರಶಸ್ತಿ ನೀಡಲಾಯಿತು. ದಿವ್ಯೋತ್ಸವದ ಯಶಸ್ವಿವಾದಿಗಳಿಗೆ ಪ್ರಶಸ್ತಿ ನೀಡಲಾಯಿತು.

→ 1798 ു ീറുവു ീറുവു ീറുവു "Inlata Frame" (Inlata Frame)
 ീറുവു ീറുവു ീറുവു ീറുവു. ീറുവു ീറുവു ീറുവു ീറുവു
 ീറുവു ീറുവു ീറുവു ീറുവു.

→ ീറുവു ീറുവു. ീറുവു ീറുവു ീറുവു ീറുവു ീറുവു ീറുവു
 "Inlata Frame" (Inlata Frame) ീറുവു ീറുവു ീറുവു ീറുവു

→ ീറുവു ീറുവു ീറുവു ീറുവു ീറുവു ീറുവു ീറുവു
 ീറുവു.

→ ീറുവു ീറുവു ീറുവു, ീറുവു, ീറുവു, ീറുവു ീറുവു ീറുവു.

2) ീറുവു ീറുവു:-

→ ീറുവു ീറുവു ീറുവു ീറുവു. ീറുവു ീറുവു
 ീറുവു. ീറുവു ീറുവു ീറുവു. ീറുവു ീറുവു ീറുവു
 ീറുവു ീറുവു ീറുവു.

→ 1769 ു ീറുവു ീറുവു ീറുവു ീറുവു. ീറുവു ീറുവു
 ീറുവു ീറുവു. ീറുവു ീറുവു ീറുവു, ീറുവു ീറുവു
 ീറുവു ീറുവു.

→ 1808 ു ീറുവു ീറുവു ീറുവു. ീറുവു ീറുവു
 ീറുവു ീറുവു ീറുവു ീറുവു.

→ 1835 ു ീറുവു ീറുവു ീറുവു ീറുവു
 ീറുവു.

→ ീറുവു. ീറുവു ീറുവു ീറുവു. ീറുവു ീറുവു
 ീറുവു. → 1838 ു ീറുവു ീറുവു ീറുവു

ప్లూండ్స్ ను హా సయ్యన్స్ 14 రాబుల్ల వారెంది.

③ ఇస్కూలు - ఉత్తర సరికయ్యం:-

→ పూర్వం తమ్మిరి కర్తవాగ్గువడిలో ప్రస్తుతం చేపాడు

→ 18వేసే "హెన్రీ కార్ట్" నెలవాగ్గుతో ప్రస్తుతం రెగిం
దుల కనెం

→ కానీ 'ఉప్పుడు నెలవాగ్గు తమ్మిరి కర్తవాగ్గు లిందేది.
నందుకంటే. సులభంగా. గుండీ నాయులకు ఉండు
లు లిందేది ఉండుకే పని విధానంగా బరిగింది.

→ 1815 హంట్రిడివి "స్ట్రీట్ లాంప్" (Street Lamp) ను
తయారు చేసాడు. పో వెల్లెండులు. ఉగ్రి ప్రయోగం
మూల వరకు తగ్గాయి.

→ "హెన్రీ కెస్టెయర్" ఉత్తర మెతవిజ్ఞాన పద్ధతి కను.
"కెస్టెయర్ పద్ధతి" ఉండదు.

④ వైద్యనామాల విస్తరణ:-

→ భూస్వామిలు యితో రాబులు నికేరిస్తారు ఉని. భూమి
ని ఉని. క సాయంత్ర భూయంగా (ముఖ్యంగా) గా చిత్రించు
వారు.

→ ఉయ్యవల్ల ఉనిర్లుల వచ్చాయి. భూయంగా కలకాల
① సారవంతతయ, ② చుట్టూ ప్థయం ③ యాదంతయ
(పరతే) ఉండదు.

- 18వ శతాబ్దం చివరికి స్పష్టమైన నయం మూలాల కల్పకాలకు చేరుకుంటుంది. నిర్మాణం చేస్తుంటుంది.
- సంస్కృత సాహిత్యం. పాదకు ప్రభుత్వం ఉంది.
- నైపుణ్యం పడకుండా చేయడం పెంచడం ధార్మిక నిర్మాణం వరకు ఉన్న ప్రక్రియలు అంతర్గత సహాయంతో అభివృద్ధి చెందుతాయి. ప్రభుత్వం నిర్వహించింది.
- దీనిని ప్రాంతీయ విస్తరణగా చెప్పారు.

రాజకీయాల నిర్మాణం:-

- పాండిత్యం ద్వారా భూమిగా రూపం నాణ్యత విస్తరణ.
- ధైర్యం, లాభం తెలియజేస్తూ గుర్తించాలి, నాణ్యతలు రూపం తెలియజేయండి.
- 14వ శతాబ్దం బౌద్ధ మతం ప్రాచీనమైనది "తేజ" రాష్ట్ర నిర్మాణం చేసి పద్మతీ కేంద్రం.
- దీనిని మొదట పదతి "ఉంటుంది."
- 1844 లో శాంతిపూర్వకంగా తెలియజేయండి.
- 1876 లో ప్రాంతీయంగా తెలియజేయండి. ఆ తర్వాత పరిశోధన.
- విద్యుత్ కేంద్రం, తెలియజేయండి, ప్రాంతీయంగా తెలియజేయండి. అంతర్గత నిర్మాణం.
- ప్రాంతీయంగా తెలియజేయండి, ప్రాంతీయంగా తెలియజేయండి, ప్రాంతీయంగా తెలియజేయండి.
- ప్రాంతీయంగా తెలియజేయండి, ప్రాంతీయంగా తెలియజేయండి, ప్రాంతీయంగా తెలియజేయండి.
- ప్రాంతీయంగా తెలియజేయండి, ప్రాంతీయంగా తెలియజేయండి, ప్రాంతీయంగా తెలియజేయండి.

ప్రభుత్వ స్వస్థాయి.

ఫుట్టెలు:-

- సరికొత్త విధ్వంసం వల్ల, వలసవాదం విచ్ఛేదం. ప్రాంతీయత
- ఈ ప్రక్రియను ద్వారా తీసివేయి.
- అది ప్రయోగ సామర్థ్య ప్రయోగం ఆయన ప్రాంతీయత
- ఈ ప్రయోగ పరిణామం. స్థానికంగా ప్రాంతీయత. సంగతం విచ్ఛేదం
- పెట్టబడి, వర్ణం ప్రయోగం (Pragmatism) ఏకీకరణం
- సరికొత్తం వర్ణం ప్రయోగం (Pragmatism) ఏకీకరణం
- దీని అర్థం విచ్ఛేదం.
- ప్రయోగ పరిణామం. స్థానికంగా విచ్ఛేదం.
- సామర్థ్య ప్రయోగం. పరిణామం. స్థానికంగా విచ్ఛేదం
- 1848 లు కమ్యూనిస్టు ప్రకటన పత్రం (Communist manifesto)
- ప్రాంతీయత ప్రయోగం. స్థానికంగా విచ్ఛేదం.
- 1848 లు కమ్యూనిస్టు ప్రకటన పత్రం (Communist manifesto)
- ప్రాంతీయత ప్రయోగం. స్థానికంగా విచ్ఛేదం.

→ 19వ శతాబ్దం సరికొత్త ప్రయోగం. స్థానికంగా విచ్ఛేదం

→ సరికొత్త ప్రయోగం. స్థానికంగా విచ్ఛేదం. స్థానికంగా విచ్ఛేదం

P. RAMANINEYAN
M.A., B.Ed., & LL.B.
Lecturer in History
T.R.R. Govt. Degree College
Kandukur - 523105

Very Good L. Ramesh

T.R.R Govt Degree College

Physics Assignment - 01

Name Of the student : M. Kusuma

Name Of the Group : BSc [MPes] - IInd Y

Name of the Topic : Carnot Engine
Carnot's theorem

Hall ticket Roll number : Y203037055

Roll number : 10

Year : 2022

Submitted by

M. Kusuma.

Submitted to

Dr. N.V. Sri Hasi Sir .

5

1. Describe the Carnot's ideal heat engine and its working. Derive an expression for its efficiency?

Ans: * Carnot engine is theoretical heat engine and not practicable.

* Heat engine converts heat energy into work.

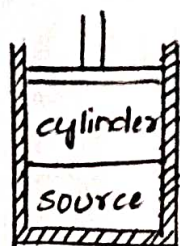
* This has four parts

1. Working substance :- Ideal gas is taken as working substance in cylinder - piston arrangement. The base of the cylinder is a perfect conductor of heat and all other faces of cylinder are made with perfect non-conducting material of heat. The piston is also non-conducting and frictionless.

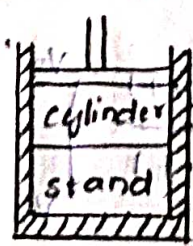
2. Source :- A hot body of high thermal capacity maintained at a constant high temperature $T_1^\circ\text{K}$

3. Sink :- A cold body of high thermal capacity maintained at a constant low temperature $T_2^\circ\text{K}$.

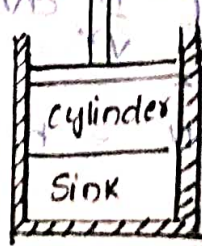
4. Stand :- A perfectly non-conducting platform which serves as a stand for the cylinder.



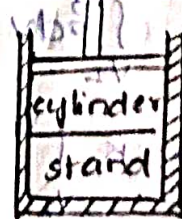
I



II



III

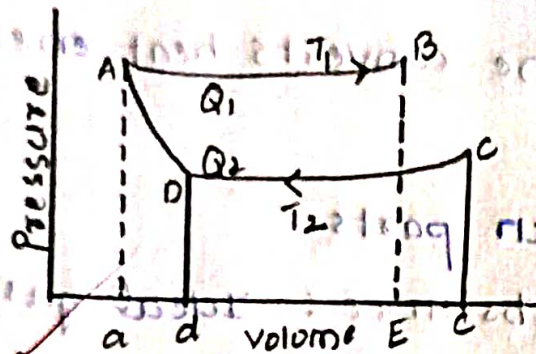


IV

Carnot's cycle :- In this the working substance is allowed to undergo a cyclic process and it has four parts.

Here 1 gm-mole of ideal gas is taken in the cylinder as working substance.

Diagram :-



i. Isothermal Expansion :- (A to B) :- Let A be the initial state of the substance in the indicator diagram and P_1 , V_1 and T_1 be the pressure, volume and temperature of the substance respectively.

$$\text{So, } Q_1 = W_1 = \int P dV$$

$$W_1 = \int_{V_1}^{V_2} \frac{RT_1}{V} dV$$

$$W_1 = RT_1 \log_e \frac{V_2}{V_1} \quad \text{--- (1)}$$

ii. Adiabatic Expansion :- (B to C) :-

$$W_2 = \int_{V_2}^{V_3} P dV = \int_{V_2}^{V_3} \frac{K}{V^\gamma} dV$$

$$= K \int_{V_2}^{V_3} \frac{1}{V^\gamma} dV = K \left[\frac{V^{-\gamma+1}}{-\gamma+1} \right]_{V_2}^{V_3}$$

$$\omega_2 = \frac{K}{-\gamma+1} [V_3^{-\gamma+1} - V_2^{-\gamma+1}]$$

$$\omega_2 = \frac{1}{1-\gamma} [K V_3^{-\gamma+1} - K V_2^{-\gamma+1}]$$

$$\omega_2 = \frac{1}{1-\gamma} [P_3 V_3 V_3^{-\gamma+1} - P_2 V_2 V_2^{-\gamma+1}]$$

$$\omega_2 = \frac{1}{1-\gamma} [P_3 V_3 - P_2 V_2] \Rightarrow \frac{1}{1-\gamma} [RT_2 - RT_1] \rightarrow \frac{R}{1-\gamma} [T_2 - T_1] \rightarrow (2)$$

3. Isothermal compression C-D :-

$$\omega_3 = \int_{V_3}^{V_4} P dv = \int_{V_3}^{V_4} \frac{RT_2}{V} dv$$

$$= RT_2 \left[\log V \right]_{V_3}^{V_4} = RT_2 [\log V_4 - \log V_3]$$

$$\omega_3 = RT_2 \log \left[\frac{V_4}{V_3} \right] \rightarrow (3)$$

4. Adiabatic Compression D-A :-

$$\omega_4 = \int_{V_4}^{V_1} P dv = \int_{V_4}^{V_1} \frac{K}{V^\gamma} dv = K \int_{V_4}^{V_1} \frac{1}{V^\gamma} dv$$

$$= \frac{K}{1-\gamma} \left[\frac{V^{-\gamma+1}}{-\gamma+1} \right]_{V_4}^{V_1}$$

$$= \frac{1}{1-\gamma} [K V_1^{-\gamma+1} - K V_4^{-\gamma+1}]$$

$$= \frac{1}{1-\gamma} [P_1 V_1 V_1^{-\gamma+1} - P_4 V_1 V_4^{-\gamma+1}] = \frac{1}{1-\gamma} [P_1 V_1 - P_4 V_4]$$

$$= \frac{1}{1-\gamma} [RT_1 - RT_2] = \frac{R}{1-\gamma} [T_1 - T_2] \rightarrow (4)$$

Total work done = $\omega_1 + \omega_2 + \omega_3 + \omega_4$

$$\omega = RT_1 \log \left[\frac{V_2}{V_1} \right] + \frac{R}{1-\gamma} [T_2 - T_1] + RT_2 \log \left[\frac{V_4}{V_3} \right] + \frac{R}{1-\gamma} [T_1 - T_2]$$

$$= RT_1 \log \left[\frac{V_2}{V_1} \right] - RT_2 \log \left[\frac{V_3}{V_4} \right]$$

$$B \cdot C - T_1 V_2^{\gamma-1} = T_2 V_3^{\gamma-1}$$

$$\frac{T_1}{T_2} = \left[\frac{V_3}{V_2} \right]^{\gamma-1}$$

$$A \cdot D - T_1 V_1^{\gamma-1} = T_2 V_4^{\gamma-1}$$

$$\frac{T_1}{T_2} = \left[\frac{V_4}{V_1} \right]^{\gamma-1}$$

$$\left[\frac{V_3}{V_2} \right]^{\gamma-1} = \left[\frac{V_4}{V_1} \right]^{\gamma-1}$$

$$\frac{V_3}{V_4} = \frac{V_2}{V_1}$$

$$W = R T_1 \log \left[\frac{V_2}{V_1} \right] - R T_2 \log \left[\frac{V_2}{V_1} \right]$$

$$W = R \log \left[\frac{V_2}{V_1} \right] [T_1 - T_2]$$

$$\text{Efficiency} : - \eta = \frac{W}{Q} = \frac{R \log \left[\frac{V_2}{V_1} \right] [T_1 - T_2]}{R T_1 \log \left[\frac{V_2}{V_1} \right]}$$

$$\eta = \frac{T_1 - T_2}{T_1}$$

$$\eta = \frac{T_1 - T_2}{T_1}$$

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$$\eta = \frac{T_1 - T_2}{T_1}$$

$$\therefore \text{efficiency} \eta = \frac{T_1 - T_2}{T_1}$$

$$\eta = \frac{T_1 - T_2}{T_1}$$

Q. State and prove Carnot's theorem?

Ans: Carnot's theorem :- This theorem can be stated as below in two different ways.

* No engine is more efficient than reversible engine working between the same two temperatures.

* All reversible engines working between same two temperatures have the same efficiency, whatever the working substance it may be.

Proof :- * Consider a reversible engine R and an irreversible engine I working between the same source and sink.

* I works in forward direction and R works in backward direction.

* Let Q be the energy absorbed by the engine I from the source at T_1 . This engine converts some energy into work, W and the remaining energy $(Q - W)$ is transferred to the sink at T_2 .

* Similarly, Q' be the energy absorbed by the engine R from the sink at T_2 . W' is the work done on the substance. The energy transferred to the source is $(Q' + W')$.

* Let the source give & takes the same amount of energy.

i.e

$$Q = Q' + W'$$

(or)

$$W' = Q - Q'$$

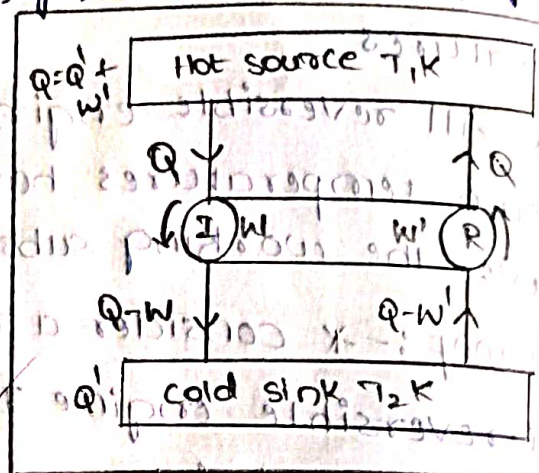
Also assume that efficiency of irreversible engine $I >$ efficiency of reversible engine R

$$\eta_I > \eta_R$$

$$\frac{W}{Q} > \frac{W'}{Q}$$

i.e. $W > W' \rightarrow \textcircled{1}$

Now couple the 2 engines



In compound engine the sink takes the heat $(Q - W)$ and gives the heat $(Q - W')$

So, the net amount of heat given by the sink = $(Q - W') - (Q - W) = W - W' \rightarrow \textcircled{2}$

As per eq ① & eq ② is positive

Then $(Q - W') > (Q - W)$

This means that the sink takes less heat $(Q - W)$ and gives more heat $(Q - W')$ without any change in the sink. This is impossible as per the 2nd law of thermodynamics. So, eq ② as well as eq ① are wrong.

Hence, the efficiency of reversible engine is greater than the efficiency of irreversible engine.

$$\text{i.e. } \eta_R > \eta_I$$

proof of Carnot's and theorem :-

* Let R_1, R_2 be two reversible engines, working between source temperature T_1 & sink temperature T_2 . They are coupled by a belt as shown in fig.

* Suppose R_1 drives R_2 in backward direction then $\eta_{R_1} > \eta_{R_2}$

* Suppose R_2 drives R_1 in backward direction then $\eta_{R_2} > \eta_{R_1}$

$$\therefore \eta_{R_1} = \eta_{R_2}$$

Hence all reversible engine have same efficiency.

T.R.R. GOVT DEGREE COLLEGE KANDUKUR



DEPARTMENT OF ZOOLOGY ASSIGNMENT

SEMESTER - II
PAPER - Animal Diversity Biology of chordates
TOPIC - Migration in fishes
DATE - 21/7/22
DAY - Thursday
HOUR - 3rd

Submitted To

Dr. I. Anusla

Submitted By

P. Navaneetha

Y213037008

Q Give an account of migration in fishes.

Fish migration can be defined as 'a periodic movement from one place to another & journeys taken by fishes from one place to another and back'. Many types of fish migrate on a regular basis, daily or annually, covering distances from a few metres to thousands of kilometres. Fish usually migrate to feed or to reproduce (due to sexual maturity, hormones, instinct) but there may be other reasons to migrate from spawning, nursery and feeding grounds on regular basis. The reasons may be like favourable environment, favourable salinity, predators and competition, to get rid of from some pathogens using salinity as a tool. Fish migration is classified into the following types:

Anadromous: (Gr. Ana = Up and dromos = course) The adult fish migrate from the sea up into fresh water to spawn, such as salmon, striped bass, Hilsa and the sea lamprey.

Catadromous: (Gr. Kata = down and dromas = course)
adult fish migrate from fresh water down in to
sea to spawn, such as eels.

Diadromous, amphidromous, potamodromous, Oceanodromous
George S. Myers, 1949 coined the terms diadromous -
refer to all fish that migrate between the sea and
water. Diadromous (Gr. dia = through and dromous =
running), which means running between fresh w.
to the seas, or Vice Versa, but not for the purpose of
breeding.

potamodromous fish whose migrations occur wholly
within fresh water from one place to other or from
fresh water habitat to another fresh water habitat.
E.g. Carps and trout.

Oceanodromous fish that live and migrate wh.
in the from sea water to sea water for example from
deep waters to surface water or from one place to
another place. E.g. Tunas, Mackerels.

Further explanation with examples for Anadromous
migration, catadromous migration, Oceanodromous

migration, potamodromous migration and Diadromous migrations are as follows:

Migration Of salmon:

This has been intensively studied and according to the available information, the salmon fish has the strongest homing instinct. The fish returns from the seas (in which it lives in the adult stages) to the freshwater rivers (in which it was born and grew-up) generation after generation. The interesting feature is that the salmon not only migrates to the same river, but tries to go to the same area where its parents, and the grand parents have spawned.

During breeding season characteristic differences appear in both sexes of fishes.

(1) As they enter fresh water, their active feeding is stopped.

(2) They gradually decrease in weight.

(3) Their silvery white colour gradually changes to reddish brown tint.

- (4) In the male salmon the jaws become greatly longer and hooked and the teeth also become longer.
- (5) Characteristic pigmented spots appear on the skin of male fish, while the female fish develops dark spots.

The fishes move in pairs and return to the rivers to breed. As the gonads ripen, spawning takes place. Female salmon makes a shallow trough by the movement of the tail and the eggs are laid in it. Then the male salmon sheds its sperms over them. The female then covers the fertilized eggs with gravel by the peculiar movements of the tail. After spawning, the male salmon becomes exhausted and never returns to the sea. However, the females although exhausted return to the sea in order to carry on all other activities. They return to the river again to breed. This periodic migration is repeated several times in the life history of the salmon.

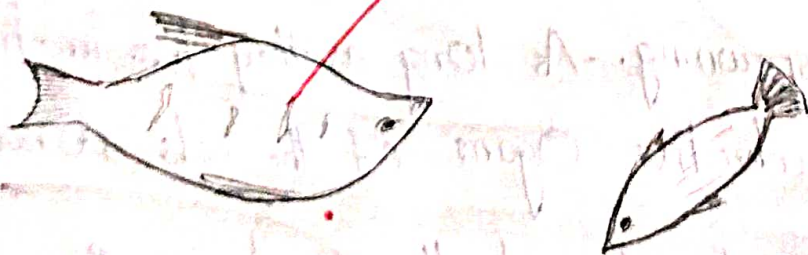
—Among the Indian fishes the Indian shad is considered anadromous. These fishes are widely distributed in the Indian Ocean ascending certain

during spawning period. This fish is Very powerful in the sea and gains weight. During migratory period, the fish does not feed. It migrates from the sea into rivers like the Krishna, or the Godavari and breeds, whenever the conditions such as weather, temperature and other factors are favourable. After hatching in the river, young fishes are carried into estuaries, where they spend a greater part of their life and finally return to sea.

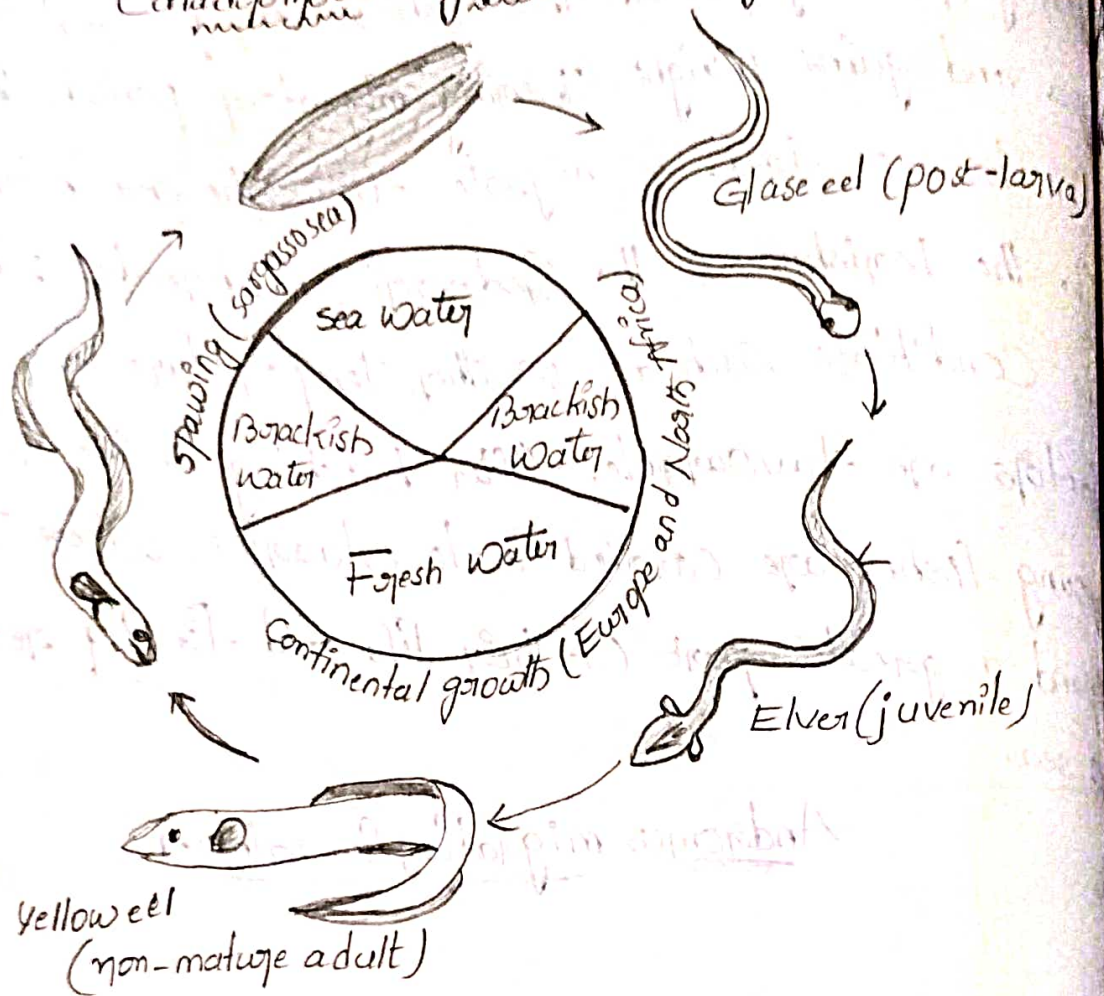
Andromous migration in salmon



Anadromous migration in salmon.



Catadromous migration in Anguilla



Catadromous migration:

Among catadromous fishes the most peculiar migrant is the common Fresh water eel (*Anguilla*) which feeds and grows to maturity in Fresh water rivers and migrates to the sea for spawning. As long as they live in Fresh water, the reproductive organs of the eels do not ripen. Female eels migrate towards the sea, during the autumn nights and males follow them. The female descends to deep waters in the sea to lay eggs.

After breeding, the adult eels do not return to Fresh water but are believed to die soon.

During development the egg undergoes different larval stages. The leaf like larva is known as Leptocephalus. The larva is thin transparent and elongated in form. It leads a pelagic life on the surface of sea water, for three or four years, feeding on plankton. Many of these little larva fall a prey to other marine fishes and finally a few will be able to survive to become young eels. are known as elvers which are transparent and ribbon like. They lead a pelagic free swimming life for some period and finally move in to Fresh water from where the parents originated to grow in to adults. Adult eels in their turn, migrate to the sea again for breeding.

Oceanomyc migration:

Some marine fish travel long distances in the sea and visit specific areas and stay for an appropriate time as long as necessary. Ex: Herring, cod, plaice, mackerel, Tuna.

Potamodromous migration:

Fishes living in fresh water show Upstream migration for spawning and the spent fish return down.

Ex: petromyzon.

Diadromous migration:

Some species of fish moved from fresh water to area in the sea, whereas Others have moved in the direction, from the marine water to feeding area in fresh water. Fish in both the environments have along with numerous parasites and predators. It is that the migrant fish may have become diadrom due to both intra specific selection measures. If fish species could evolved in to Euryhaline species faster than its parasites and predators it could a new environment escape from specific diseases or predators. Such a selection pressure could act in fresh water as well as marine species. Besides the inter and intraspecific competition for various resources of food in the fresh water or Ocean can act in a similar fashion to evolve as diadromous species.

R.R. GOVT DEGREE COLLEGE KANDUKUR



DEPARTMENT OF ZOOLOGY ASSIGNMENT

SEMESTER - II

PAPER - Animal diversity Biology - ~~non~~ characters

TOPIC - poisonous snakes

DATE - 12/7/22

DAY - Tuesday

OUR - 3rd

Submitted To

Dr I Anusha

Submitted By

p. Navaneetha.

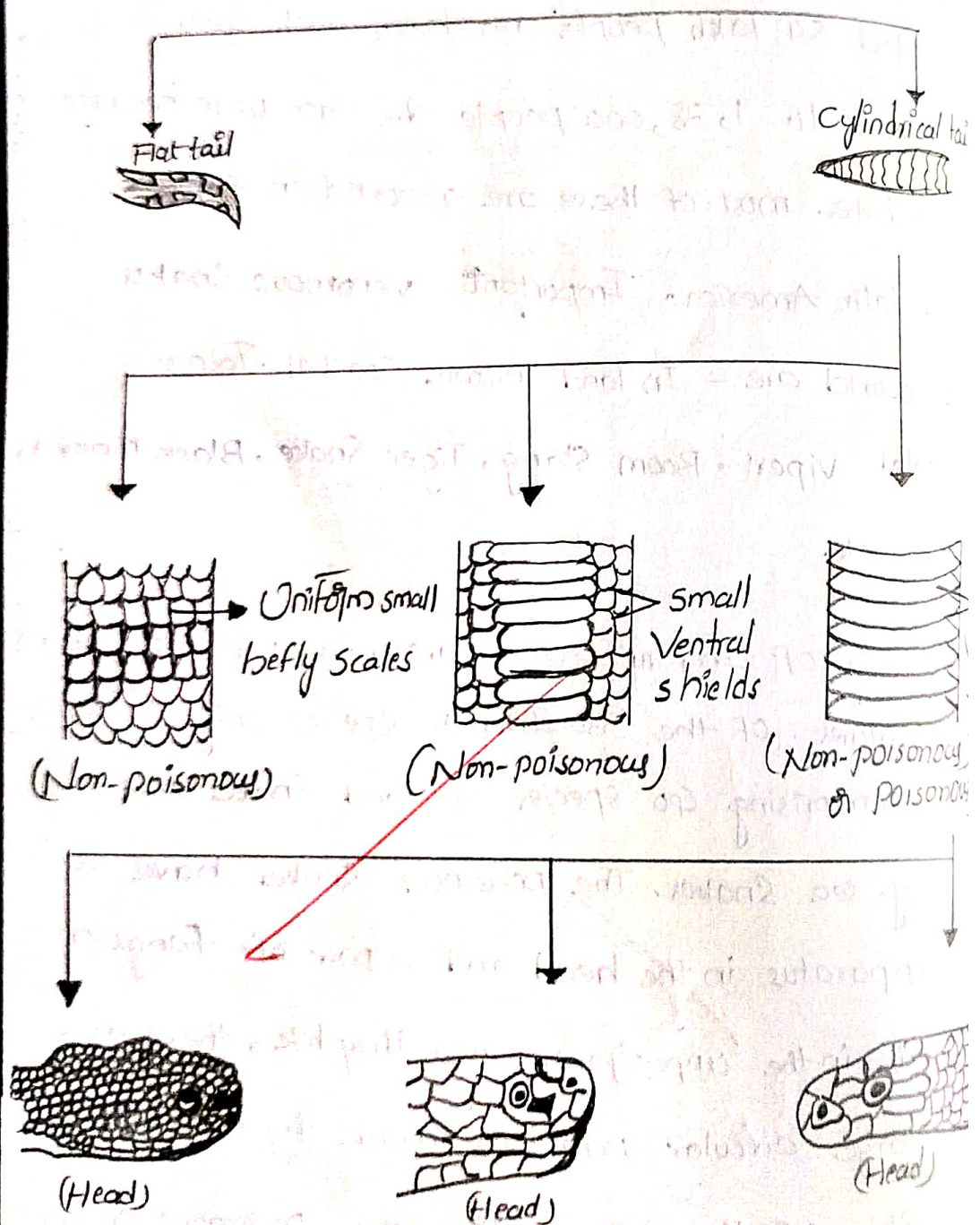
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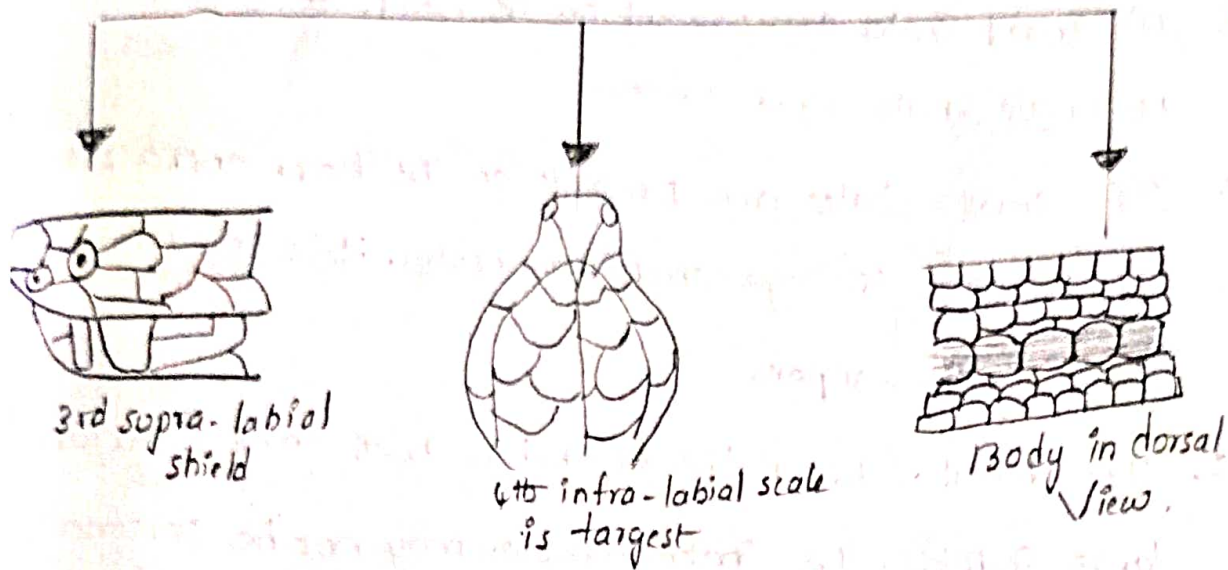
Identification of Poisonous Snakes and Skull in reptiles.

Snakes are found across the world and are threat to human beings, especially in rural areas where they are most abundant. There are over 3,000 species of Snakes in the world and around 600 are venomous. An estimated 54 lakh people are bitten each year and around 81,000 to 1,38,000 people die each year because of Snake bites. Most of these are reported in Africa, Asia and Latin America. Important venomous Snakes of the world are - Inland Taipan, Coastal Taipan, Saw-scaled viper, Boom Slang, Tiger Snake, Black Mamba, King Cobra etc.

Majority of Indian Snakes are non-poisonous and harmless creatures. Of the 330 Indian species only 69 are poisonous comprising 40 species of land Snakes and 29 species of sea Snakes. The poisonous Snakes have a poison apparatus in the head and a pair of fangs (or) longer teeth in the upper jaw. When they bite, there may be two large circular punctures made by the fangs on the skin of the victim. The non-poisonous Snakes

have no fangs and their poison cannot kill man.
 They bite they leave many small prickles only. Some
 the most common Indian poisonous snakes are
 kraits, pit-vipers, vipers and sea snakes.





It is Easy to distinguish poisonous and non-poisonous Snakes on the basis of structure of tail, size and arrangement of Scales (or) Shields on the body. The following points and table provides the key for the identification of poisonous and non-poisonous Snakes.

1. If the tail laterally Compressed and Oar like it is a non-poisonous Snake. If the belly scales are not broad enough to extend right across it, it is a non-poisonous Snake. If board Scales or plates cover the entire width of the belly, it is a non-poisonous (or) poisonous Snake.

2. If the tail is cylindrical and tapering it is a non-poisonous (or) poisonous Snake. If small Scales

- are present on the belly and back, it is a non poisonous snake.
3. If small scales are present on the head, it is a poisonous snake and a viper.
4. If small scales are present on the head and a pit lies between the eye and the nostril, it is a poisonous snake a pit-viper.
5. If dorsal side of the head has both small scales and large shields, the snake may (or) may not be poisonous.
6. If the third supra labial scale touches the eye and the nostril, the snake is a Cobra (or) a Coral Snake. If the neck is with hood and markings, it is a Cobra. On the dorsal side of hood, a spectacle (or) binocular marking is present in Cobra, whereas in King Cobra a monocellate mark (or) dark coloured spot is present. If neck is without hood and coral spots are present on the belly, it is a Coral Snake. Both Cobras and Coral Snakes are poisonous.
7. If vertical scales are hexagonal and larger than other scales over the back and the fourth infra-labial scale is the largest, it is poisonous and a krait.

8. If the Snake has small Scales and large Shields on the head but does not have the Characters of Cobra, Coral-Snake (or) Krait, then it is a non-poisonous Snake.

Give an account of Reptilian Skull and Explain its Significance.

The classification of reptiles is based on the reptilian Skull. The Evolution of the reptiles and higher vertebrates is also interpreted on the characteristic of the reptilian Skull. The functions of the Skull are three. First it protects the main sense organs, particularly the brain. Second it serves as a base of attachment for the muscles which support the lower jaw, third the Skull also serves as attachment for the muscles and ligaments, which connects the Skull to the vertebral column. In reptiles a large Skull is not present. The brain is relatively small, therefore Skull is regarded as under developed to a great extent for the muscles which support jaws and are attached to the inner surface of the bones of the temporal region. The reptilian Skull is very light due to the development of fossae (or) fenestra between certain bones in the sides and roof of the Skull. on the basis of presence (or) Absence.

of these fenestrae (or) vacuities are surrounded by bony arches called Arcades in the temporal region.

The origin of these openings is according to Thompson. "A skull serves two primary functions: it protects the main sense organs and provides a point of attachment for muscles which work for the power of jaw. Two physical rules appear to govern progressive evolution. On one hand it must be sufficiently robust to withstand the stresses to which it is subjected, but on the other hand excessive weight is a handicap and hence there is a reduction of unnecessary bones. As a result, there is a compromise between strength and lightness. The skull is an open frame work mechanism, mechanically designed to meet the physical strains with the least amount of material.

There evolved four types of skulls. They are

- ① Anapsid, ② Synapsid, ③ Diapsid and ④

1] Anapsid Skull: The most primitive forms like coelosaurs, have a complete bony roofing of Temporal region. This type is known as Anapsida. Living chelonians have evolved from this stock. Quadratic bone is structurally articulated to the otic bone.

Ex: Chelonian members.

2] Synapsid Skull: This type of skull has a single vacuity on each side. The vacuity is bounded by post orbital and squamosal bone above and squamosal and jugal bones below but later on parietal appeared within the opening due to the enlargement of vacuity and reduction of post orbitals. From this group the mammals have evolved.

Ex: Fossil form Dimetrodon

3] Diapsid Skull: A later modification of primitive type is known as diapsida. Here are two vacuities in the Temporal region with post orbital and squamosal meeting between them. This condition is found in crocodiles, dinosaurs, sphenodon, lizards and snakes.

In birds the post orbital is lost. So that two vacuities or orbital openings become confluent.

Ex: Dinosaurous, crocodiles, Sphenodon, lizards and snakes.

4]. Parapsida Skull: There is a single vacuity differing from Snapsid Type in the most orbital and squamosal meet below the fossa. This is homologous with the upper vacuity of diapsid skull. Skull with one temporal vacuity on each side and is bounded by post frontal and supratemporal which push the post. orbital and squamosal bone towards the lower side. The fossa is guarded by parietal bone above. This type of skull is found in

Ichthyosaurus a fossil form.

Ex: Fossil form, Ichthysaur

T.R.R. GOVT DEGREE COLLEGE
KANDUKUR



DEPARTMENT OF ZOOLOGY
ASSIGNMENT

SEMESTER - II
PAPER - animal diversity Biology of chordates
TOPIC - life history of Herdmania
DATE - 24/6/22
DAY - Friday
HOUR - 2nd

Submitted To

Dr I Anusha

Submitted By

P. Navaneetha

Y213037008

Describe the structure and life history of Herdmania.

Herdmania is a genus of ascidian tunicates with 11 species; some of the species are - *H. aspera*, *H. colona*, *H. grandis* + *japonica* etc.

Herdmania is a sedentary filter feeding tunicate found in marine habitats. The animal often occurs in gregarious form.

External features:

The body has a flat-purse like structure with a length of 6-13 cms. breadth of 4-7 cms and colour is brownish. The animal is buried in sand by means of foot. The body is like a money-bag and distinguished into an antero-

lateral body is like a money body proper and has two projections - atrial and branchial siphons. Branchial siphon has atrial or excurrent aperture or cloaca. Each

aperture is surrounded by four lobes or lips. The whole body is covered by thick leathery and translucent tunic or test. The same is wrinkled. It is formed of cellulose

like organic substance known as tunicin. Various types of cells, fibrils, blood vessels and spicules are found embedded in the matrix of test.

Internal anatomy:

The mantle represents the body wall and forms inner of the test. Its antero-Ventral part is thick and opaque but the postero-Ventral part is thin and transparent. The internal Organs are visible through it. The mantle consists of an Outer ectoderm, middle mesoderm and inner endoderm. The mantle encloses a large atrial cavity which is incompletely divided into right and left halves by the fusion of the branchial sacs with the body wall in the anterior region. The atrial cavity lodges various internal Organs and opens to the exterior by atrial aperture.

Digestive system:

The alimentary canal is a curved and spacious tube consisting of branchial aperture or mouth, buccal cavity, pharynx, Oesophagus, stomach, intestine, rectum and anal siphon. It opens to the exterior through atrial aperture. Associated with the alimentary canal are present digestive glands namely liver and pyloric glands. The pharynx is spacious, perforated by stigmata. Wall is vascularised.

Respiratory system :

The Vascular branchial sac acts as a respiratory surface increased by its longitudinal folds. The lateral walls are thin and perforated by stigmata which open in to the peribranchial cavity.

Blood Vascular system :

The heart is an elongated, thick-walled tube open at both ends, enclosed in the pericardium and lies below the right lung. There are four main blood vessels namely Ventral aorta from Ventral side, cardio-visceral vessel from dorsal side, dorsal aorta and branchio-visceral vessel.

The Ventral aorta arises ventrally from heart and gives off Ventral test vessel to the test, transverse branchial vessels to the branchial sac, anterior limb joins the peribranchial vessels. The transverse branchial vessels traverse the pharyngeal wall. The branchial vessels traverse the wall of the pharynx and then join a dorsal aorta lying above the dorsal lamina in the dorsal wall of the pharynx. It is not connected with the heart. It sends branchial siphon. Then it leads posteriorly in to a branchio-visceral vessel. The branchio-visceral vessel immediately divides in to a right Oesophagus and a Ventro-intestinal vessel supplying blood.

Nervous system and sense Organs:

Nervous system is represented by an elongated ganglion, embedded in the mantle in the mid-dorsal line between the two siphons. It gives out three nerves from the anterior end and two nerves from the posterior end.

The sense Organs are represented by receptor Organs and those receptor Organs and the functions performed by them are - receptor cells and epithelial cells - tactile; bright red spots - act as Ocelli; tentacles - chemoreceptors; dorsal tubercles - Olfactory and gustatory.

Reproductive system:

Herdmania is a hermaphrodite. The reproductive Organs are a pair of gonads, embedded in the mantle on the left and right side and project into the atrial cavity. The left gonad occupies almost the entire space between the two limbs.

Life history:

The life history of Ascidian can be studied under three stages - (1) Fertilization and early development. (2) Tadpole larval stage. (3) Retrogressive metamorphosis of the tadpole into larva.

(1) Fertilization and early development:

The egg of Ascidian is small in size with little or no yolk. In protogynous condition, the eggs are discharged earlier than male gametes. The mature sperm of an older individual fertilizes the egg, thus cross-fertilization takes place in sea water.

(2) Tadpole larval stage:

The gastrula further develops into embryo after the formation of primary germinal layers ectoderm, mesoderm and endoderm. The embryo develops into larva and the larva hatches out in 8 hours after fertilization and is known as tadpole larva.

(3) Retrogressive metamorphosis:

The tadpole larva exhibits chordate features namely notochord, dorsal tubular spinal cord with cerebral vesicle or ocellus, pharynx with stigmata and lateral muscles.

The Ascidian tadpole larva undergoes metamorphosis during which the advanced chordate features are lost and primitive features appear and this type of metamorphosis is called retrogressive metamorphosis.

(1) Fertilization and early development:

The egg of Ascidian is small in size with little or no yolk. In protogynous condition, the eggs are discharged earlier than male gametes. The mature sperm of an older individual fertilizes the egg. Thus cross-fertilization takes place in sea water.

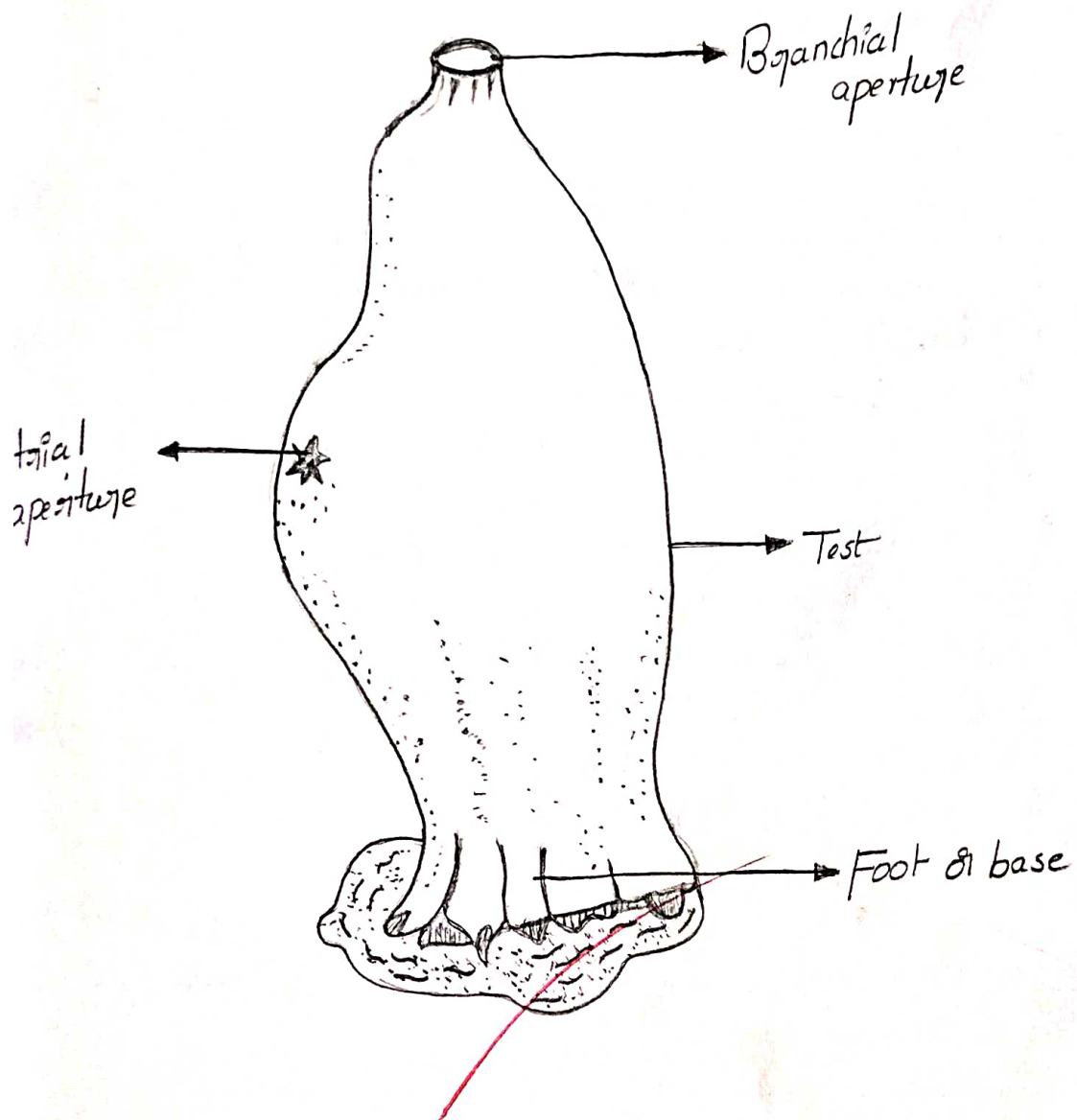
(2) Tadpole larval stage:

The gastrula further develops into embryo after the formation of primary germinal layers ectoderm, mesoderm and endoderm. The embryo develops into larva and the larva hatches out in 8 hours after fertilization and is known as tadpole.

(3) Retgressive metamorphosis:

The tadpole larva exhibits chordate features namely - notochord, dorsal tubular spinal cord with cerebral vesicle or ocellus, pharynx with stigmata and lateral muscles.

The Ascidian tadpole larva undergoes metamorphosis during which the advanced chordate features are lost and primitive features appear and this type of metamorphosis is called regressive metamorphosis.



T.R.R.GOVERNMENT DEGREE COLLEGE, KANDUKUR.



DEPARTMENT OF CHEMISTRY

ASSIGNMENTS

NAME OF THE STUDENT: ch. Nithish

CLASS : IInd B.Sc.[MPC]

GROUP : MPC

REGISTRATION NO ; Y203037038

TOPIC :

SUBMITTED TO : Dr. k.v. PadmaVathi madam
Lecturer in chemistry

Assignments

Assignment - 1 : Explain the Valency bond theory with Examples.

Assignment - 2 : Explain Splitting of d-orbital in Octa and tetrahedral Complexes.

Assignment - 3 : What is order of a Reaction. derive the rate Constant for 2nd order Reaction

Assignment - 4 : Explain phase rule apply the phase rule to Water System.

Assignment - 5 : What is trans effect. Explain its Applications.

Assignment - 6 : Explain S_N1 and S_N2 Reactions in Octahedral and Square planar Complexes.

Assignment - 7 : Explain thermodynamic stability and kinetic stability.

Assignment - 8 : Determine the Composition complex ion by Jobs method.

27/07/22

→ Assignment - 1 ←

Valency bond theory:-

In order to explain the electronic structure, kind of bonding, geometry and magnetic properties Linus Pauling proposed this theory. This is based on the following. This is based on the following assumptions.

- i) The central metal ion or should accommodate a number of s, p and d-atomic orbitals equal to its co-ordination number.
- ii, These vacant orbitals hybridised together to form hybrid orbitals which are the same in number as the atomic orbitals hybridising together.

Co-ordination Number	Hybridisation	Geometry
2	sp	Linear
3	sp ²	Trigonal planar
4	sp ³	Tetrahedral
4	dsp ² (or) sp ² d	Square planar
5	dsp ³ (or) sp ³ d	Trigonal bipyramidal
6	d ² sp ³ (or) sp ³ d ²	Octahedral

- iii) Vacant hybrid orbitals of the metal atom (or) ion overlap with the filled orbitals of ligands to form σ-bond.
- iv) Bond strength depends on extent of overlapping.

if the extent of overlapping is more, greater will be the bond strength.

- v) if the metal ion utilises $(n-1)d$ orbitals for hybridisation, then inner d-orbital complexes are formed which are also known as Low spin (or) spin paired complexes. These show more dia and less para magnetism.
- vi) if the metal ion, utilises 'nd' orbitals for hybridisation, then outer d-orbital complexes are formed, which are also known as low spin free (or) High Spin complexes, these show more para and less dia magnetic character.
- vii) if the complex has an unpaired electron exhibit para, doesn't have an unpaired electron exhibit dia magnetic property.
- viii) under the influence of strong ligands, electrons are paired up against to Hund's rule.

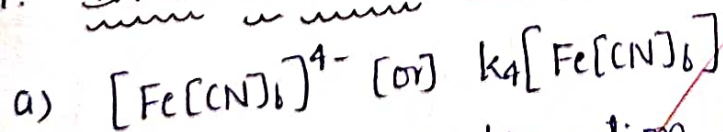
Examples for strong ligands: CN^- , NO_2^- , NH_3 , en...

Examples for weak ligands: F^- , Cl^- , Br^- , I^- , H_2O ...

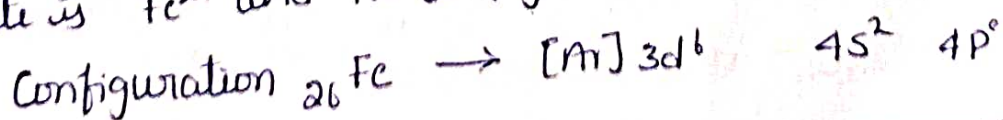
Applications of VBT:

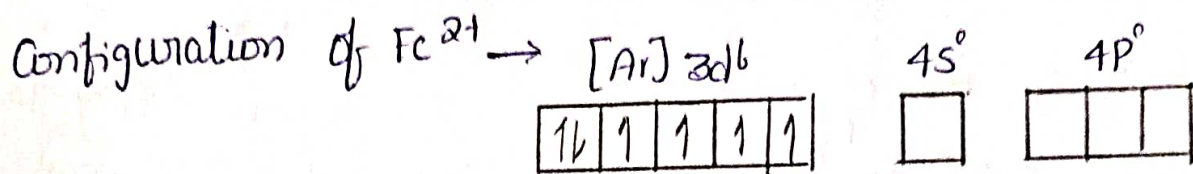
I. In octahedral complexes:

1. Inner d-orbital complexes:

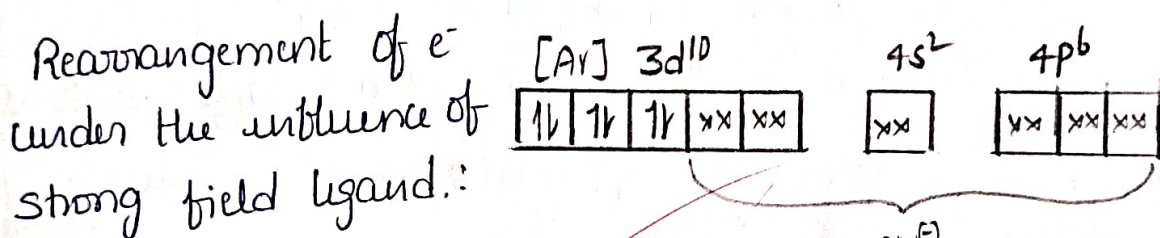


Electron Configuration Fe is $[\text{Ar}] 3d^6 4s^2 4p^0$, oxidation state is Fe^{2+} and its configuration is $[\text{Ar}] 3d^6 4s^0 4p^0$.

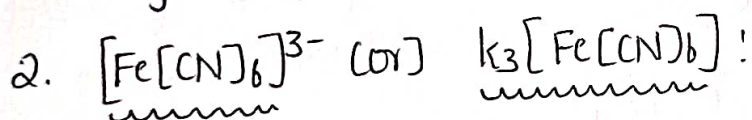




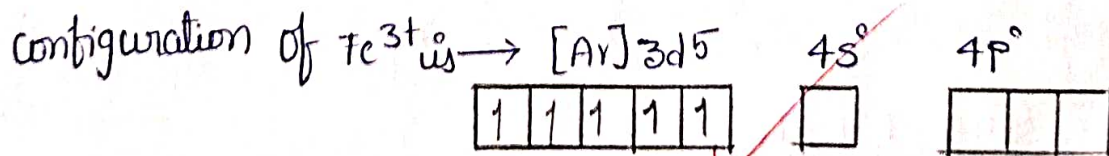
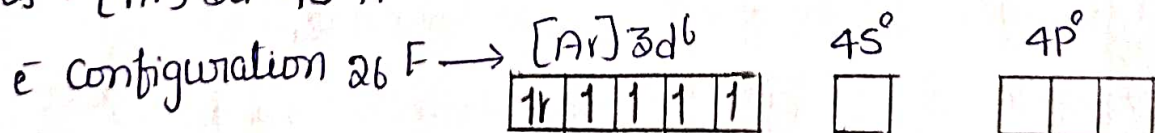
under the influence of strong ligand (CN^-), unpaired electrons becomes paired and the vacant orbitals undergo d^2sp^3 hybridisation to form six sp^3d^2 hybrid orbitals. To these orbitals. CN^- ligand donate their $\bar{e}$ pairs and form an octahedral complex.



due to absence of unpaired electrons it shows diamagnetic property.



e^- Configuration of Fe is $[\text{Ar}] 3d^6 4s^2 4p^0$
 oxidation state of metal ion is +3. Then Fe^{3+} Configuration is: $[\text{Ar}] 3d^5 4s^0 4p^0$

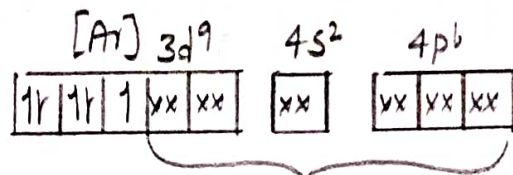


CN^- is a strong ligand, under its influence unpaired e^- s get paired and vacant orbitals form hybrid orbitals. To

These hybrid orbitals, $\text{CN}^\ominus$ ligands donate e^- pairs. due to the presence of an unpaired e^- , it shows paramagnetic character.

Rearrangement of e^- s under

the influence of strong ligands:

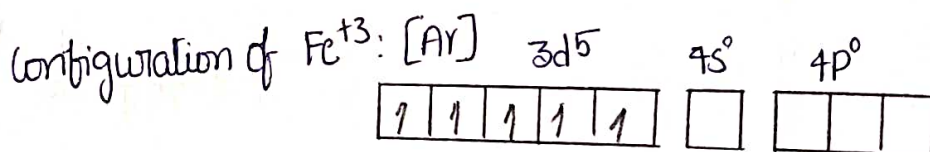
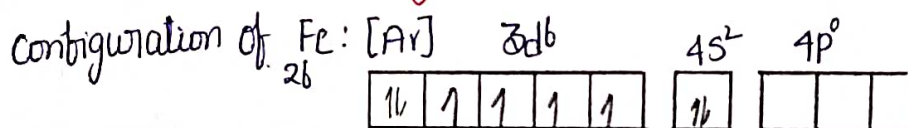


paramagnetic momentum (μ) = $\frac{\text{CN}^\ominus}{\sqrt{n(n+2)}} \text{ BM}$
 $n=1$
 $\mu = \sqrt{1(1+2)}$
 $= \sqrt{1(3)}$
 $= \sqrt{3} = 1.732 \text{ BM}$

2. outer-d-orbital complexes:-

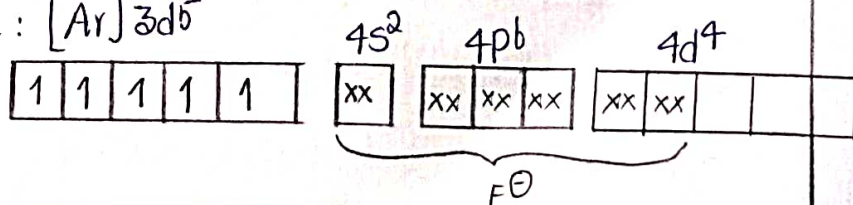
1) $[\text{FeF}_6]^{3-}$:

Electronic configuration of Fe is $[\text{Ar}] 3d^6 4s^2 4p^0$. oxidation state is +3. Configuration of Fe^{3+} is $[\text{Ar}] 3d^5 4s^0 4p^0$.



$\text{F}^\ominus$ is a weak ligand. Hence, e^- s are not get paired and metal and metal utilises 4d orbitals for hybridisation to form six sp^3d^2 hybrid orbitals. To these orbitals $\text{F}^\ominus$ can be donate their electron pairs.

Configuration of complex: $[\text{Ar}] 3d^5$



it exhibits paramagnetism and its paramagnetic moment (μ) is,

$$\begin{aligned}\mu &= \sqrt{n(n+2)} \\ &= \sqrt{5(5+2)} \\ &= \sqrt{5(7)} \\ &= \sqrt{35} \\ &= 5.9 \text{ BM}\end{aligned}$$

2) $[\text{CoF}_6]^{3-}$:

Electronic configuration of Co is $[\text{Ar}] 3d^7 4s^2 4p^0$. Oxidation state is +3. Electronic configuration of Co^{3+} is $[\text{Ar}] 3d^6 4s^0 4p^0$.

Configuration of Co_{27} : $[\text{Ar}] 3d^7 4s^2 4p^0$

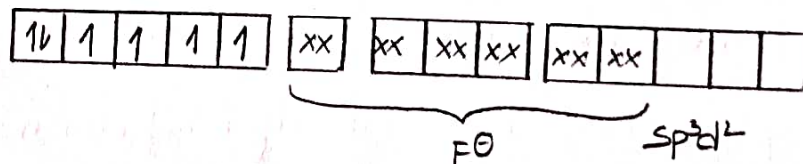
↑↓	↑↓	↑	↑	↑	↑↓			
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Configuration of Co^{3+} : $[\text{Ar}] 3d^6$

↑↓	↑	↑	↑	↑				
----	---	---	---	---	--	--	--	--

$\text{F}^\ominus$ is a weak ligand, metal utilises 4d orbitals for hybridisation and form six sp^3d^2 hybrid orbitals, to these orbitals $\text{F}^\ominus$ can donate their e^- pairs, and it exhibits paramagnetic property. its ' μ ' value is 3.8 B.M

Configuration of Complex:

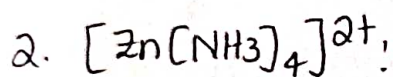
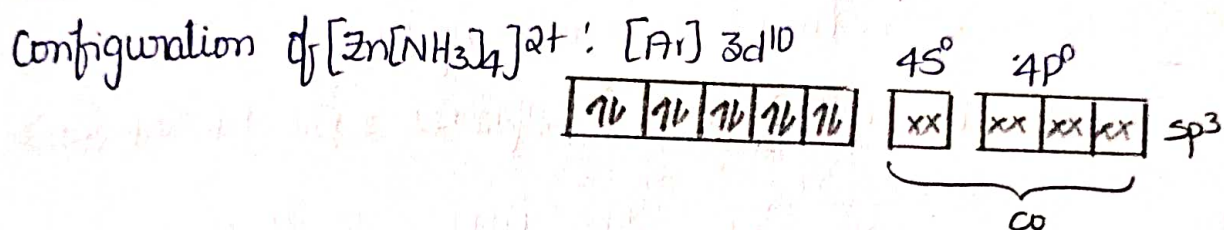
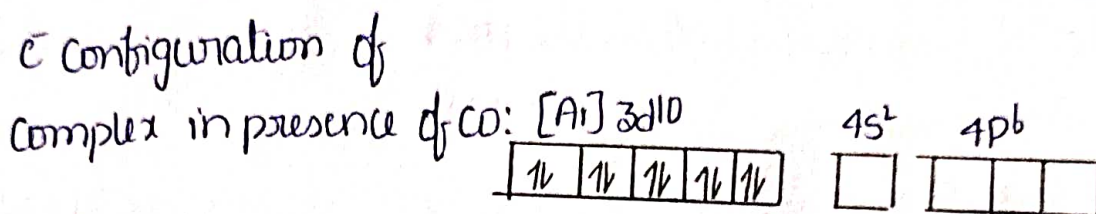
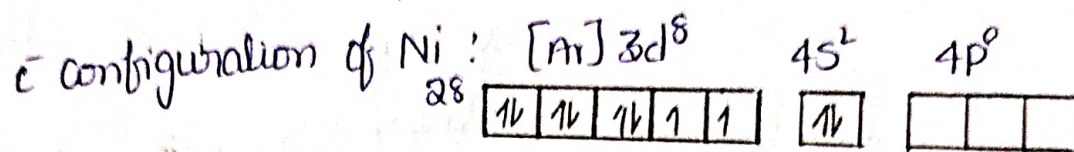


II. Tetrahedral Complexes!

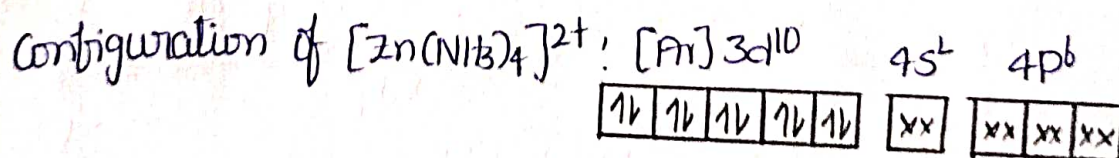
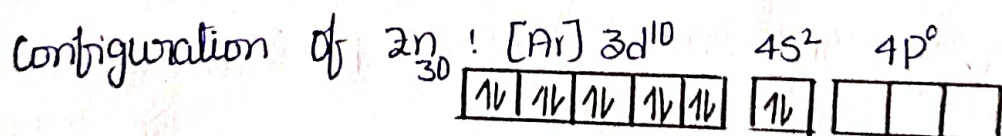
1. $[\text{Ni}(\text{CO})_4]$:

Electron configuration of Ni is $[\text{Ar}] 3d^8 4s^2 4p^0$. in presence of strong ligand (CO), e^- undergo rearrangement of form $4s^3$

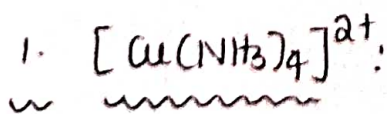
hybrid orbitals. To these orbitals 'CO' donate their e^- pairs form the tetrahedral complexes.



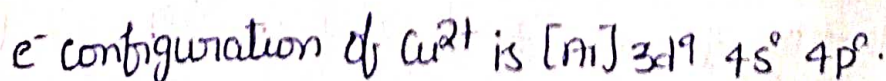
Electron configuration of Zn is $[Ar] 3d^{10} 4s^2 4p^0$. Oxidation state of metal Zn^{+2} , its configuration is $[Ar] 3d^{10} 4s^0 4p^0$. The four vacant orbitals undergo sp^3 hybridisation and form hybrid orbitals, to these orbitals NH_3 donate their orbitals.

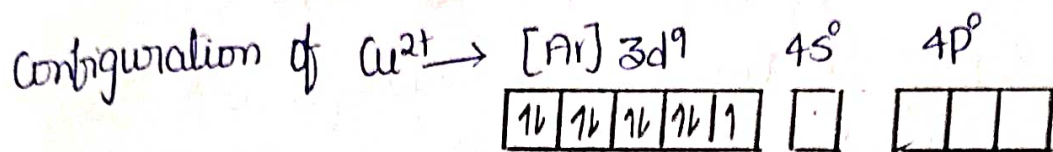
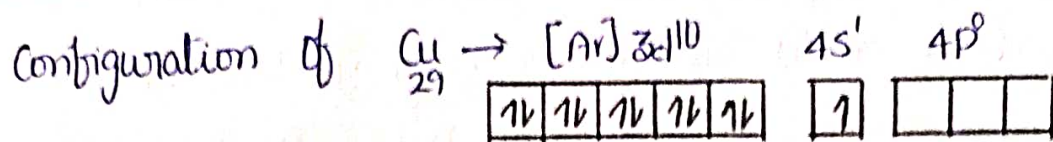


III. Square planar complexes:

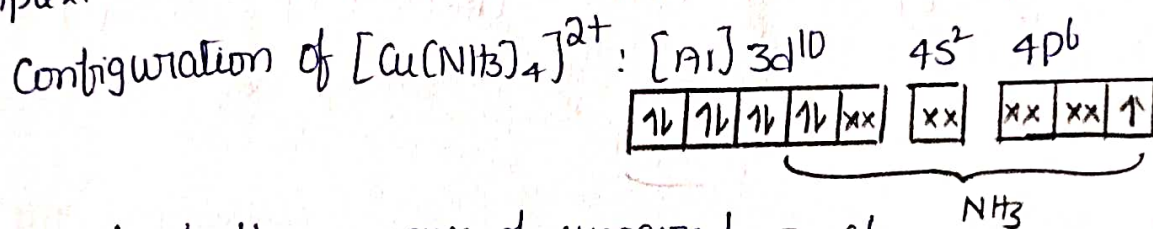


Electron configuration of Cu is $[Ar] 3d^{10} 4s^1 4p^0$. Oxidation state of Cu is +2.





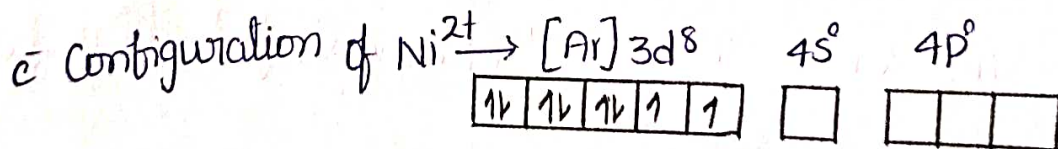
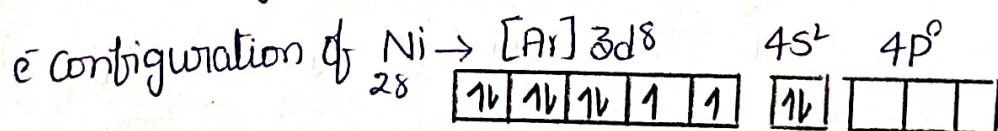
due to the presence of strong ligand (NH_3) unpaired e^- in d^9 orbitals jumps to $4p_z$ orbital and undergo dsp^2 hybridisation to these hybrid orbitals NH_3 donate e^- pairs to form square planar complex.



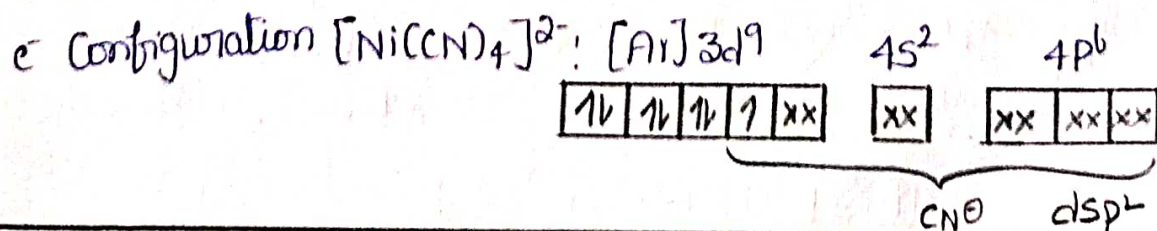
due to the presence of unpaired e^- , it exhibits paramagnetism.

2. $[\text{Ni}(\text{CN})_4]^{2-}$:

e^- Configuration of Ni is $[\text{Ar}] 3d^8 4s^2 4p^0$ oxidation state of Ni is +2. e^- configuration of Ni^{2+} is $[\text{Ar}] 3d^8 4s^0 4p^0$.



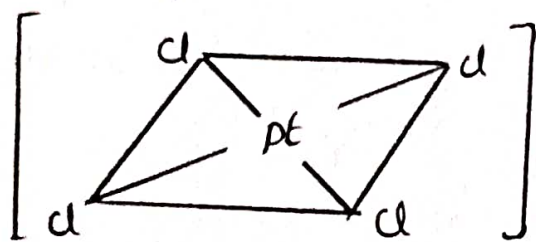
due to presence of strong ligand (CN^-) unpaired e^- s get paired. and vacant orbitals undergo dsp^2 hybridisation, to these orbitals CN^- donate their e^- pairs to form square planar complexes.



due to the absence of unpaired electrons, it shows diamagnetic property.

3. $[PtCl_4]^{2-}$:

e^- Configuration of Pt is $[Xe] 5d^8 6s^2 6p^0$. Oxidation state is Ex of Pt is +2. e^- Configuration is $[Xe] 5d^8 6s^0 6p^0$. In this complex d^2sp^3 hybridisation is present.

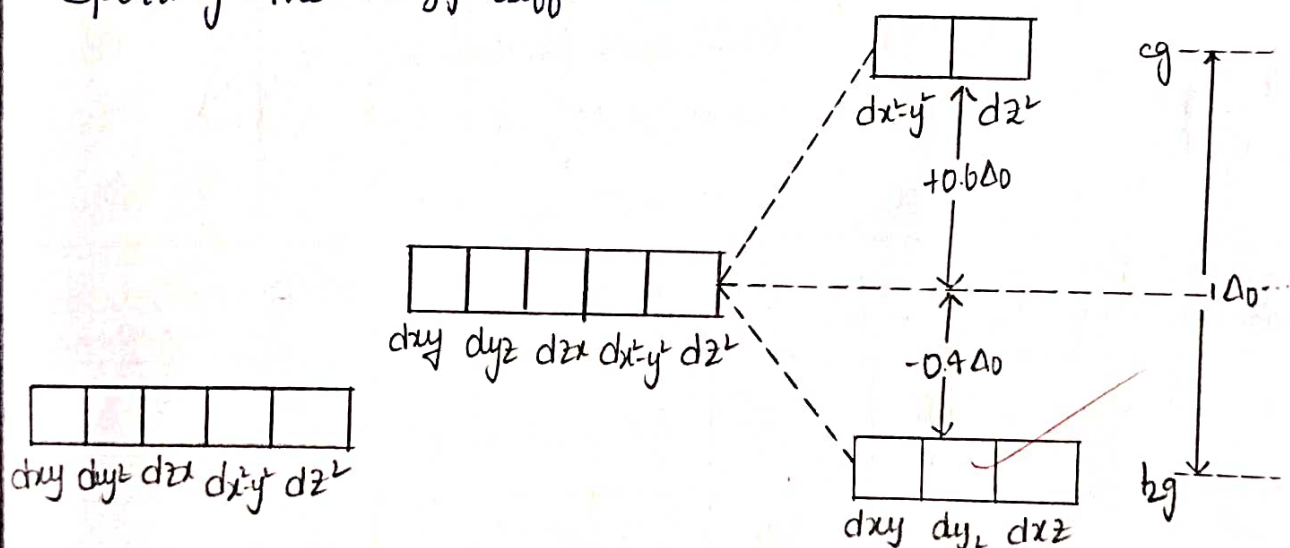


29/09/22

Assignment-2

Splitting of d-orbitals in octahedral complexes!

In octahedral complexes C.N.O. 6. All the five d-orbitals are degenerate in a free metal ion. When ligands are approaching the metal ion at equal distance, the energy of degenerate orbitals increases. When the ligands are approaching closely to metal ion, the orbitals along the axes (dx^2-y^2 & dz^2) get higher energy level and the orbitals in between the axes (dxy, dyz, dzx) get lower energy level. This type of splitting is called Crystal field splitting. The energy difference can be denoted by Δ_o .



Step-I: degenerate d-orbitals of free metal ion

Step-II: increasing the energy level of d-orbitals when ligands are approaching.

Step-III: Crystal field splitting in 'oh' complexes.

Electron will tend to occupy t_{2g} orbitals in order to get stability by $0.4 \Delta_o$ units then enters the e_g orbital. When destabilise the complex by $0.6 \Delta_o$.

Filling of e's take place against Hund's rule in presence of strong ligands while follow in presence of weak ligand.

Calculation of CFSE in Octahedral Complexes in presence of strong ligands

NO of d e ⁻ s in metal ion	t _{2g}	e _g	t _{2g}	e _g	total	NO of unpaired e ⁻ s
d ¹	1	0	-4dq	0	-4dq	1
d ²	2	0	-8dq	0	-8dq	2
d ³	3	0	-12dq	0	-12dq	3
d ⁴	4	0	-16dq	0	-16dq	2
d ⁵	5	0	-20dq	0	-20dq	1
d ⁶	6	0	-24dq	0	-24dq	0
d ⁷	6	1	-24dq	6dq	-18dq	1
d ⁸	6	2	-24dq	12dq	-12dq	2
d ⁹	6	3	-24dq	18dq	-6dq	1
d ¹⁰	6	4	-24dq	24dq	0	0

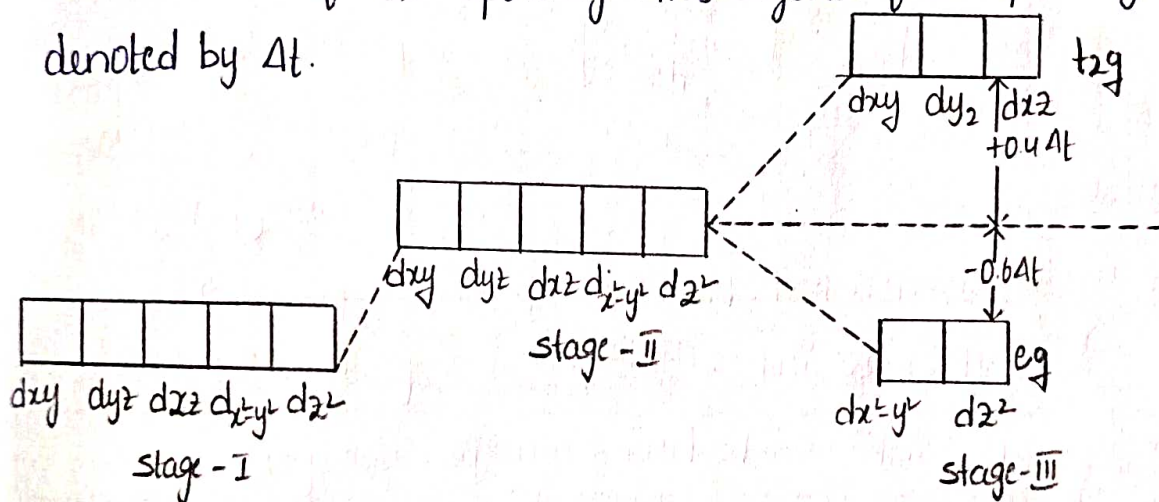
Calculation of CFSE in 'oh' Complexes in presence of weak ligands

NO of d e ⁻ s in metal ion	t _{2g}	e _g	t _{2g}	e _g	total	NO of unpaired e ⁻ s
d ¹	1	0	-4dq	0	-4dq	1
d ²	2	0	-8dq	0	-8dq	2
d ³	3	0	-12dq	0	-12dq	3
d ⁴	3	1	-12dq	6dq	-6dq	4
d ⁵	3	2	-12dq	12dq	0	5
d ⁶	4	2	-16dq	12dq	-4dq	4
d ⁷	5	2	-20dq	12dq	-8dq	3
d ⁸	6	2	-24dq	12dq	-12dq	2
d ⁹	6	3	-24dq	18dq	-6dq	1

d^{10}	6	4	$-24dq$	$24dq$	0	0
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Crystal field splitting in tetrahedral complexes!

Coordinate number in tetrahedral complexes is 4. In a free metal ion all the five d-orbitals are approaching degenerate. When ligands are approaching in a different way, the orbitals in between the axes [d_{xy}, d_{yz}, d_{zx}] get more repelled become higher energy level. The orbitals of along the axes [$d_{x^2-y^2}$ & d_{z^2}] get less repelled become lower energy level. The orbital of along the axes [$d_{x^2-y^2}$ & d_{z^2}] get less repelled become lower energy level. This is the reverse order of 'oh' splitting. This Crystal field splitting is denoted by Δ_t .



stage 1: degenerate orbitals of free metal ion

stage 2: increasing the energy level of d-orbitals by approaching the ligands.

stage 3: Crystal field splitting in tetrahedral complex.

$$\Delta_t = \frac{4}{9} \Delta_o$$

Calculation of CFSE in tetrahedral Complexes!

a) In presence of strong field ligands

NO. of e ⁻ s in metal ion	e _g	t _{2g}	e _g	t _{2g}	total	NO. of unpaired electrons.
d ¹	1	0	-6dq	0	-6dq	1
d ²	2	0	-12dq	0	-12dq	2
d ³	3	0	-18dq	0	-18dq	3
d ⁴	4	0	-24dq	0	-24dq	4
d ⁵	4	1	-24dq	4dq	-20dq	1
d ⁶	4	2	-24dq	8dq	-16dq	2
d ⁷	4	3	-24dq	12dq	-12dq	3
d ⁸	4	4	-24dq	16dq	-8dq	2
d ⁹	4	5	-24dq	20dq	-4dq	1
d ¹⁰	4	6	-24dq	24dq	0	0

b) In presence of weak field ligand!

	e _g	t _{2g}	e _g	t _{2g}	total	NO. U.P. e ⁻ s
d ¹	1	0	-6dq	0	-6dq	1
d ²	2	0	-12dq	0	-12dq	2
d ³	2	1	-12dq	4dq	-8dq	3
d ⁴	2	2	-12dq	8dq	-4dq	4
d ⁵	2	3	-12dq	12dq	0	5
d ⁶	3	3	-18dq	12dq	-6dq	4
d ⁷	4	3	-24dq	12dq	-12dq	3
d ⁸	4	4	-24dq	16dq	-8dq	2
d ⁹	4	5	-24dq	20dq	-4dq	1
d ¹⁰	4	6	-24dq	24dq	0	0

10/08/22

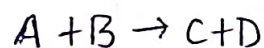
→ Assignment-3 ←

What is order of a Reaction. Derive the rate Constant for 2nd order Reaction:-

order of a Reaction:- The Rate of the Reaction depends upon the conc. of Reactants. The order of the Reaction is defined as "The Sum of the powers of the concentration terms of reactants in rate equation. The order of a Reaction can be divided into 4 types they are.

1. Zero order Reaction
2. First order Reaction
3. Second order Reaction
4. Third order Reaction.

Second order Reaction! The Rate of the Reaction is depends upon the conc. of only two Reactants only.



$$t \rightarrow 0$$

After some time

$$t \rightarrow [a-x]$$

$$\frac{dx}{dt} \propto [A]^2$$

$$\frac{dx}{dt} \propto [a-x]^2$$

$$\frac{dx}{dt} = k_2 [a-x]^2$$

$$\frac{dx}{[a-x]^2} = k_2 \cdot dt$$

Integration on both sides

$$\int \frac{1}{(a-x)^2} dx = k_2 \int dt$$

$$\frac{1}{a-x} = k_2 \cdot t + C \quad \text{--- (1)}$$

here $x=0$, $t=0$

$$\frac{1}{a-0} = k_2(0) + C$$

$$\boxed{\frac{1}{a} = C}$$

'C' value Substitute in eq (1)

$$\frac{1}{a-x} = k_2 \cdot t + \frac{1}{a}$$

$$\frac{1}{a-x} - \frac{1}{a} = k_2 t$$

$$k_2 t = \frac{a-(a-x)}{a(a-x)}$$

$$k_2 t = \frac{a-a+x}{a(a-x)}$$

$$k_2 t = \frac{x}{a(a-x)}$$

$$\boxed{k_2 = \frac{1}{t} \cdot \frac{x}{a(a-x)}} \text{ moles}^{-1} \cdot \text{lit} \cdot \text{sec}^{-1}$$

units:

$$\text{Moles}^{1-n} \cdot \text{lit}^{n-1} \cdot \text{sec}^{-1}$$

$$\text{moles}^{1-2} \cdot \text{lit}^{2-1} \cdot \text{sec}^{-1}$$

$$\text{moles}^{-1} \cdot \text{lit} \cdot \text{sec}^{-1}$$

