KINGS
COLLEGE OF ENGINEERING
Recognised under 2(f) & 12(B) of UGC
Approved by AICTE, New Delhi.
Affiliated to Anna University, Chennai.

ACCREDITED WITH GRADE B++ NAAC

ACADEMIC YEAR 2022-2023

PROFESSIONAL CAREER ENHANCEMENT SKILLS

A NAAC Accredited Institution

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DEPARTMENT OF CIVIL ENGINEERING

ACADEMIC YEAR 2022-20223

PROFESSIONAL CAREER ENHANCEMENT SKILLS

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DEPARTMENT OF CIVIL ENGINEERING
ACADEMIC YEAR (2022– 2023) ODD SEMESTER
CE8701 - ESTIMATION COSTING AND VALUATION ENGINEERING
ASSIGNMENT II - PCE ACTIVITY

YEAR/SEM: IV / VII **TOTAL STRENGTH : 21**

PCE ACTIVITY OUTCOME

S.No	ACTIVITY	OUTCOME
1	Technical Quiz	Technical Quiz was created using "**QUIZALIZE**" app. Students learned **Multiple Choice questions** in Estimation costing and valuation Engineering This activity will be helpful in preparation for competitive exams.
2	Poster Presentation	Students prepared posters and presented their topic, which enhances **Activity based learning**. This activity will improve their communication and presentation skills.
3	Application of Concepts	Students prepared presentation based on **specifications and concepts** in ECVE. This activity will improve their Technical skills.
4	Seminar	Students presented seminar, which enhances **presentation skills**. Students can get additional information about various topics in the subject which will be helpful for exam preparation.

26/9/2022
SUBJECT INCHARGE
(Mr.ARUN.K)

R. Saravanan 01/10/2022
HOD / CIVIL
(Dr.R.SARAVANAN)

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DEPATRMENT OF CIVIL ENGINEERING

ACADEMIC YEAR 2022-2023 (ODD SEM)

CE8701 – ESTIMATION COSTING AND VALUATION ENGINEERING

PCE ACTIVITY- POSTER PRESENTATION

S.No	*STUDENT NAME*	*TOPIC*
1	AGALYA B	RATE ANALYSIS
	DIVYA S	
	JANANI T S	
2	MADHUMITHA R	TYPES OF ESTIMATION
	RENGESWARI R	
	MONIKA M	
3	SATHYA P	TYPES OF CONTRACTS
	RUBIKA M	
	ABIRAMI S	
4	ARUNPRASAD S	SECTIONAL DRAWING OF RESIDENTIAL BUILDING
	PREMKUMAR J	
	JAYACHANDRAN N	
	STALIN P	
5	JAYASEELAN M	LONG WALL SHORT WALL & CENTRELINE METHOD
	ANBUMANI S	
	ARUNKUMAR M	
	DANIEL NAVIS F	
6	KURALARASAN R	RATE ANALYSIS OF WATER SUPPLY & SANITARY ITEMS
	SANTHOSH S	
	VIMAL R	
	KARTHIKEYAN R	

STUDENTS PRESENTATION

30/09/2022

STAFF INCHARGE

01/10/2022

HOD/CIVIL

CE8701 - ESTIMATION, COSTING & VALUATION ENGINEERING

PCE ACTIVITY - 3

APPLICATION OF CONCEPTS

(b) Civil

31/09/2020

PREPARED By,

B. Agalya

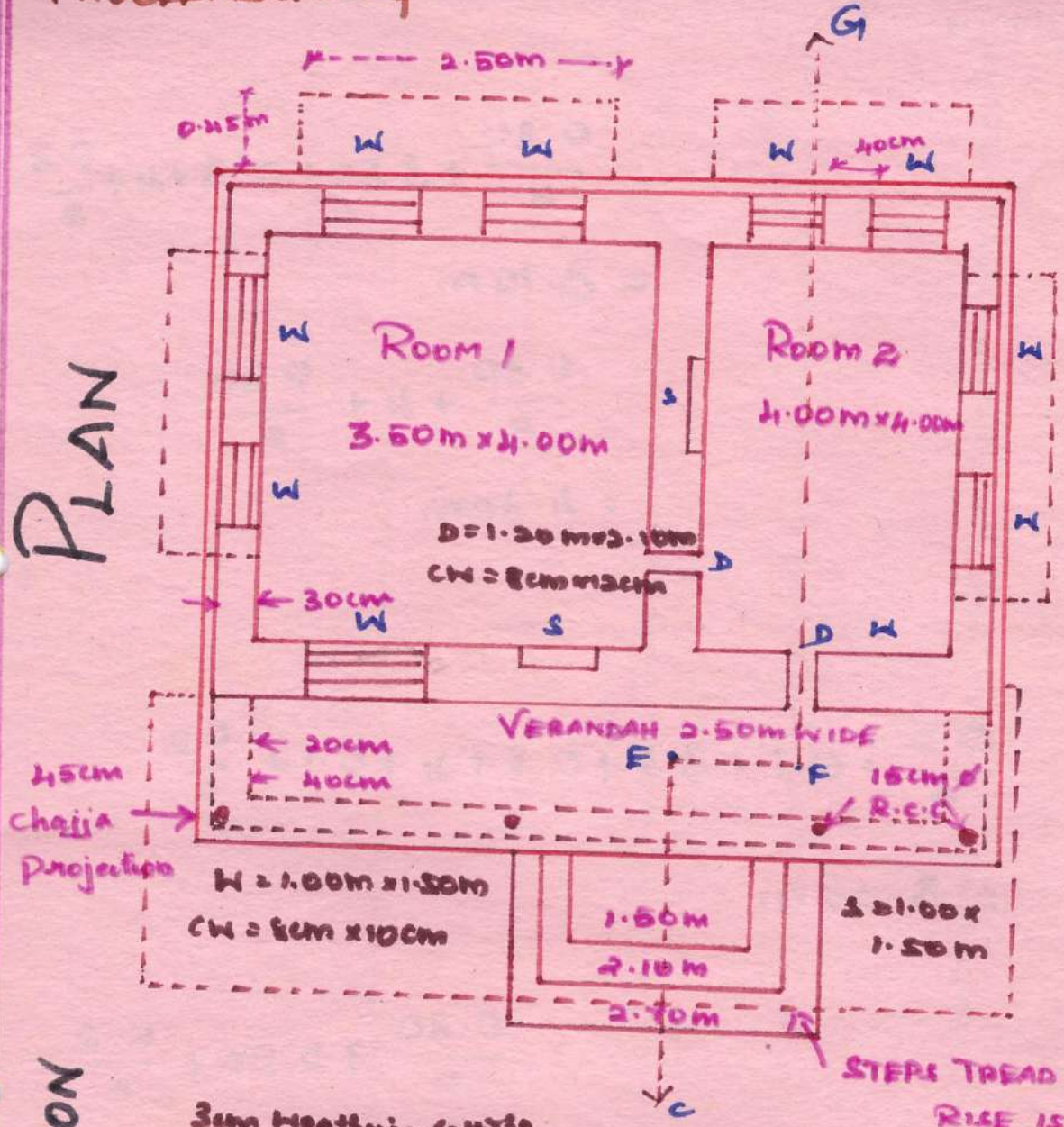
S. Divya

T. S. Janani

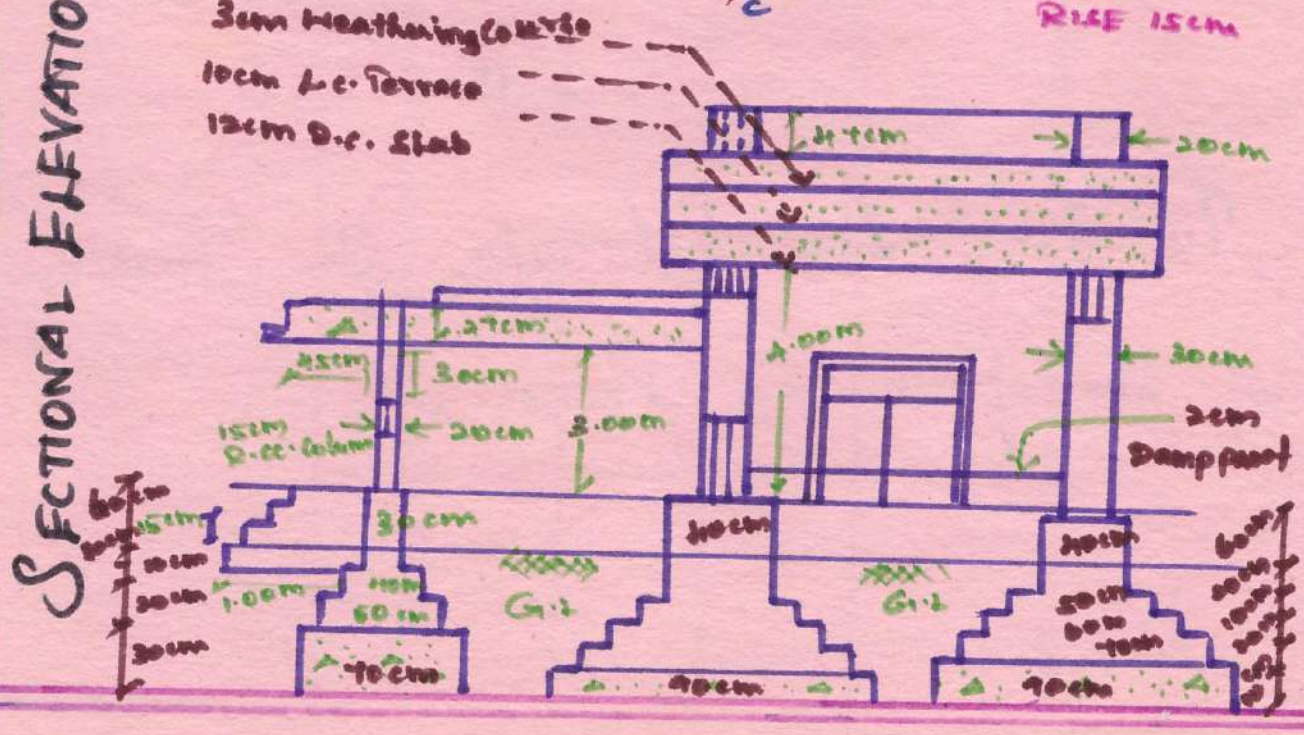
IV - Civil

PROBLEM SOLVING:

PLAN



SECTIONAL ELEVATION



SOLUTION:

Length of long Wall = $\frac{0.30}{2} + 3.50 + 0.3 + 4 + \frac{0.3}{2}$

= 8.10 m.

Length of Short Wall = $\frac{0.30}{2} + 4 + \frac{0.30}{2}$

= 4.30m

Verandah Front Wall =

$\frac{0.2}{2} + 0.1 + 3.5 + 0.3 + 4 + 0.1 + \frac{0.2}{2}$

= 8.20m

Verandah Side Wall = $\frac{0.30}{2} + 2.50 + \frac{0.2}{2}$

= 2.75m

To find the Estimate the Quantities of the following Items.,

PARTICULARS	NOS	LENGTH	BREDTH	DEPTH/ HEIGHT	QUANTITY	EXPLAMATORY NOTES
1. Earthwork in Excavation in foundation						
Long wall	2	9.00m	0.90m	0.90m	14.58 m³	8.10+0.90
Short wall	3	3.40m	0.90m	0.90m	8.26 m³	4.30-0.90
Verandah front	1	8.90m	0.70m	0.90m	5.61 m³	8.20+0.70
Verandah Side	2	1.95m	0.70m	0.90m	2.46 m³	$2.75-\frac{0.9}{2}-\frac{0.7}{2}$
Steps.	1	2.90m	1.00m	0.15m	0.44 m³	2.70+0.1+0.1
			Total Quantity=		31.35m³	
2. Earth work filling in plinth						
Room 1	1	3.90m	3.40m	0.54m	7.16 m³	L = 3.90m B = 3.40m H = 54cm
Room 2	1	3.90m	3.90m	0.54m	8.21 m³	8.20-0.1-0.2
Verandah	1	7.90m	2.40m	0.54m	10.23 m³	$+2.75-\frac{0.4}{2}-\frac{0.3}{2}$
			Total Quantity =		25.61m³	
3. Lime Concrete in foundation.						
Long wall	2	9.00m	0.90m	0.30m	4.86 m³	8.10+0.90
Shoat wall	3	3.40m	0.90m	0.30m	2.75 m³	4.30-0.90
Verandah front	1	8.90m	0.70m	0.30m	1.869 m³	8.20+0.70

PARTICULARS	NO.	LENGTH	BREADTH	DEPTH/ HEIGHT	QUANTITY	EXPLANATORY NOTES.
Verandah Side	2	1.95m	0.70m	0.30m	$0.82m^3$	$2.75-\frac{0.9}{2}-\frac{0.7}{2}$
Steps	1	2.90m	1.00m	0.15m	$0.435m^3$	2.7+0.1+0.1
			Total Quantity =		$10.74m^3$	
4. 1st class B.W in foundation in plinth						
Long wall	2					
1st footing	2	8.80m	0.70m	0.20m	$2.464m^3$	8.1+0.7
2nd footing	2	8.70m	0.60m	0.10m	$1.044m^3$	8.1+0.6
3rd footing	2	8.60m	0.50m	0.10m	$0.86m^3$	8.1+0.5
Plinth wall	2	8.50m	0.40m	0.80m	$5.44m^3$	8.1+0.4
Short wall						
1st footing	3	3.60m	0.70m	0.20m	$1.512m^3$	4.30-0.70
2nd footing	3	3.70m	0.60m	0.10m	$0.666m^3$	4.30-0.60
3rd footing	3	3.80m	0.50m	0.10m	$0.570m^3$	4.30-0.50
Plinth wall	3	3.90m	0.40m	0.80m	$3.744m^3$	4.30-0.40
Verandah front						
1st footing	1	8.70m	0.50m	0.20m	$0.87m^3$	8.20+0.50
2nd footing	1	8.60m	0.40m	0.10m	$0.34m^3$	8.20+0.40
Plinth wall	1	8.50m	0.30m	0.90m	$2.30m^3$	8.20+0.30
Verandah side						
1st footing	2	2.15m	0.50m	0.20m	$0.43m^3$	$2.75-\frac{0.7}{2}-\frac{0.5}{2}$
2nd footing	2	2.25m	0.40m	0.10m	$0.18m^3$	$2.75-\frac{0.6}{2}-\frac{0.4}{2}$
Plinth wall	2	2.40m	0.30m	0.90m	$1.30m^3$	$0.75-\frac{0.4}{2}-\frac{0.3}{2}$

PARTICULARS	NO:	LENGTH	BREADTH	DEPTH/ HEIGHT	QUANTITY	EXPLANATORY NOTES
Steps.						
1st Step	1	2.70m	0.90m	0.15m	$0.365m^3$	
2nd Step	1	2.10m	0.60m	0.15m	$0.189m^3$	
3rd Step	1	1.50m	0.30m	0.15m	$0.068m^3$	
			Total Quantity =		$22.34m^3$	
5. Damp Proof Course of 2cm thick						
Long wall	2	8.50m	0.40m	-	$6.80m^2$	8.10+0.40
Short wall	3	3.90m	0.40m	-	$4.68m^2$	4.30-0.40
Deduction						
Doors	2	1.20m	0.40m	-	$-0.96m^2$	
			Total Quantity =		$10.52m^2$	
6. 1st B.W in Superstructure						
Long wall	2	8.40m	0.30m	4.00m	$20.16m^3$	8.10+0.30
Short wall	3	4.00m	0.30m	4.00m	$14.40m^3$	4.30+0.30
Verandah front	1	8.40m	0.20m	0.40m	$0.68m^3$	8.9+0.2
Verandah Side	2	2.50m	0.20m	0.40m	$0.40m^3$	$2.45-\frac{0.3}{2}-\frac{0.2}{2}$
Above lintel						
Verandah front	1	8.40m	0.20m	0.20m	$0.50m^3$	8.2+0.2
Verandah Side	2	2.50m	0.20m	0.20m	$0.30m^3$	$2.45-\frac{0.3}{2}-\frac{0.2}{2}$
Parapet wall						
Long wall	2	8.40m	0.30m	0.68m	$2.22m^3$	4.3-0.2+0.2
Short wall	3	4.20m	0.30m	0.60m	$1.01m^3$	
			Total =		$39.46m^3$	

PARTICULARS	NO.	LENGTH	BREADTH	DEPTH/ HEIGHT	QUANTITY	EXPLANATORY NOTES
Deduction						
Door	2	1.20m	0.3m	2.10m	$1.51m^3$	
Windows	10	1.0m	0.3m	1.50m	$4.5m^3$	
Shelves	2	1.0m	0.2m	1.50m	$0.60m^3$	
CW (doors)	2	1.00m	0.3m	0.12m	$0.72m^3$	
Windows	10	1.00m	0.30m	0.10m	$0.30m^3$	
Lintel doors	2	1.40m	0.30m	0.10m	$0.084m^3$	
Windows	10	1.20m	0.30m	0.10m	$0.36m^3$	
CW Windows	12	1.20m	0.30m	0.10m	$0.432m^3$	1.2+0.1+0.1
Shelves	2	1.2m	0.30m	0.10m	$0.072m^3$	
			Total Quantity =		$7.93m^3$	
			Net Quantity =		$31.53m^3$	
7. R.C.C Work in lintel						
Doors	2	1.40m	0.30m	0.10m	$0.084m^3$	1.2+0.1+0.1
Windows	10	1.2m	0.30m	0.10m	$0.36m^3$	1.0+0.1+0.1
Shelves	2	1.2m	0.30m	0.10m	$0.072m^3$	1.0+0.1+0.1
CW Windows doors, Windows	12	1.20m	0.30m	0.10m	$0.432m^3$	1.0+0.1+0.1
			Total Quantity =		$0.948m^3$	
8. R.C.C Work in Column & Roof Slab						
Column	4	$\frac{\pi(0.15)^2}{4}$	-	2.70m	$0.19m^3$	8.1+0.3+0.12+0.12
Roof (roof)	1	8.64m	4.84m	0.12m	$4.99m^3$	4.2+0.3+0.12+0.12
Verandah (roof)	1	8.40m	2.85m	0.10m	$2.39m^3$	8.2+0.2 2.75+0.1
			Total Quantity =		$7.57m^3$	

CE8701 - ESTIMATION COSTING ANGD VALUATION ENGINEERING

PCE ACTIVITY - 3

APPLICATION OF CONCEPT

(SPECIFICATION).

10 Good

30/09/2022

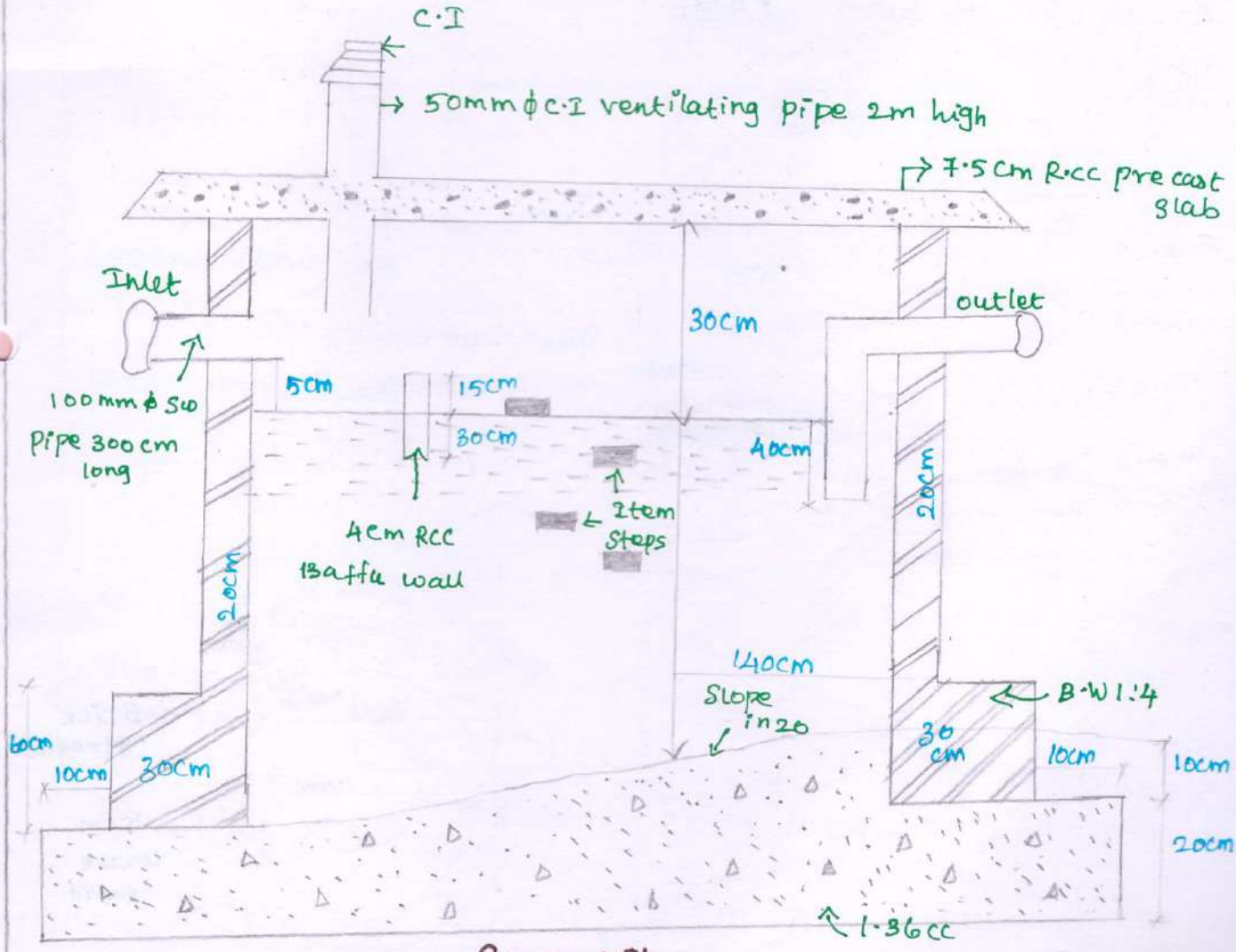
WRITTEN BY...

R. MADHUMITHA

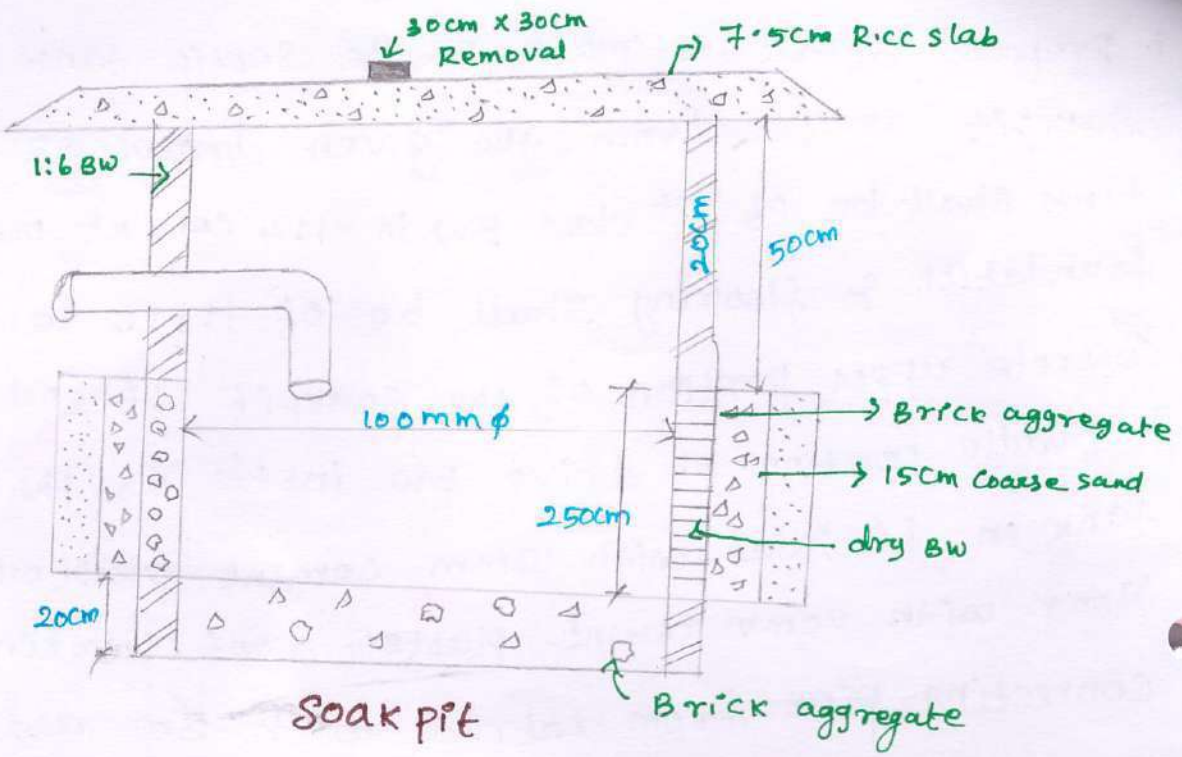
R. RENGIASWARI

M. MONIKA

1. Prepare detail estimate of the Septic tank with soakpit 25 uses from the given drawings Septic tank shall be of 1st class BW in 1:4 cement mortar foundation & flooring shall be of 1:3:6 cement concrete upper portion of the soakpit 1:6 2nd class BW & middle portion of drive BW inside of the septic tank in finished with 12mm cement plaster & floor with 20mm cement plaster, roof covering slab connecting pipe from Latrine with 3m assume Suitable rates.

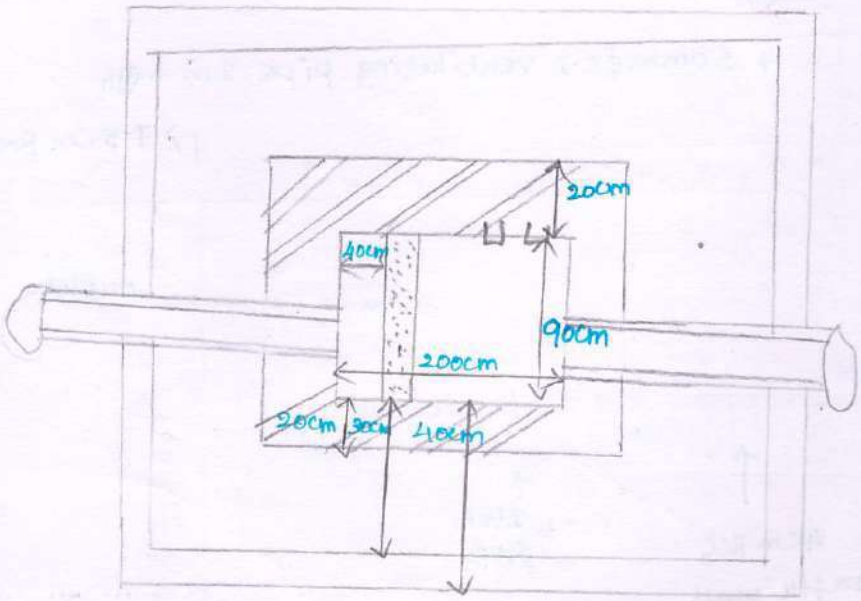


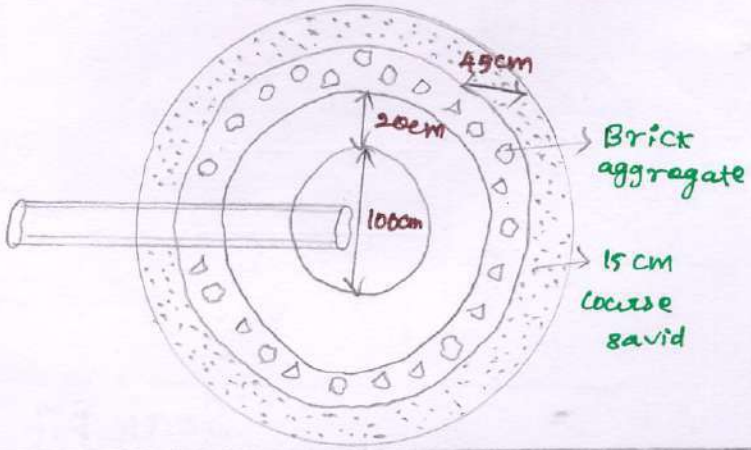
Soak pit



Soak pit

Plan





Length of the septic tank = 0.4+2+0.4 = 2.8m

Breadth of the septic tank = 0.40+0.90+0.40 = 1.7m

depth of the septic tank = $20+\left(\frac{0+10}{2}\right)+140+30$ = 1.95m

Soakpit diameter = 100cm

depth of the soakpit = 300

Item	Particular item	NOS	Length (m)	breadth (m)	depth (m)	Quantity	Explentory notes
1)	Ew in excavation						
	Septic tank	1	2.80	1.70	1.95	$9.28m^3$	LBD
	Soak pit	1	$\frac{\pi(200)^2}{4}$	-	3.00m	$9.42m^2$	area×depth
	Soak pit Lower portion.	1	$\frac{\pi(0.4)^2}{4}$	-	0.20	$0.30m^2$	0.15+0.15+0.2+1+0.2+0.15+0.15
						$19.00m^3$	
2)	Cement concrete 1:3:6						
	Septic tank foundation	1	2.80m	1.70m	0.20m	$0.95m^3$	$\frac{(0+10)}{12}$
	Slope portion	1	2.00	9.00	0.05	$0.09m^3$	(inner dimension)
						$1.04m^3$	
3)	1st class BW 1:4						
	septic tank Long wall						
	1st step	2	2.60m	0.3m	0.6m	$0.94m^3$	0.3+2+0.3
	2nd step	2	2.40m	0.2m	1.15m	$1.10m^3$	0.2+2+0.1 D=0.8+0.3+0.05

	Short wall						
	1st step	2	1.5m	0.3m	0.60m	$0.54\,m^3$	0.3+0.9+0.3
	2nd step	2	1.3m	0.2m	1.15m	$0.60\,m^3$	0.2+0.9+0.2
						$3.18\,m^3$	
4)	2nd class BW in 1:6						
	Soakpit						
	upper portion	1	$\pi d(1.2)$	0.2m	0.50m	$0.38\,m^3$	0.1+1+0.1
	Lower portion	1	$\pi(1.2)$	0.2m	0.20m	$0.15\,m^3$	0.1+1+0.1
						$0.53\,m^3$	
5)	Dry BW						
	Soak pit	1	$\pi(1.2)$	0.2m	2.50m	$1.88\,m^3$	0.1+1+0.1
6)	R.cc. precast slab						
	Roof cover of	*					
	Septic tank	1	2.40m	1.30m	0.075	$0.234\,m^3$	0.2+2+0.2
	Soak pit	1	$\frac{\pi(1.4)^2}{4}$	—	0.075	0.115	0.2+0.9+0.2
	Baffle slab	1	1.00m	0.040	0.45	$0.018\,m^3$	0.2+1+0.2
						$0.367\,m^3$	
7)	12mm cement Plaster Inside of septic tank.						
	Long wall	2	2.00m	—	1.7m		
	Short wall	2	0.9m	—	1.7m		
						$9.80\,m^3$	

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DEPATRMENT OF CIVIL ENGINEERING

ACADEMIC YEAR 2022-2023 (ODD SEM)

CE8701 – ESTIMATION COSTING AND VALUATION ENGINEERING

PCE ACTIVITY 4 - SEMINAR

STAFF INCHARGE 30/09/2022

HOD/CIVIL 01/10/2022

(16)

KINGS COLLEGE OF ENGINEERING

CE8701 – ESTIMATION COSTING AND VALUATION ENGINEERING

PCE ACTIVITY

SEMINAR ON METHODS OF ESTIMATION

BY
S.SANTHOSH
R.VIMAL
IV YR CIVIL

1- CONTRACTOR ESTIMATE

It is made by the contractor for determining the price or prices to be bid.

It is usually a carefully prepared detailed estimate.

2- ENGINEER'S ESTIMATE

This type of estimate is made by the Engineer (Consultant) usually for the purposes of financing the work and for checking bids and running bills submitted by contractors.

3- PROGRESS ESTIMATES

- These are made by the Engineer at regular intervals for the completed parts of the project during the progress of the work for determining the amounts of partial payments to be made to the contractor.
- On large contracts, such estimates are commonly made each month and, hence, are frequently called monthly estimates.

UNFORESEEN ITEMS IN DETAILED ESTIMATE

- While preparing a detailed estimate, one had to be very careful to see that all items of the work are incorporated.
- It is likely that a few Items, though unimportant in nature, might have been overlooked and which may result in raising the estimate of the project.
- There may be also certain unforeseen circumstances affecting the project.
- Hence, a certain allowance usually 5 to 10% of the total cost, is made in the estimation which will take care of all these items that are unforeseen or are overlooked and are known as "Contingencies".

METHODS OF DETAILED ESTIMATE

- The dimensions, length, breadth and height or depth are to be taken out from the working drawings (plan, elevation and section).
- Junctions of walls, corners and the meeting points of walls require special attention.
- For symmetrical footings, which is the usual case, earthwork in excavation in foundations, foundation concrete, brickwork in foundation and plinth, and brickwork in superstructure may be estimated by either of the two methods:

  (1) SEPARATE OR INDIVIDUAL WALL METHOD
  (2) CENTER LINE METHOD

SEPARATE OR INDIVIDUAL WALLS METHOD

- The walls running in one direction are termed as "long walls" and the walls running in the transverse direction, as "Short walls", without keeping in mind which wall is lesser in length and which wall is greater in length.
- Lengths of long walls are measured or found "Out-to out" and those of short walls as "In-to-in".
- Different quantities are calculated by multiplying the length by the breadth and the height of the wall.
- The same rule applies to the excavation in foundation, to concrete bed in foundation, D.P.C., masonry in foundation and super structure etc.

SEPARATE OR INDIVIDUAL WALLS METHOD

- For symmetrical footing on either side, the center line remains same for super structure, foundation and plinth. So, the simple method is to find out the centre-to-centre lengths of long walls and short walls from the plan.
- Long wall length out-to-out

  = Center to center length + half breadth on one Side + half breadth on other side.

  = Center to center length + one breadth

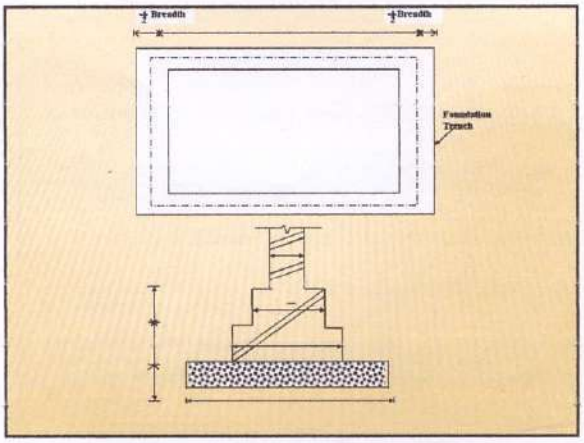
- Short wall length in-to-in = Center to Center length - one breadth.

SEPARATE OR INDIVIDUAL WALLS METHOD

This method can also be worked out in a quicker way.. as follows:

- For long walls
  - First of all, find the length of the foundation trench of the long wall "out-to-out in the same manner as explained above.
  - The length of the foundation concrete is the same.
  - For the length of the first footing or first step of the brick wall, subtract two offsets (2x6"=12") in foundation concrete from the length of the trench or concrete.
  - For the second footing subtract from the length of the 1st footing two offsets (2x2.25"= 4.5"), for 3rd footing subtract from the length of the 2nd footing 2 offsets (4.5") and in this way deal with the long walls up to the super-structure.
- For short walls

  Follow he same method but instead of subtracting add two offsets to get the corresponding lengths in-to-in.

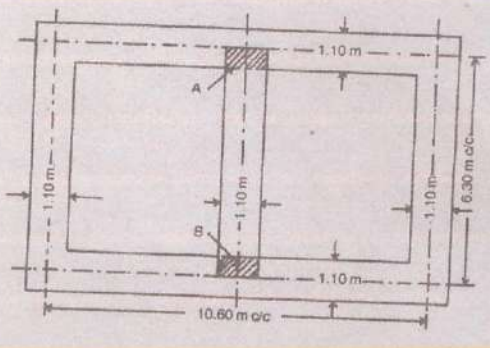


CENTRE LINE METHOD

- In this method, total length of centre lines of walls, long and short, has to be found out.
- Find the total length of centre lines of walls of same type, having same type of foundations and footings and then find the quantities by multiplying the total centre length by the respective breadth and the height.
- In this method, the length will remain the same for excavation in foundations, for concrete in foundations, for all footings, and for superstructure (with slight difference when there are cross walls or number of junctions).
- This method is quicker but requires special attention and considerations at the junctions, meeting points of partition or cross walls.

CENTRE LINE METHOD

- For rectangular, circular polygonal (hexagonal, octagonal etc) buildings having no inter or cross walls, this method is quite simple.
- For buildings having cross or partition walls, for every junction, half breadth of the respective item or footing is to be deducted from the total centre length.
- Thus in the case of a building with one partition wall or cross wall having two junctions, deduct one breadth of the respective item of work from the total centre length.

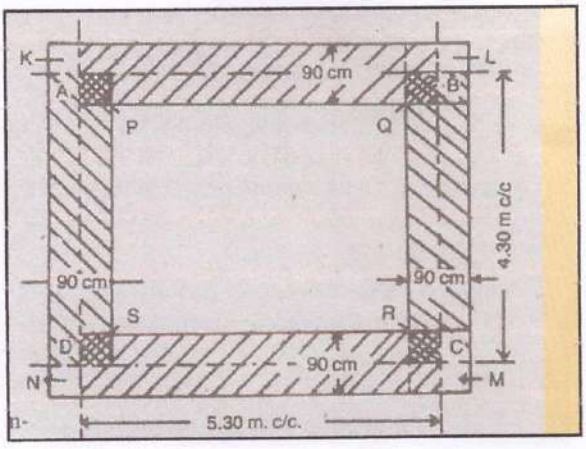


CENTRE LINE METHOD

- For buildings having different types of walls, each set of walls shall have to be dealt separately.
- Find the total centre length of all walls of one type and proceed in the same manner as described above. Similarly find the total centre length of walls of second type and deal this separately, and so on.
- Suppose the outer walls (main walls) are of A type and inner cross walls are of B type.
- Then all A type walls shall be taken jointly first, and then all B type walls shall be taken together separately.
- In such cases, no deduction of any kind need be made for A type walls, but when B type walls are taken, for each junction deduction of half breadth of A type walls (main Walls) shall have to be made from the total centre length of B type walls.

CENTRE LINE METHOD

- At corners of the building where two walls are meeting, no subtraction or addition is required.
- In the figure, the double cross-hatched areas marked P,Q,R, & S come twice, while blank areas, A,B,C, & D do not come at all, but these portions being equal in magnitude, we get the correct quantity.



THANK YOU

DATE : 23/03/2023
: THURSDAY

PCE - ACTIVITY

CE8022 - PREFABRICATED STRUCTURES

TOPIC - RECENT TRENDS IN PRECAST MATERIALS

STAFF INCHARGE,

Mr. K. ARUN
AP/CIVIL

By,

M. RUBIKA.
P. SATHYA (16)
S. ABIRAMI (21)

COMPONENTS :—

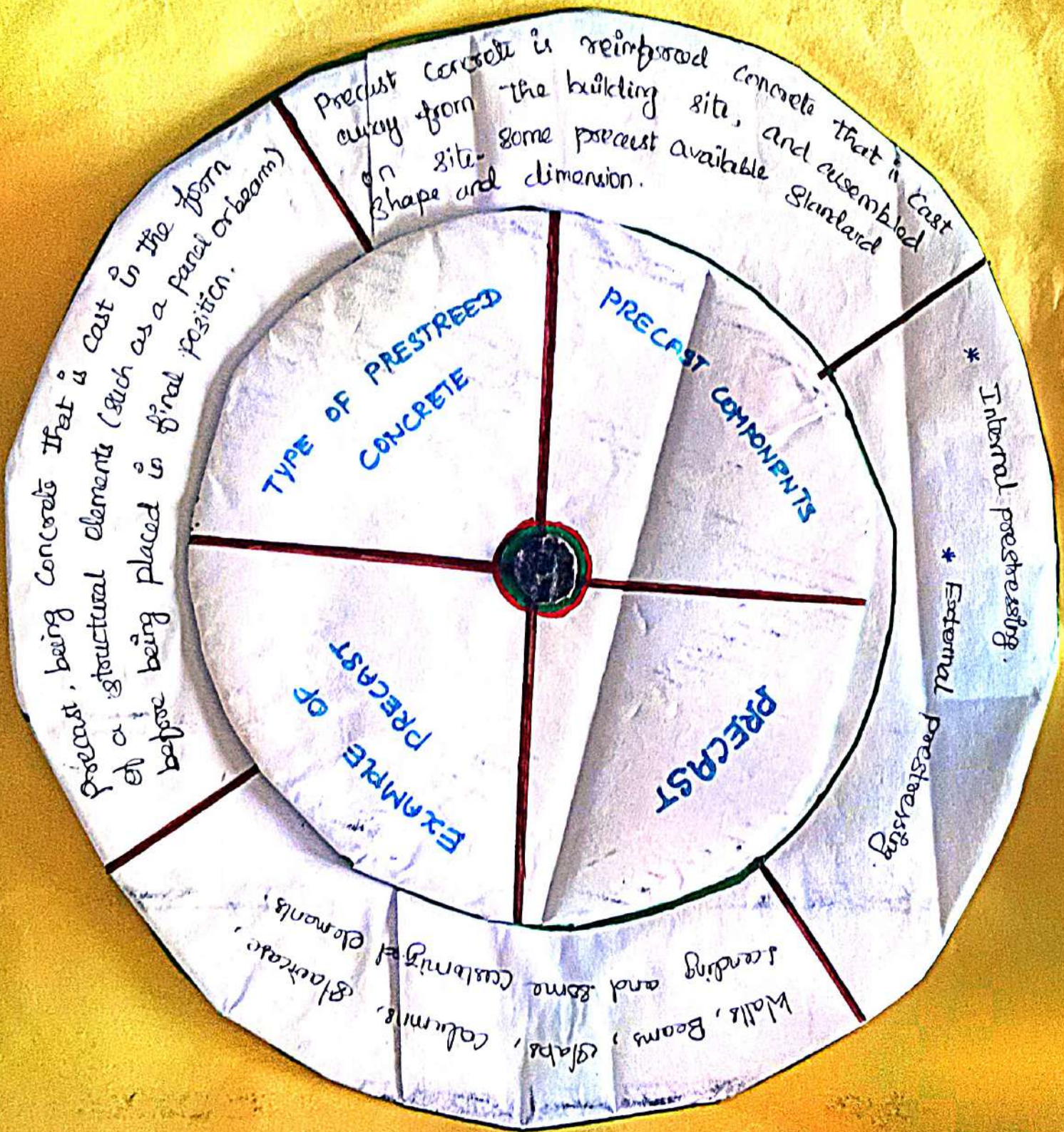
WALL :—

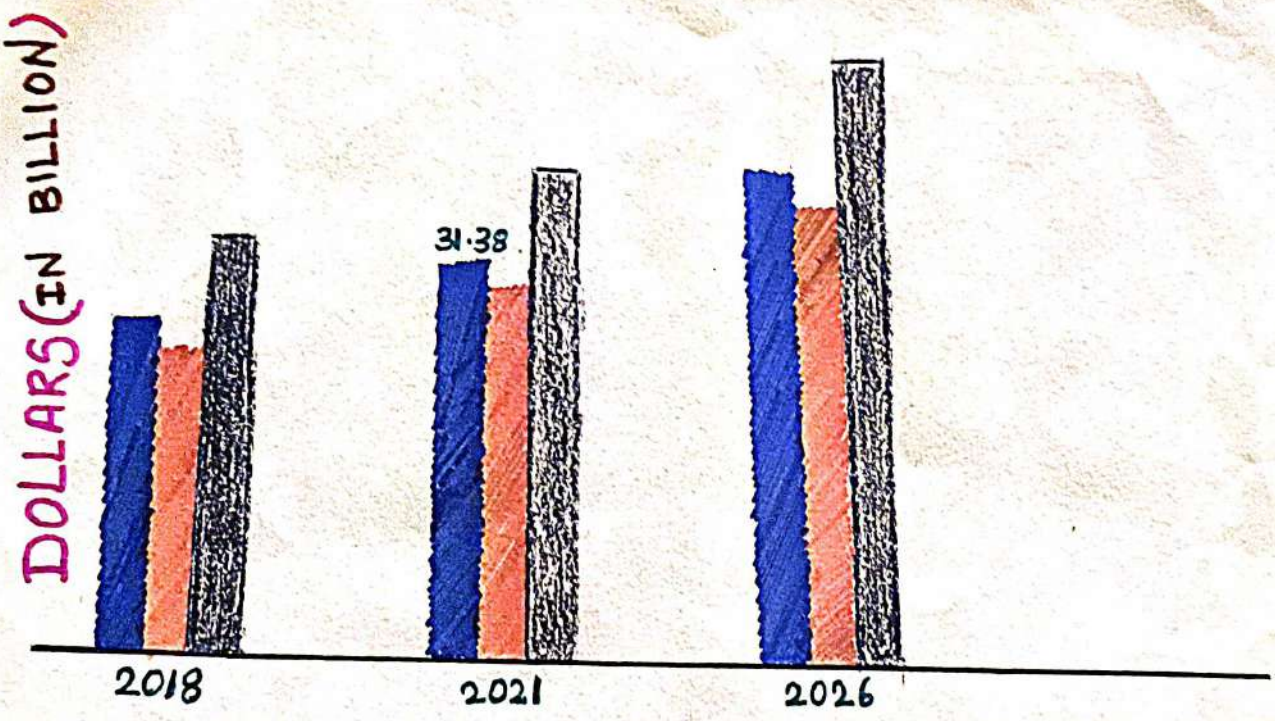
WALL LINER AT BASE

WALL PANEL ABOVE BLOCKWALL

FASP WALL PANEL AT BASE

PREFABRICATION :-




DOLLARS (IN BILLION)
31·38
2018
2021
2026
NORTH AMERICA
EUROPE
APAC (East Asia, South Asia, Southeast Asia)

SYSTEM OF PREFABRICATION

Staff Incharge by :-

Mrs. ARUN

By :-

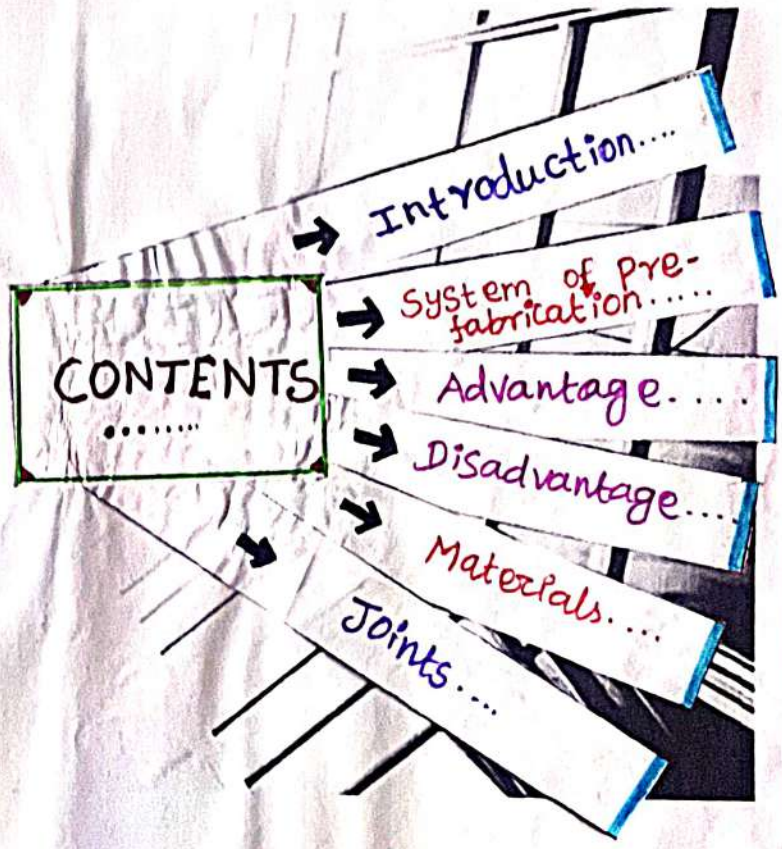
R. Madhumitha

M. Monika

R. Rengeshwari

Prefabrication

Presented by : R.Madhumitha
M.Monika
R.Rengeshwari



Systems of Prefabrication

- **OPEN PREFAB SYSTEM** - Open prefab system is based on use of basic structural elements to form whole/ part of a building.
- Components :
  - Reinforced Concrete
  - Hollow core slab
  - Hollow blocks & battens
  - Precast planks & battens
  - Precast joints & tiles
  - Cellular concrete slabs
  - Prestressed/ reinforced concrete slabs, beams & columns
  - Precast lintels & chajjas
  - Reinforced concrete waffle slabs/ shells
  - Room size reinforced/ prestressed concrete panels
  - Reinforced concrete/ Prestressed concrete walling elements
  - Reinforced concrete/ prestressed concrete trusses.

Advantages

- Prefabrication causes lesser noise and dust.
- Offers less energy consumption
- Creates opportunities for good architecture
- Erection can be continued even at -20 degree Celsius
- Carries out high capacity work
- Takes less than half construction time than the conventional cast-in-situ concrete.

CE8022 - PREFABRICATED STRUCTURES

PCE ACTIVITY

PREFABRICATION - CASE STUDY

PRESENTED By,

B. AGALYA

S. DIVYA

T.S. SANANI

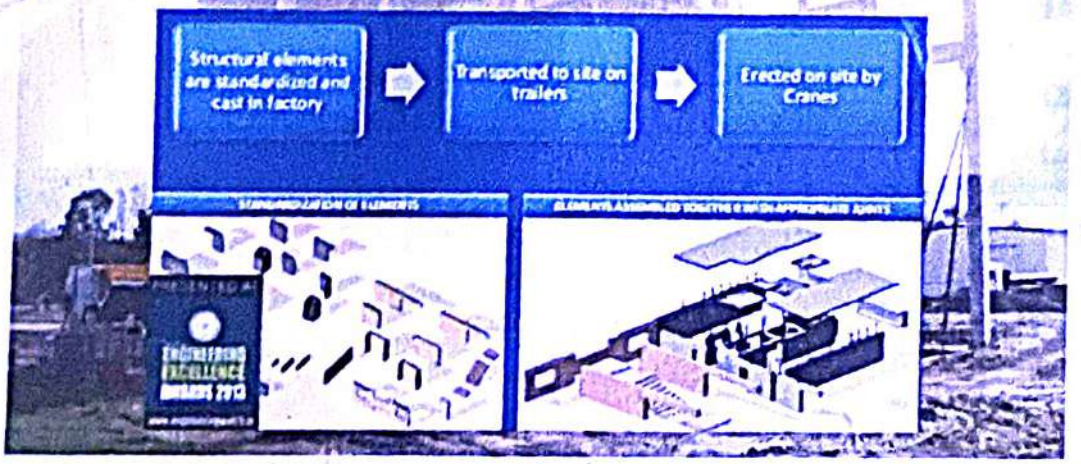
GUIDED By,

Mr. K. ARUN.

AP/ CIVIL

PREFABTICATION

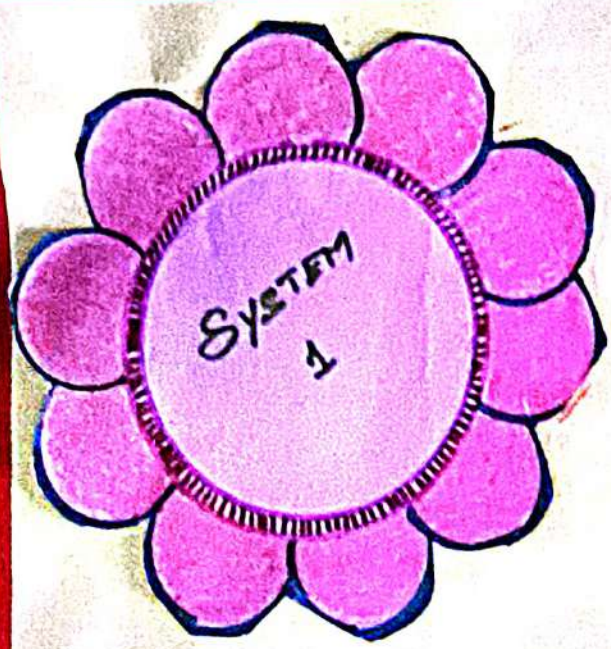
- Prefabrication is the practice of assembling components of a structure in a factory or other manufacturing site and transporting complete assemblies to the construction site where the structure is to be located

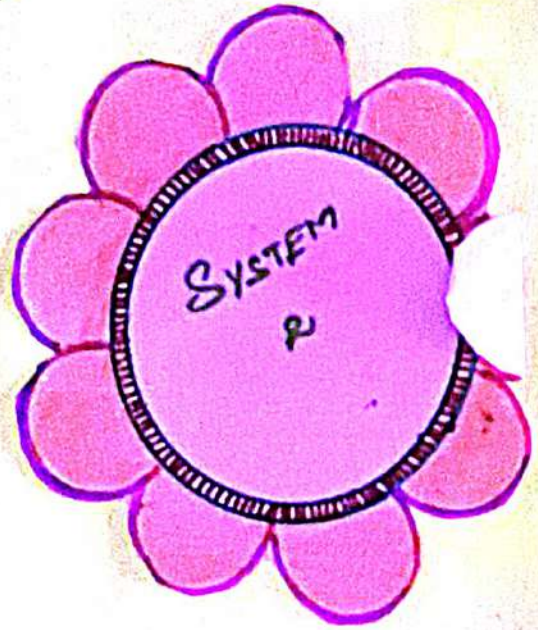


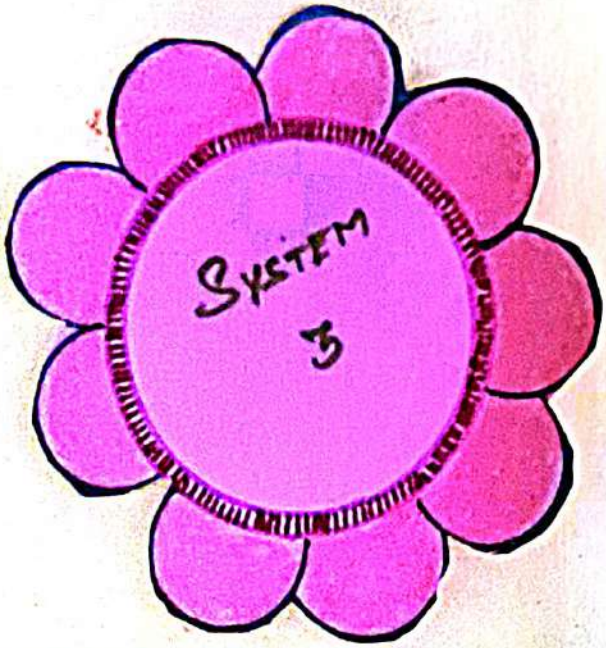
CASESTUDY – PRAGATI TOWERS

- Location: Bhoiwada, Mumbai
- Architectural Type: Residential Building
- Developer: Larsen and Toubro Ltd., (L&T)
- Construction Start: Jan 2013
- Construction End: 2016
- Floor Count: G+23
- Plan Dimension: 45.8m x 19.69m
- Height: 70m
- Foundation : Pile Foundation
- System Type:
  - Ground And Terrace Floor: Conventional Type
  - 1 To 23 Floor : Precast Large Panel Wall Type

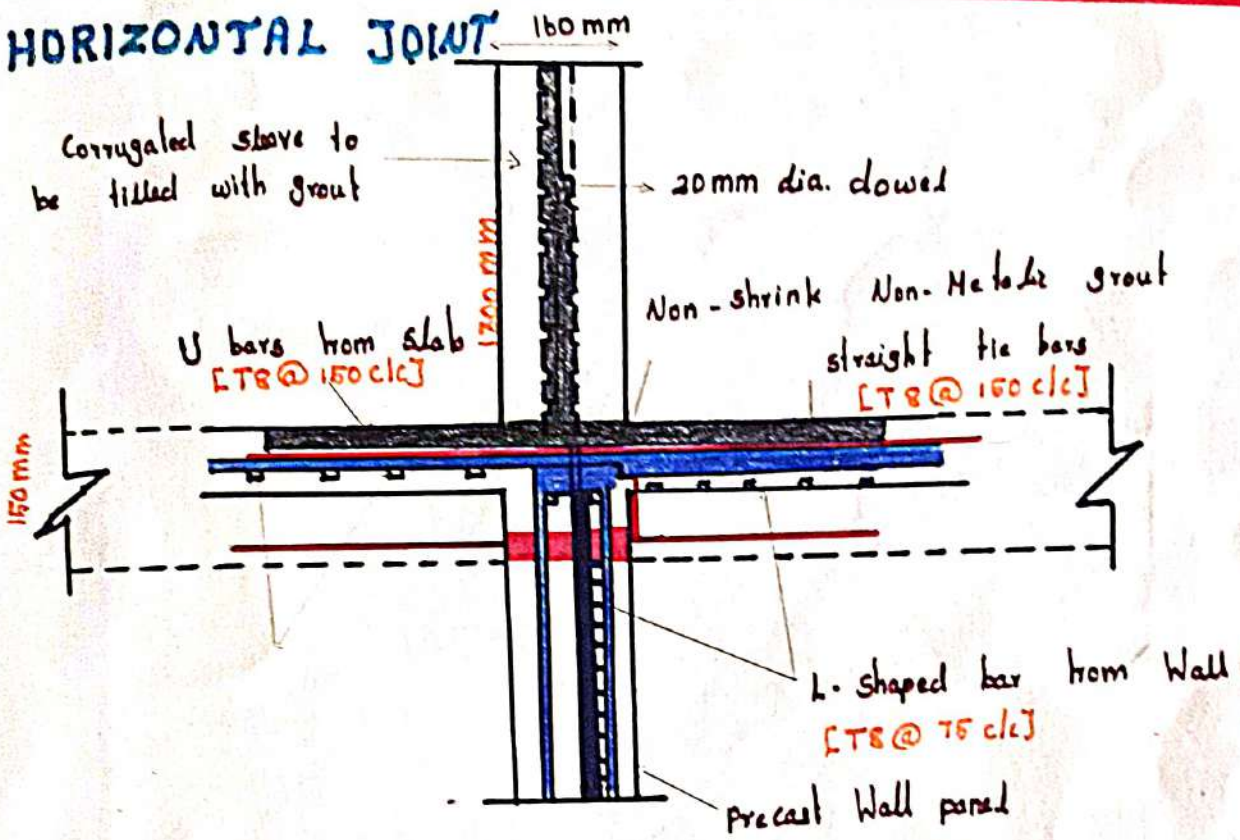
PRECAST SYSTEM





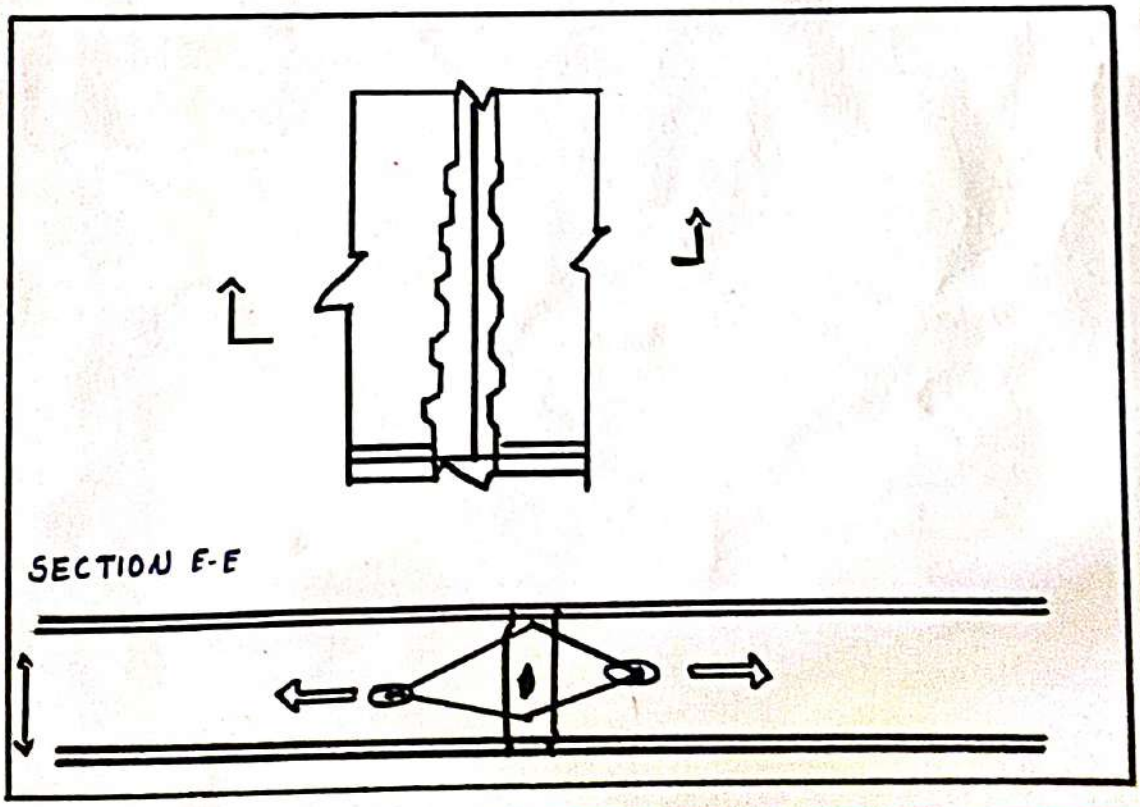


HORIZONTAL JOINT

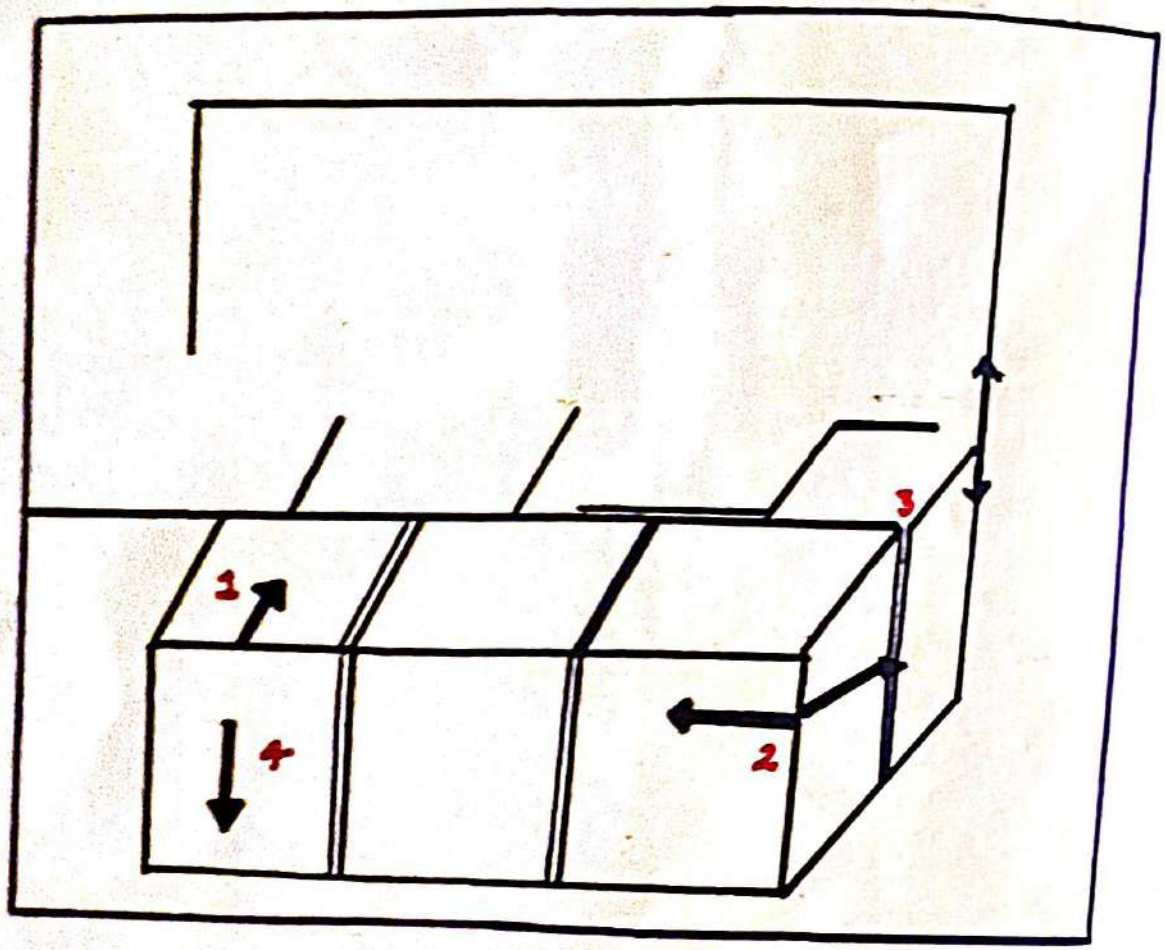


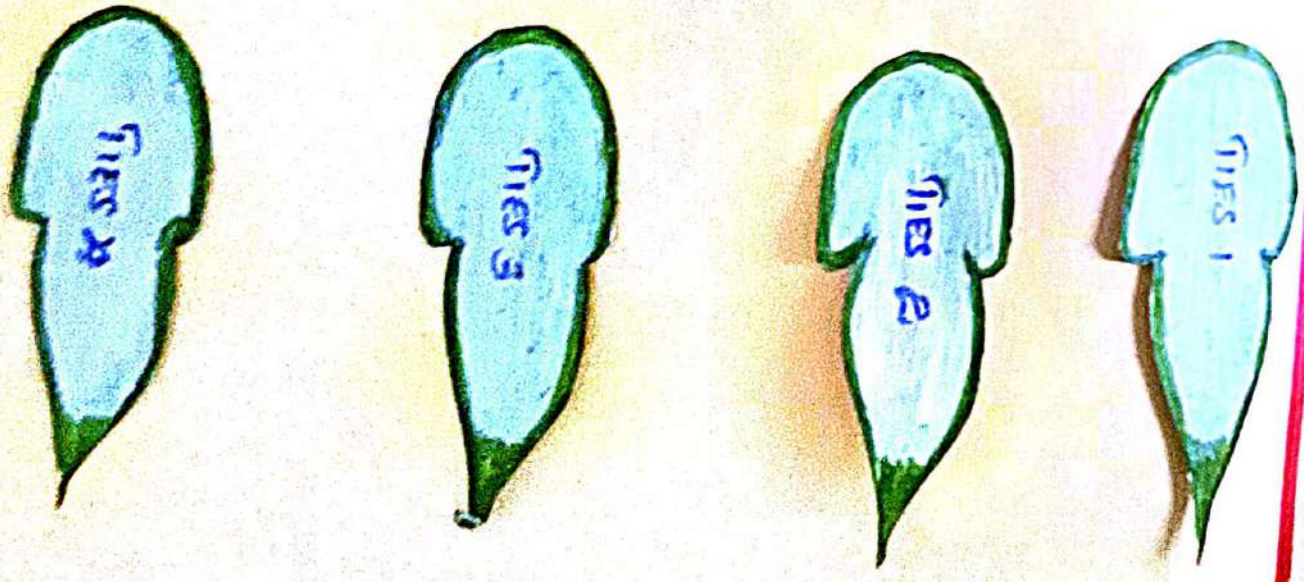
VERTICAL JOINT

The loads

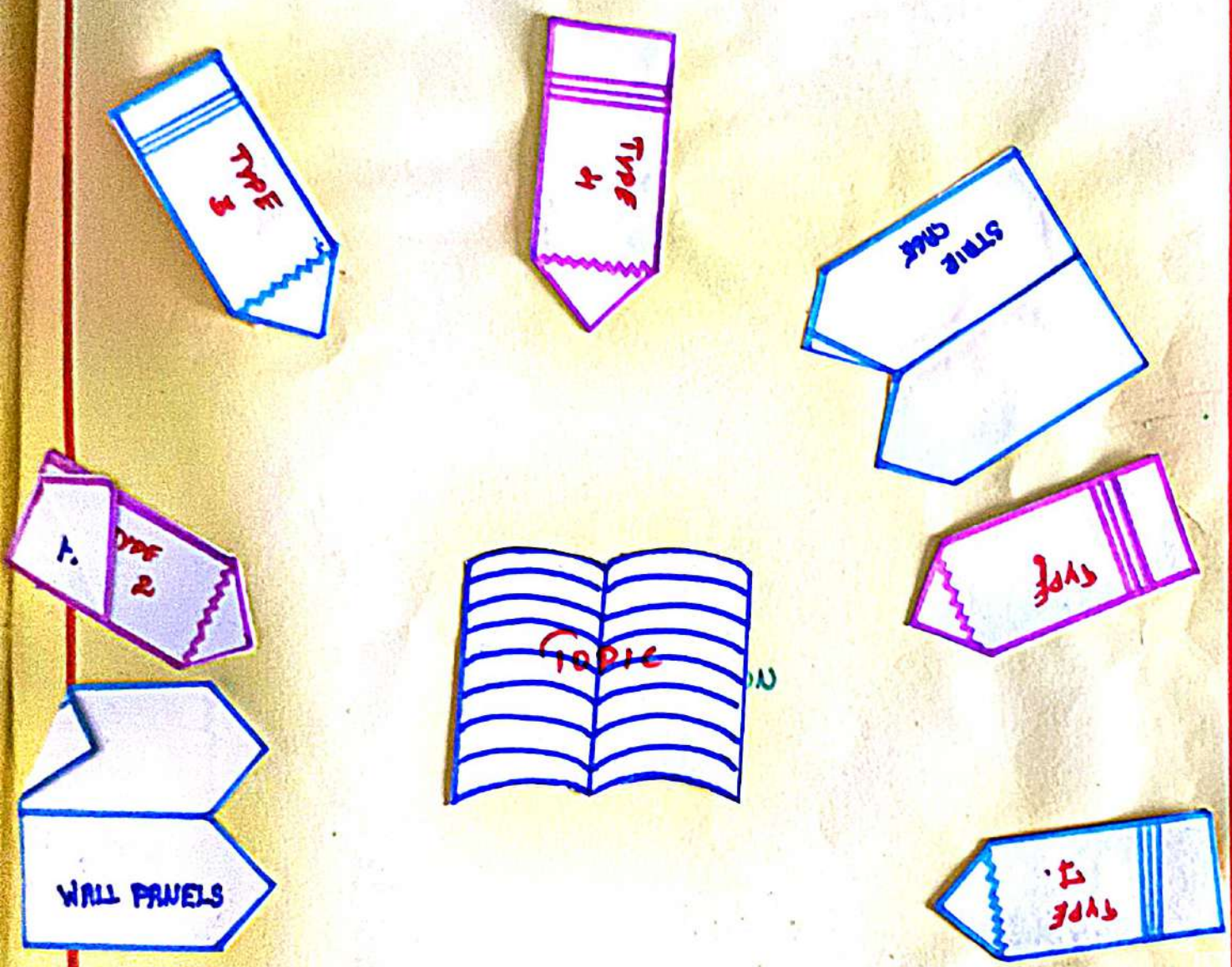


PREVENTION OF PROGRESSIVE COLLAPSE





STANDARDISATION



ACADEMIC YEAR (2022 – 2023) EVEN SEMESTER

CE8022 - PREFABRICATED STRUCTURES

ASSIGNMENT II

"PCE ACTIVITY"

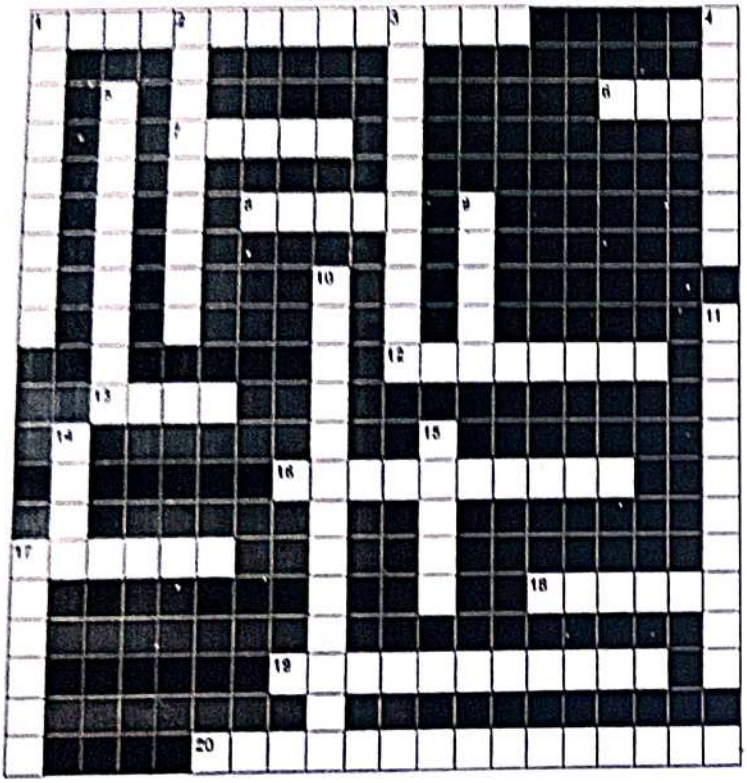
KINGS

NAME :

ROLL NO :

TEACHER :

DATE :



Across:

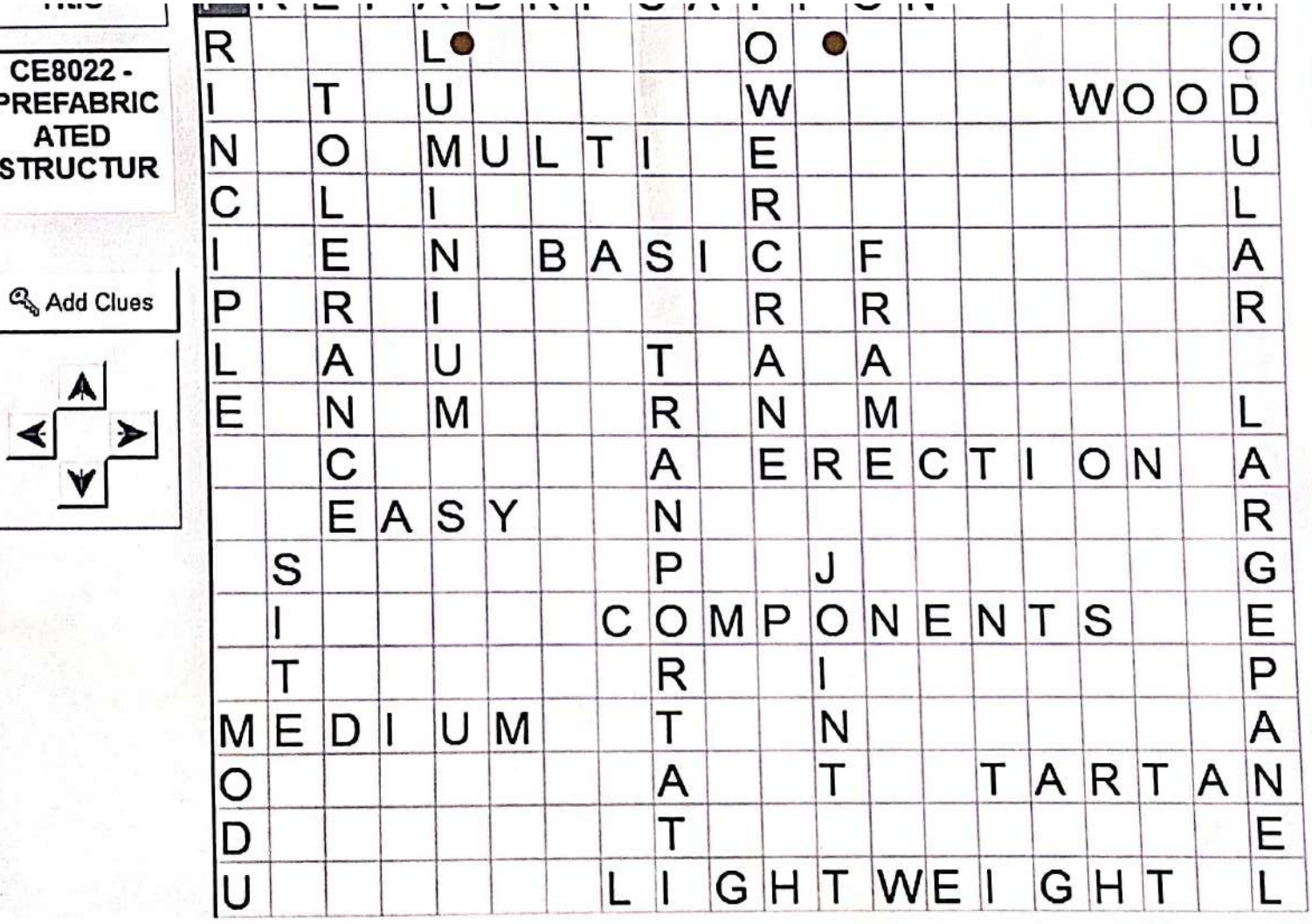
1. Item used in construction industry to describe transporting & assembling structures in site
6. A type of Prefabricated material
7. These are selected in multiples of basic module
8. Fundamental unit of size in modular coordination
12. It can be done using cranes
13. Components will be numbered/ marked for _____ Assembling
16. Slab, Beam & Column are called Prefabricated _____
17. It is a system of Prefabrication
18. Type of Modular Grid
19. These type of concrete are used to reduce self weight
20. It is the process of repeated production of standard sizes/dimensions

Down:

1. Time saving is the first _____ of Prefabrication.
2. A type of Prefabricated material
3. Used in Multi storied buildings for Erection purposes
4. _____ Coordination is the Concept of providing constant Dimension & Space
5. It is the sum of positive & negative Discrepancies of dimensions
9. This type of system are widely used in Prefabrication
10. It can be done using Trucks/Wagons.
11. _____ Construction is used for Large size Wall & Floor Panels
14. If the components are manufactured at the construction place, then it is called as _____ Prefabrication
15. Between two Prefabricated components, it should be provided
17. "M" is the representation of Basic _____

CE8022 - PREFABRICATED STRUCTUR

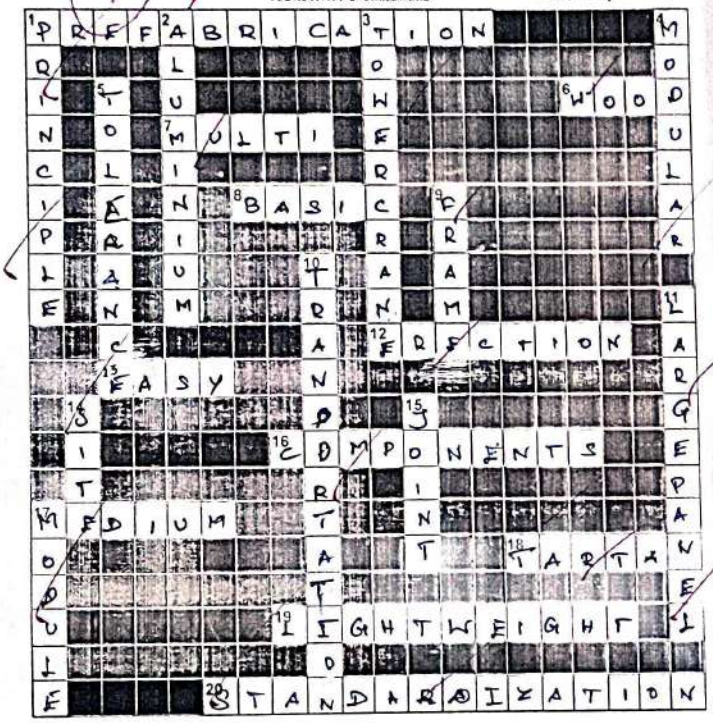
Add Clues



KINGS

DEPARTMENT OF CIVIL ENGINEERING
ACADEMIC YEAR 2022-2023 (EVEN SEM)
CE8022 - PREFABRICATED STRUCTURES
PCE ACTIVITY 2 - CROSSWORD

NAME: JANANI. T. S
ROLL NO: 06
YEAR/SEM: IV / VIII
DATE: 08/03/2023



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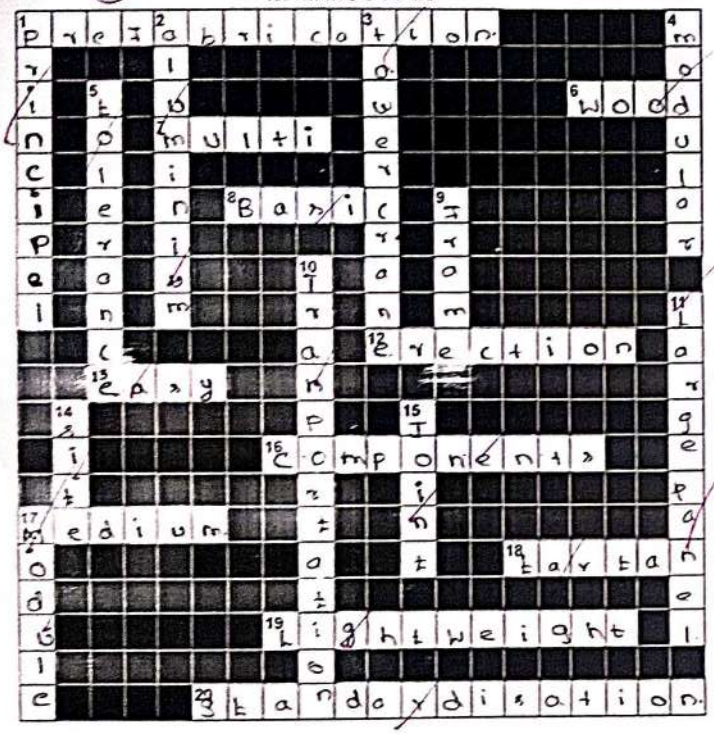
KINGS

DEPARTMENT OF CIVIL ENGINEERING
ACADEMIC YEAR 2022-2023 (EVEN SEM)
CE8022 - PREFABRICATED STRUCTURES
PCE ACTIVITY 2 - CROSSWORD

NAME: S. Abirami
ROLL NO: 21
YEAR/SEM: Third / 8th
DATE: 03.03.2023.



Across:

1 Term used in construction industry to describe transporting & assembling structures in site
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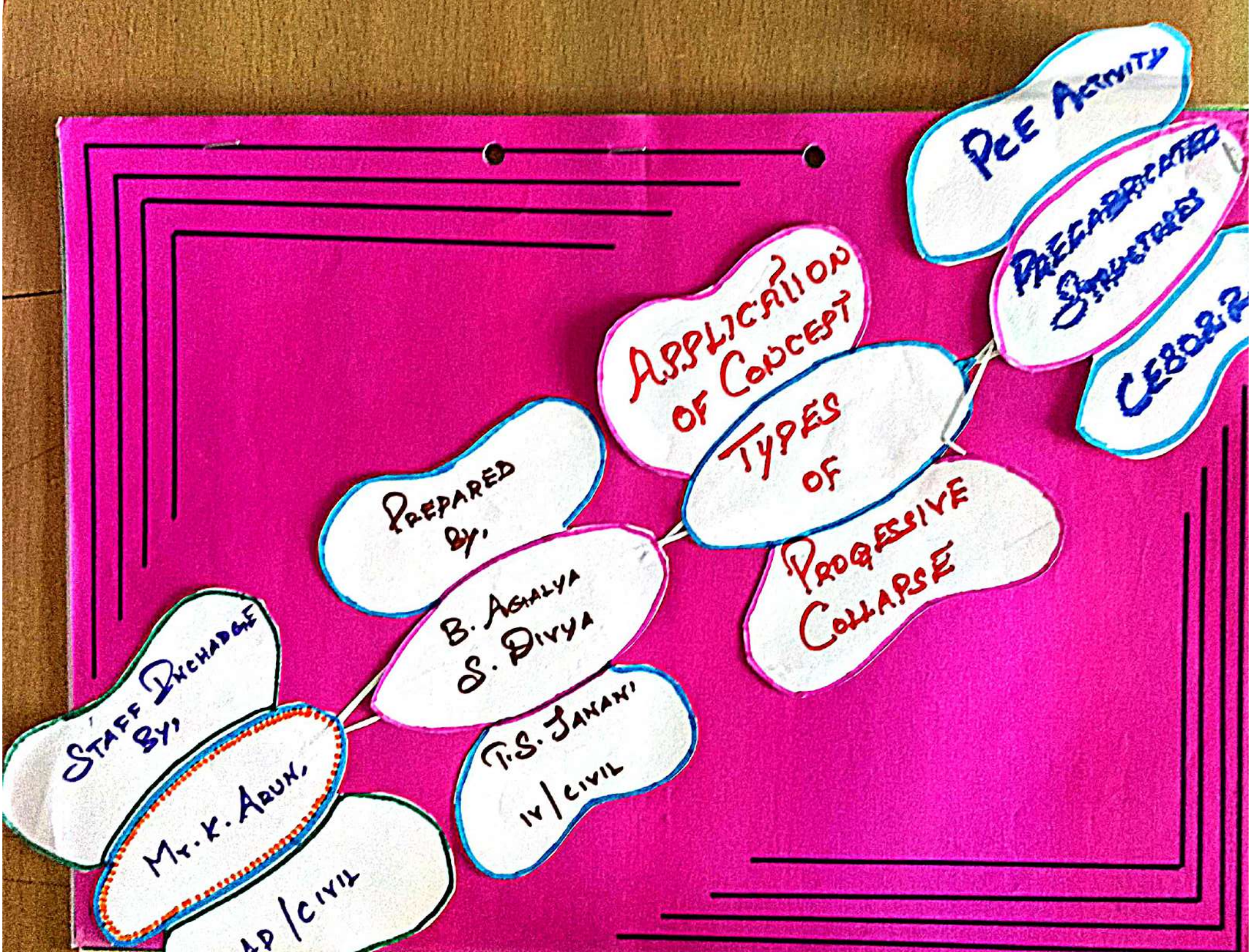
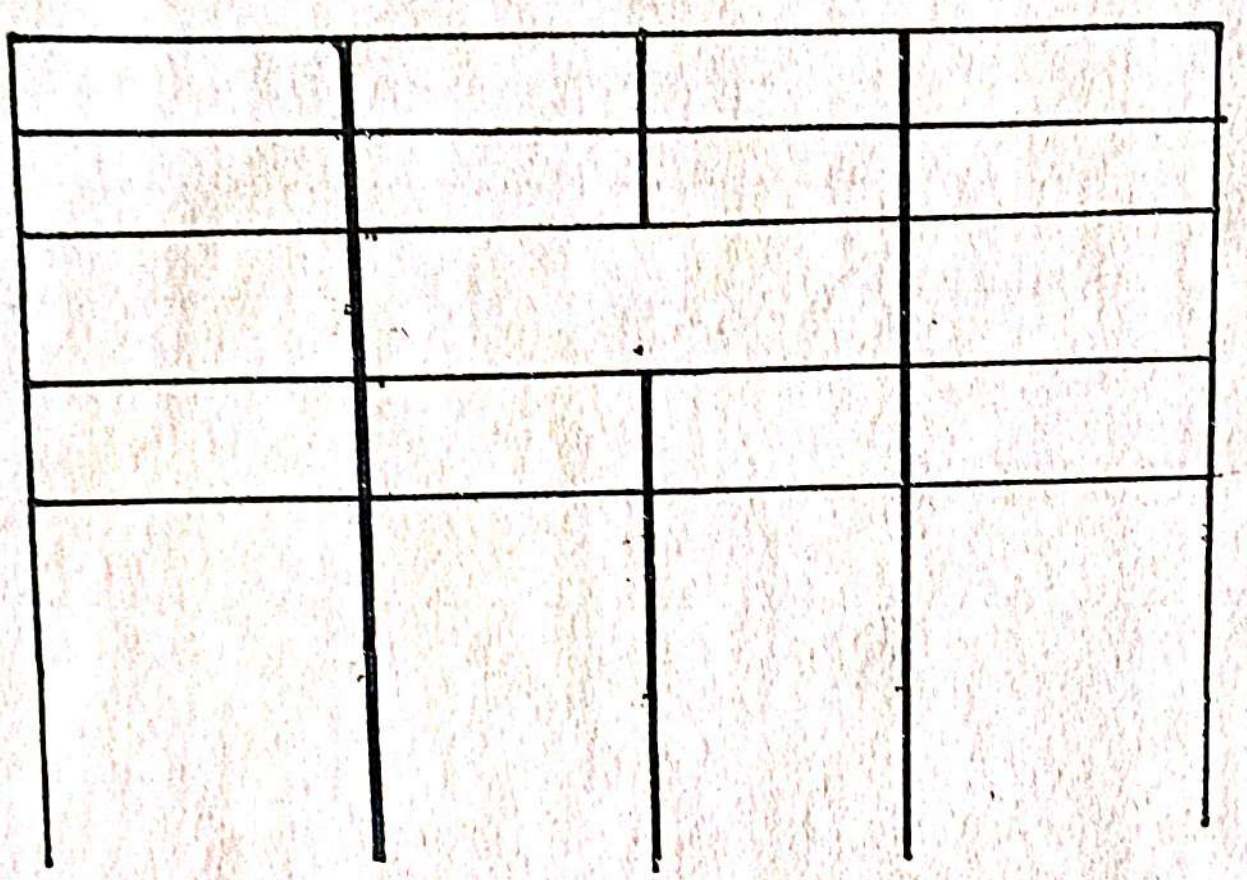
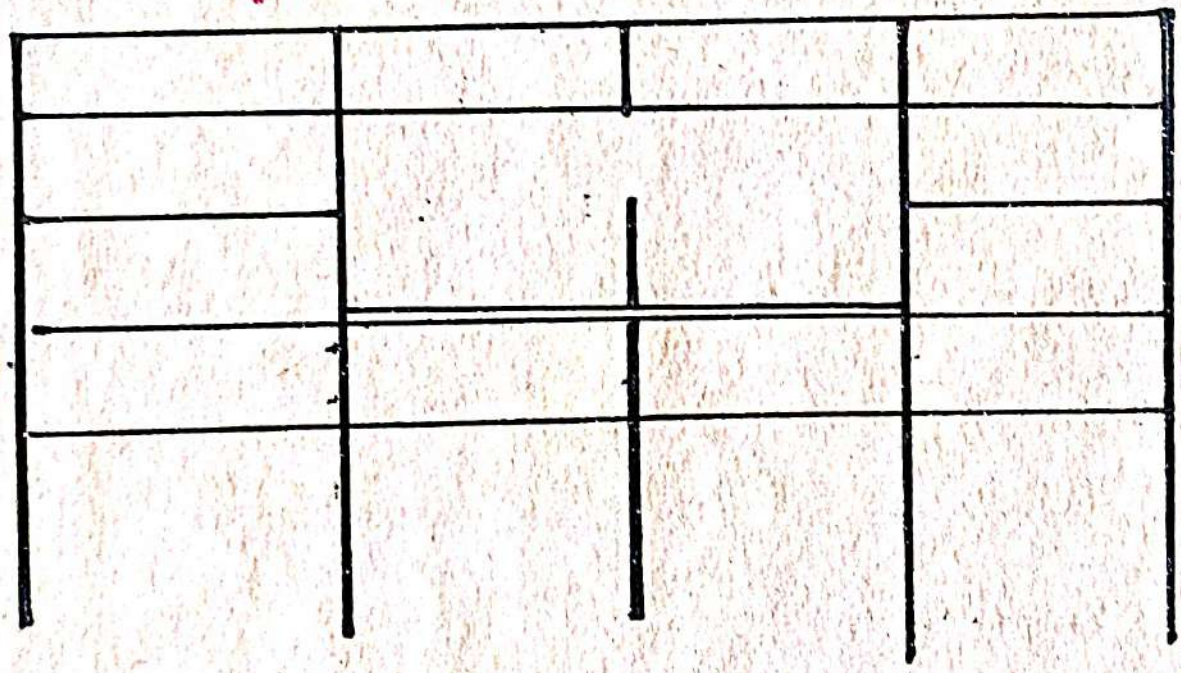

PCE ACTIVITY
PREFABRICATED STRUCTURES
CE8082
APPLICATION OF CONCEPT
TYPES OF
PROGRESSIVE COLLAPSE
PREPARED BY,
B. AGALYA
S. DIVYA
T.S. JANAKI
IV/CIVIL
STAFF INCHARGE BY,
Mr. K. ARUN,
AP/CIVIL

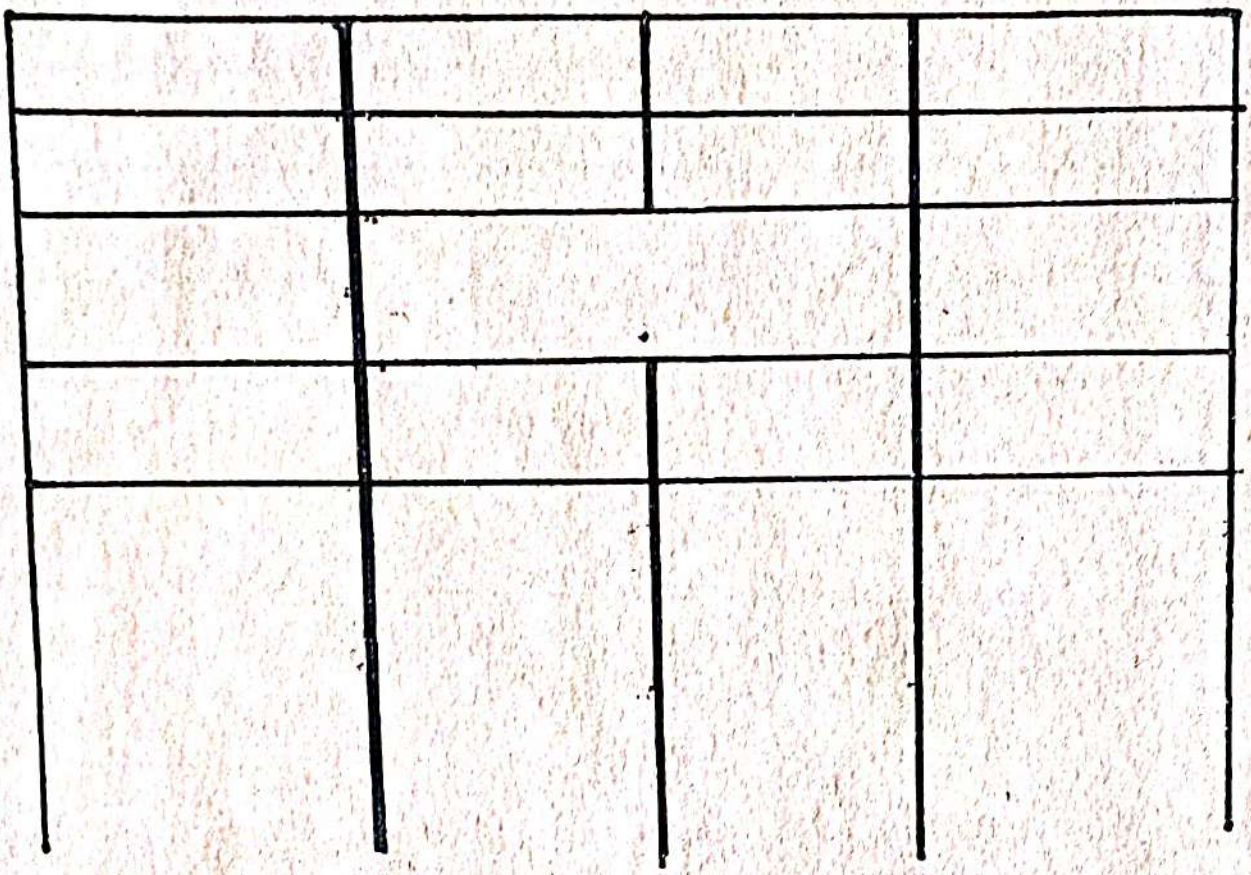
A) THE INITIAL FAILUDE OF COLUMN:



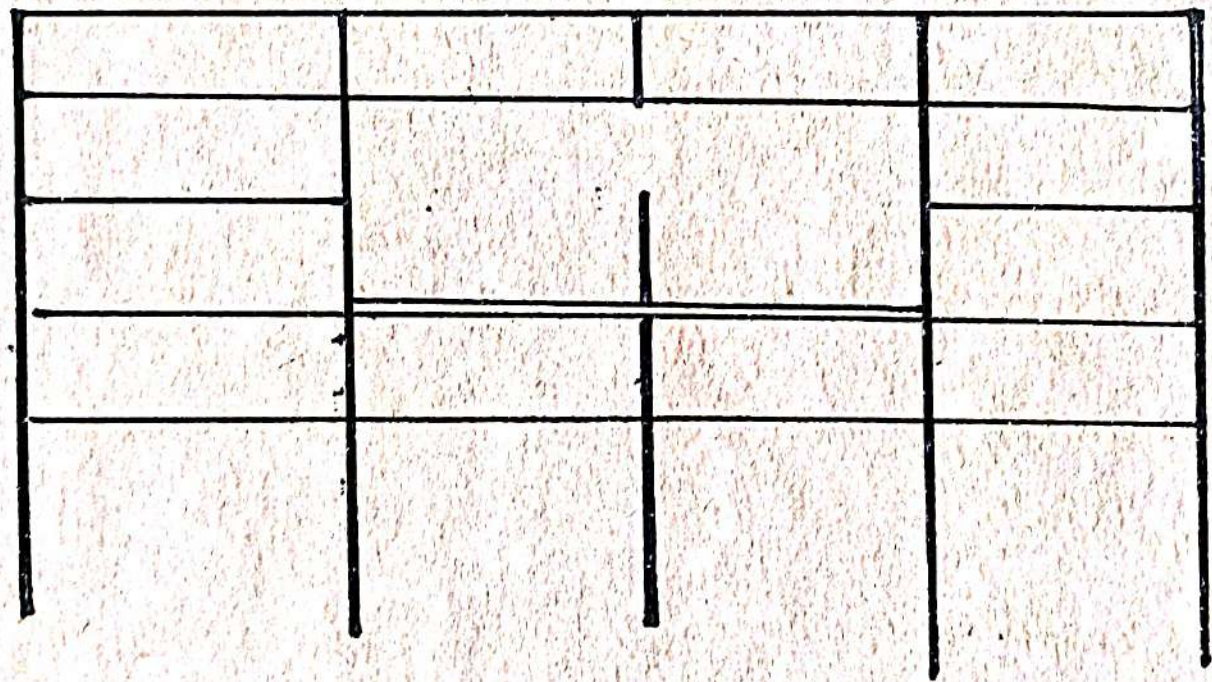
B) CHANGING OF THE STRUCTURES POTENTIAL ENERGY TO KINETIC ENERGY



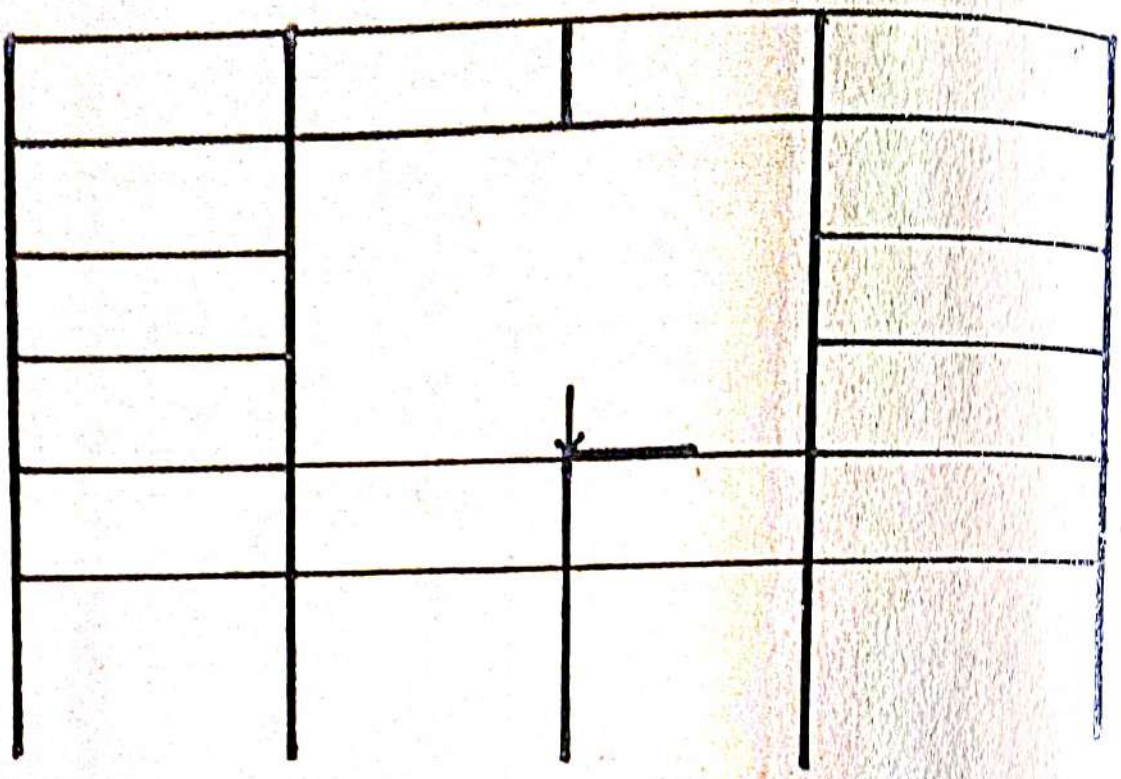
A) THE INITIAL FAILURE OF COLUMN:



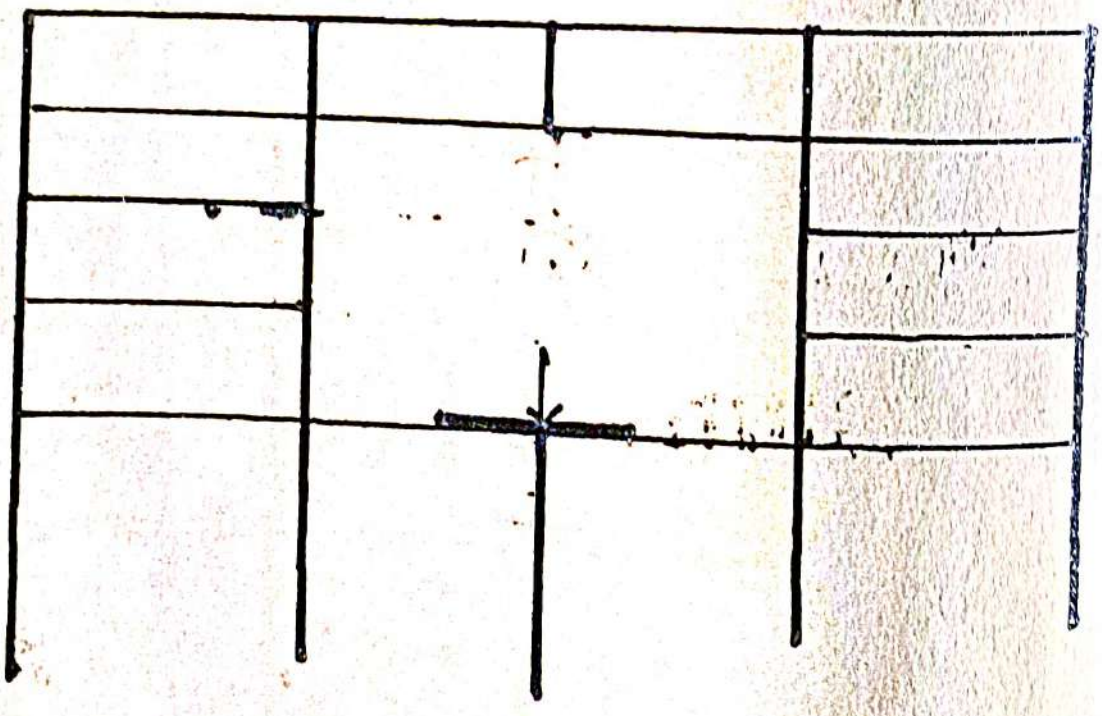
B) CHANGING OF THE STRUCTURES POTENTIAL ENERGY TO KINETIC ENERGY



C) RELOADING OF THE STRUCTURE BELOW THE INITIAL FAILURE.



D) PROMOTION OF THE FAILURE.



) DOMINO TYPE COLLAPSE

The Characteristics of a domino type Collapse is the Initial Overturning of one element. Then the unexpectedly overturning of involved elements next to the first damaged Element of the Structure.

- Initial Overturning of an Element

  The transformation of the Structures Potential energy to the kinetic energy due to the turning

  Impact of the turning Element to the next load bearing Part.

  Overturning of the load bearing Part Stroked

- Loading in a Progressive Collapse in a horizontal direction.
- The height of the Overturning Element has to be bigger than the distance to the next element or the Elements have to be Connected to each other with Some horizontal load

APPLICATION OF CONCEPT

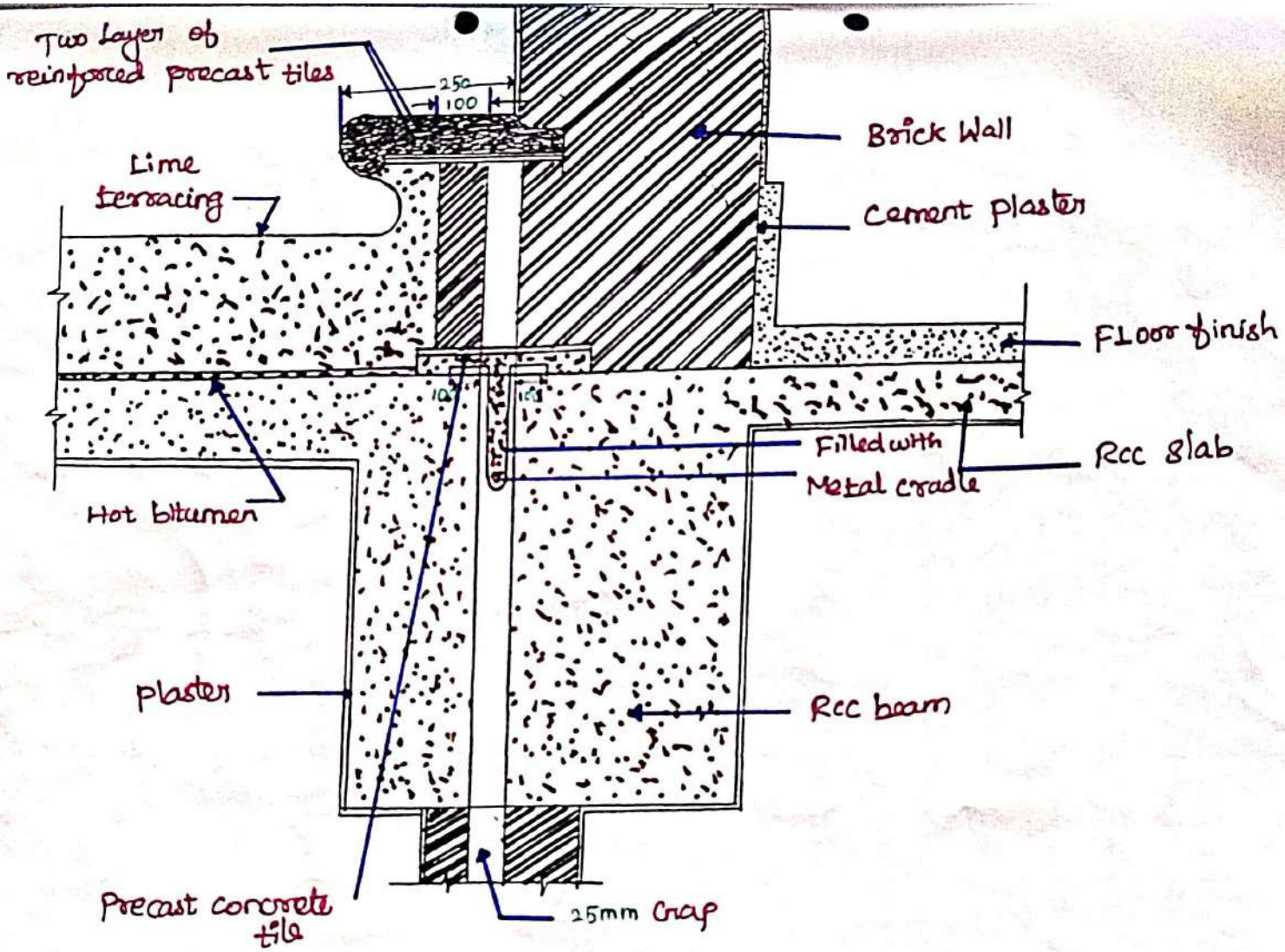
JOINT IN STRUCTURAL CONNECTION

Staff Incharge by :-

Mr. K. ARUN.
AP/CIVIL

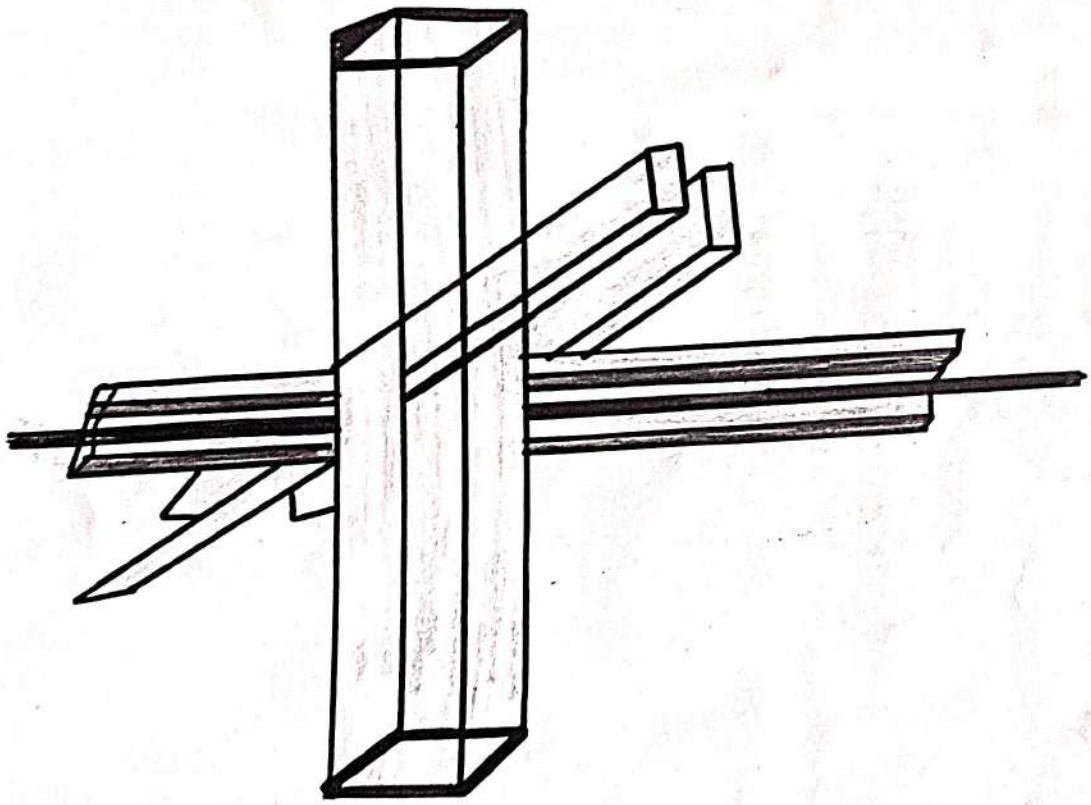
By :-

P. SATHYA - 16
S. ABIRAMI - 21
N. RUBIKA - 14



ALL DIMENSION IN MILLIMETERS.

DESIGN OF JOINTS FOR POST TENSIONED STRUCTURES :-



PCE ACTIVITY

APPLICATION OF CONCEPT

STRONG COLUMN WEAK BEAM THEORY

STAFF INCHARGE,

By,

Mr. K. ARUN

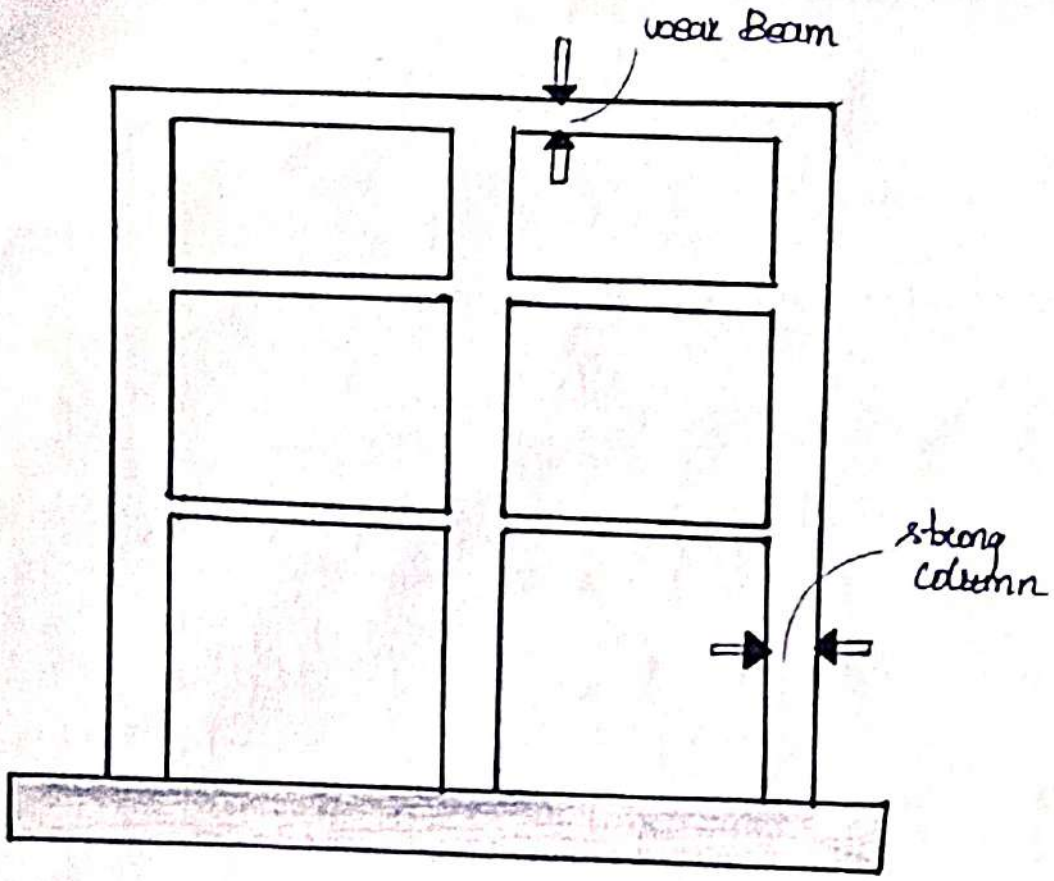
AP / CIVIL

By,

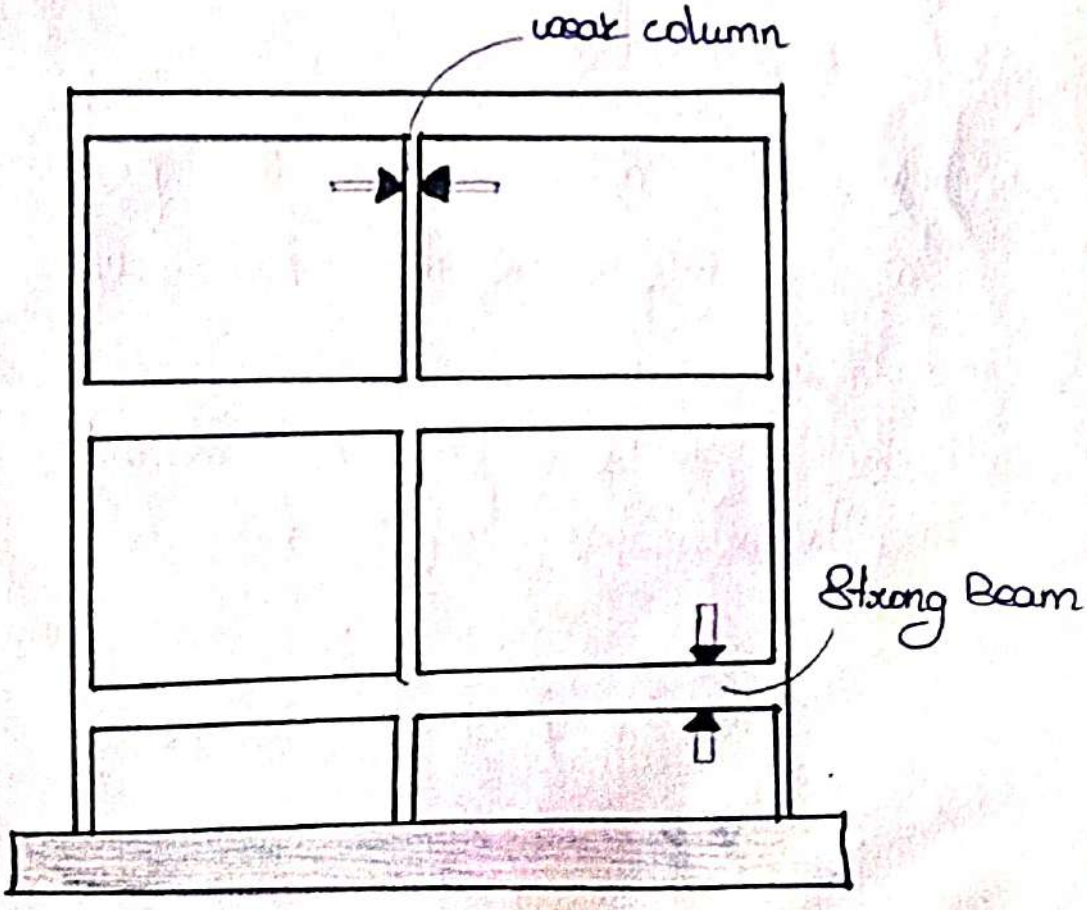
R. MADHUMITHA

M. MONIKA

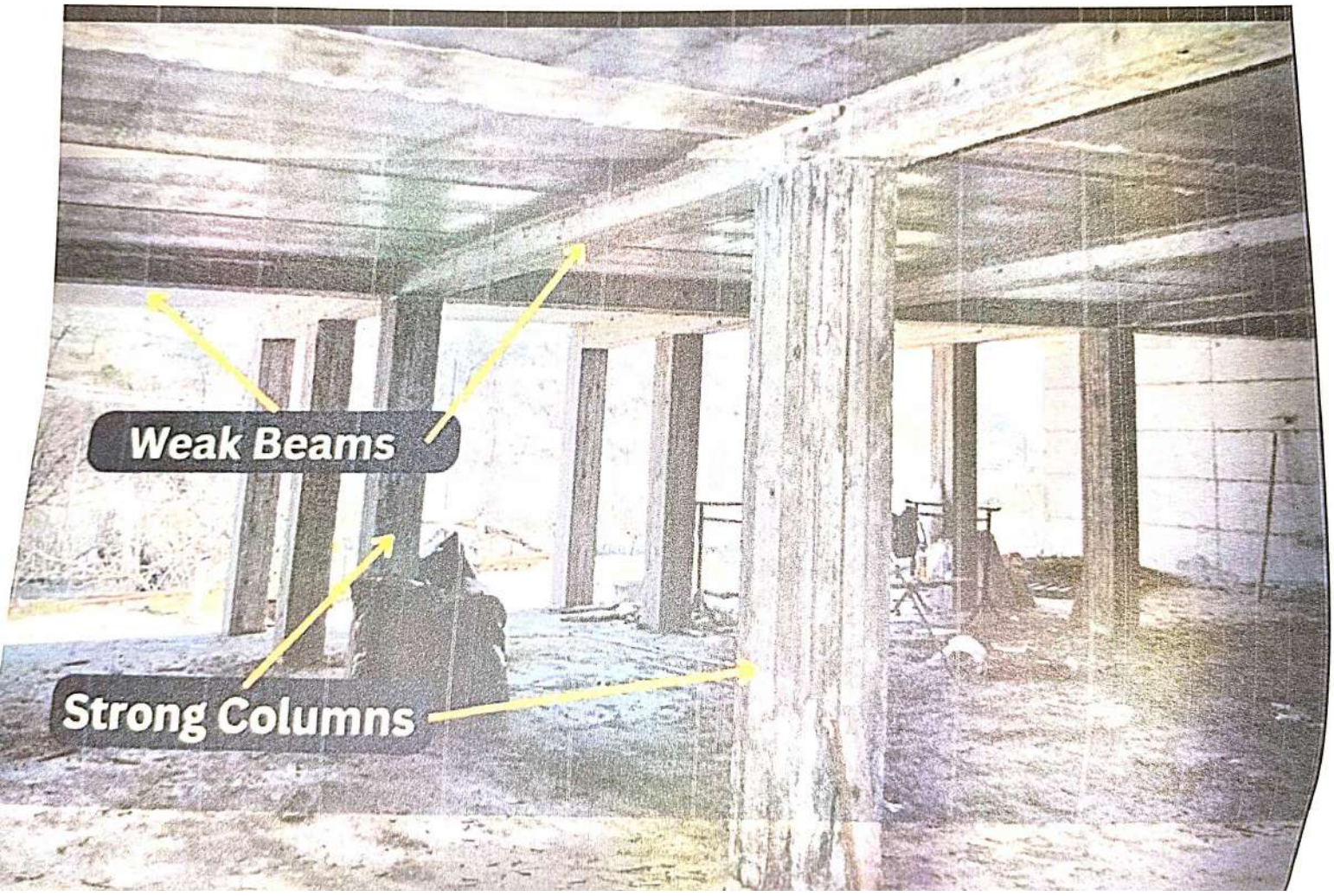
R. RENGESWARI



STRONG - COLUMN WEAK - BEAM DESIGN



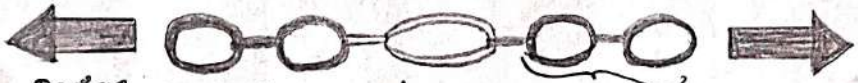
WEAK - COLUMN STRONG BEAM DESIGN


Weak Beams
Strong Columns

Original Chain

Ductile Link

Brittle Links

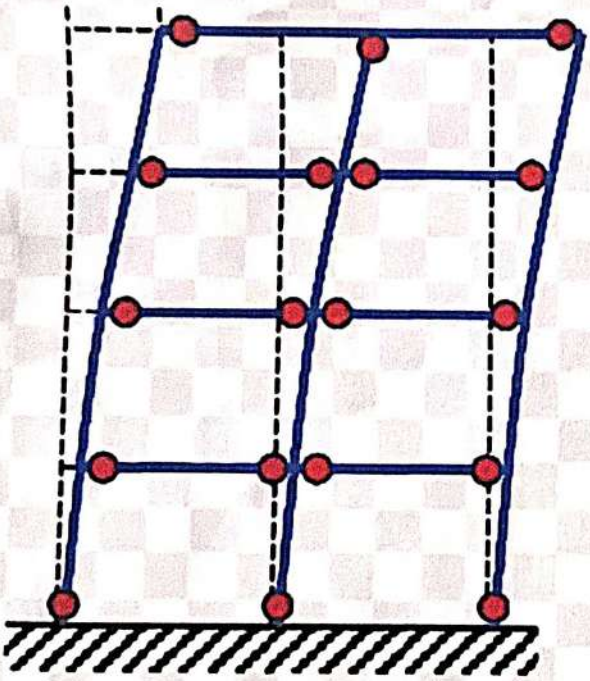


Original chain

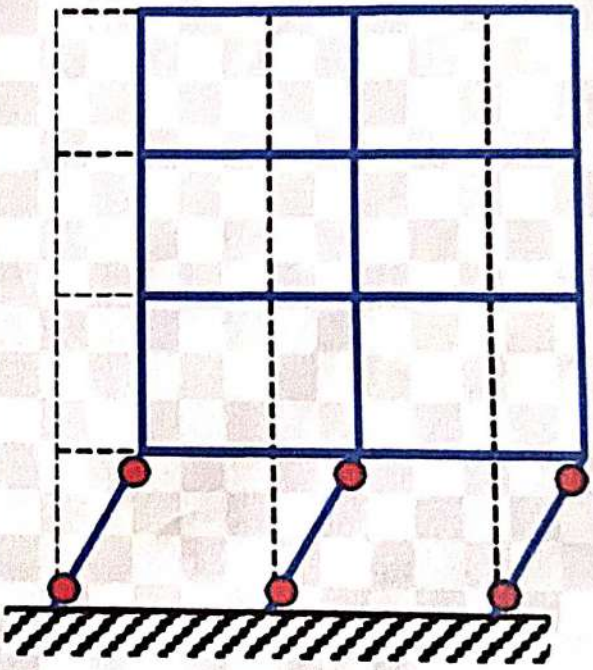
Ductile Link
Stretches by yielding
before breaking

Brittle Links
do not yield.

Ductile Chain Analogy



(a) Global failure mechanism



(b) Local failure mechanism

KINGS COLLEGE OF ENGINEERING
Recognised under 2(f) & 12(B) of UGC
Approved by AICTE, New Delhi.
Affiliated to Anna University, Chennai.

ACCREDITED WITH GRADE B++ NAAC

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

ACADEMIC YEAR 2022 – 2023

PROFESSIONAL CAREER ENHANCEMENT SKILLS

Data Structures - Presentation

Circular Queue

Name:Rahul S

Roll no:21CS45

Class:2nd CSE

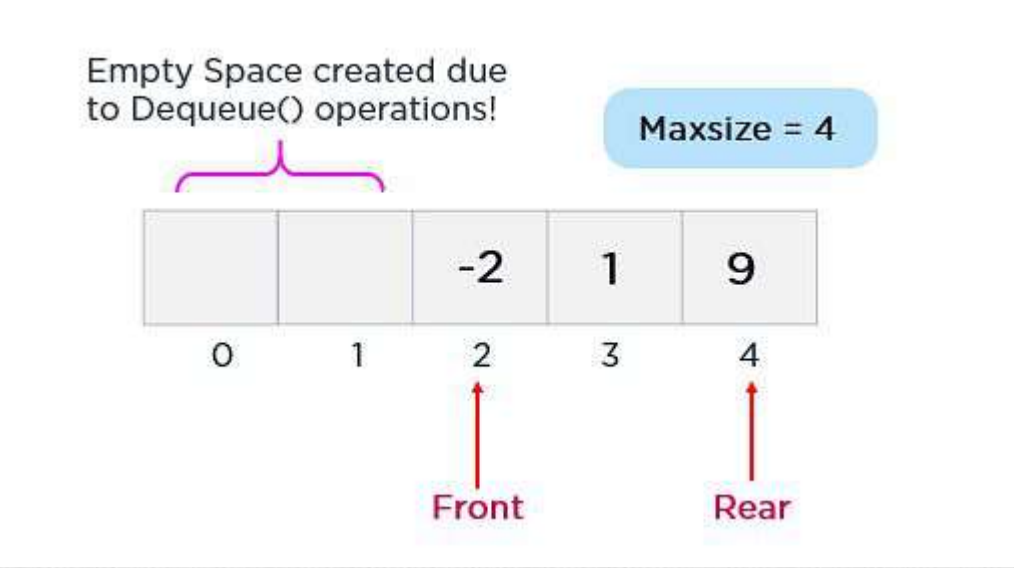
Sub code:CS3301

Sub name: Data Structures

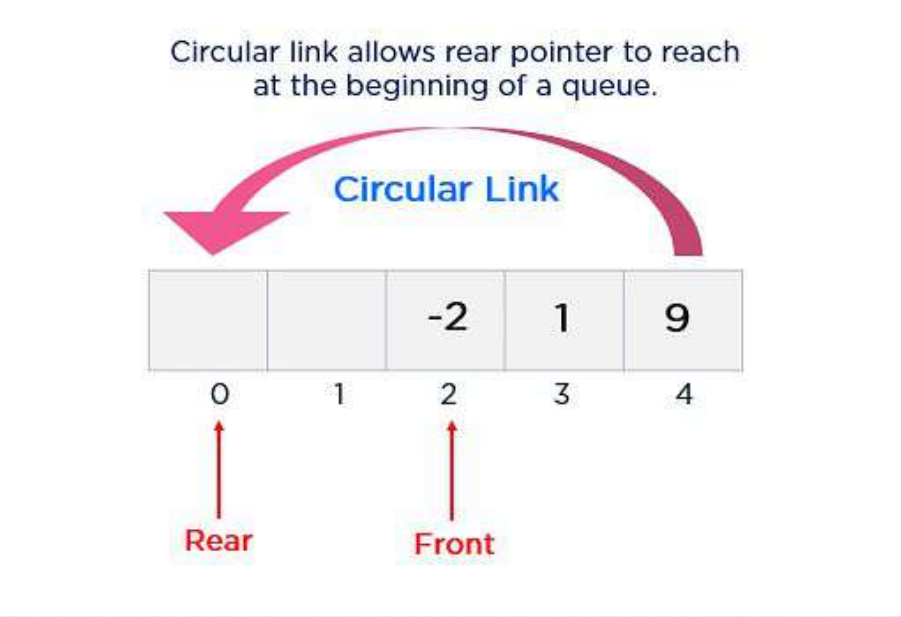
It is common to use circular queues in a data structure in operating systems. It is used to manage the execution of computing processes or programs. You use a circular queue as a buffer to store the processes in order of their insertion and then remove them at the time of resource allocation or execution.

Why Was the Concept of Circular Queue Introduced?

Implementation of a linear queue brings the drawback of memory wastage. However, memory is a crucial resource that you should always protect by analyzing all the implications while designing algorithms or solutions. In the case of a linear queue, when the rear pointer reaches the MaxSize of a queue, there might be a possibility that after a certain number of dequeue() operations, it will create an empty space at the start of a queue.



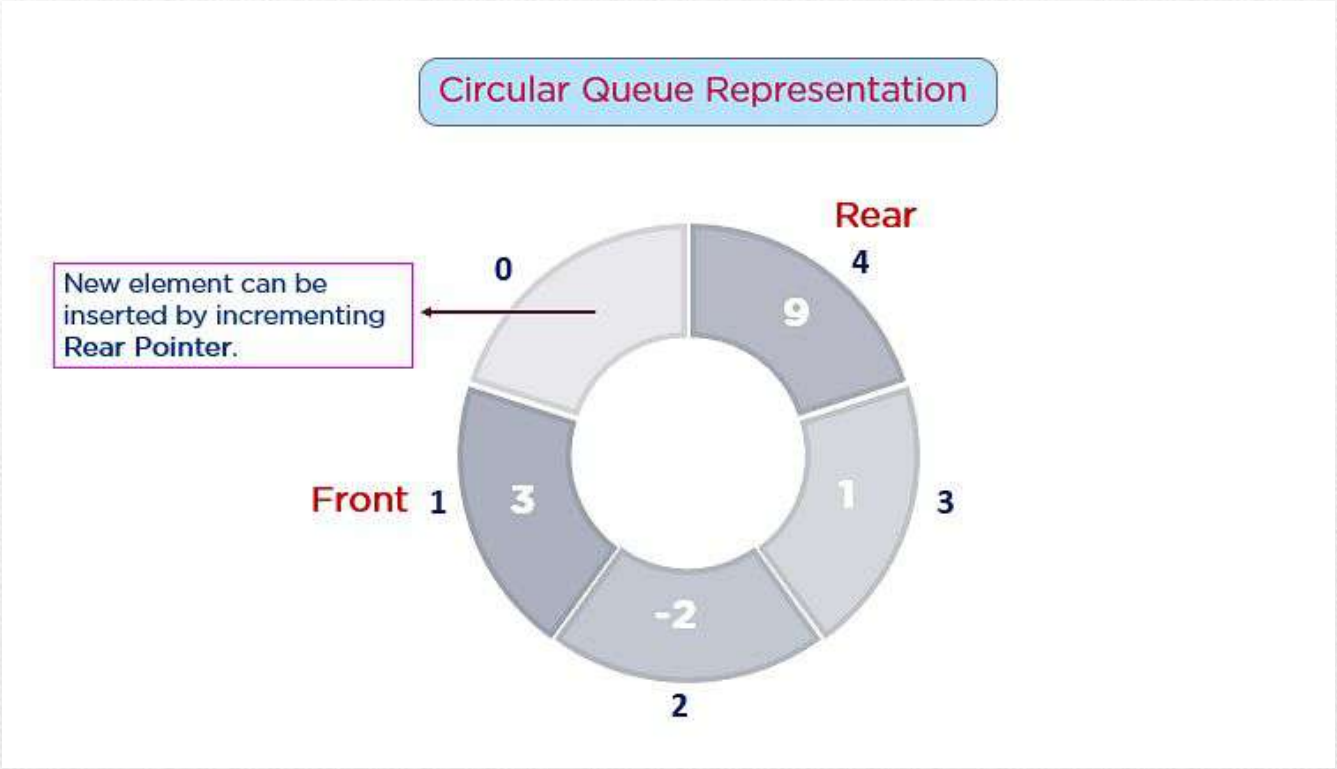
Additionally, this newly created empty space can never be re-utilized as the rear pointer reaches the end of a queue. Hence, experts introduced the concept of the circular queue to overcome this limitation.



As shown in the figure above, the rear pointer arrives at the beginning of a queue with the help of a circular link to re-utilize the empty space to insert a new element. This simple addition of a circular link resolves the problem of memory wastage in the case of queue implementation. Thus, this particular type of queue is considered the best version of a queue data structure.

What is Circular Queue in a Data Structure?

A circular queue is an extended version of a linear queue as it follows the First In First Out principle with the exception that it connects the last node of a queue to its first by forming a circular link. Hence, it is also called a Ring Buffer.



As shown in the illustration above, the circular queue resolves the memory wastage problem with the help of a circular link.

How Does the Circular Queue Work?

The Circular Queue is similar to a Linear Queue in the sense that it follows the FIFO (First In First Out) principle but differs in the fact that the last position is connected to the first position, replicating a circle.

Operations

- Front - Used to get the starting element of the Circular Queue.
- Rear - Used to get the end element of the Circular Queue.
- enQueue(value) - Used to insert a new value in the Circular Queue. This operation takes place from the end of the Queue.
- deQueue() - Used to delete a value from the Circular Queue. This operation takes place from the front of the Queue.

Applications of a Circular Queue

- **Buffer in Computer Systems: Computer systems supply a holding area for maintaining communication between two processes, two programs, or even two systems. This memory area is also known as a ring buffer.**
- **CPU Scheduling: In the Round-Robin Scheduling Algorithm, a circular queue is utilized to maintain processes that are in a ready state.**
- **Traffic System: Circular queue is also utilized in traffic systems that are controlled by computers. Each traffic light turns ON in a circular incrementation pattern in a constant interval of time.**

Steps for Implementing Queue Operations:

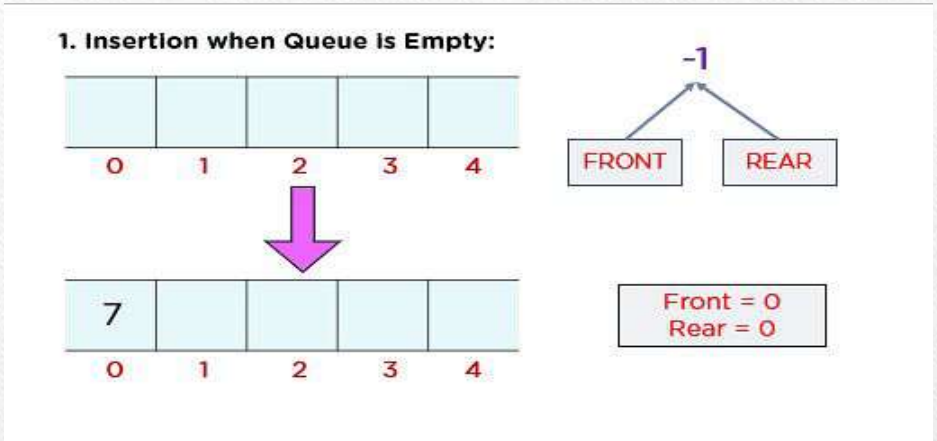
Enqueue() and Dequeue() are the primary operations of the queue, which allow you to manipulate the data flow. These functions do not depend on the number of elements inside the queue or its size; that is why these operations take constant execution time, i.e., O(1) [time-complexity]. Here, you will deal with steps to implement queue operations:

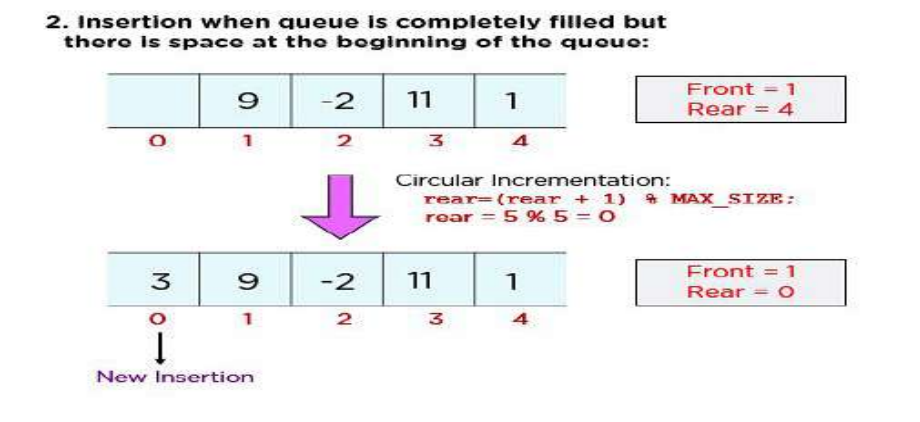
1. Enqueue(x) Operation

You should follow the following steps to insert (enqueue) a data element into a circular queue -

- **Step 1: Check if the queue is full (Rear + 1 % Max size = Front)**
- **Step 2: If the queue is full, there will be an Overflow error**
- **Step 3: Check if the queue is empty, and set both Front and Rear to 0**
- **Step 4: If Rear = Maxsize - 1 & Front != 0 (rear pointer is at the end of the queue and front is not at 0th index), then set Rear = 0**
- **Step 5: Otherwise, set Rear = (Rear + 1) % Maxsize**
- **Step 6: Insert the element into the queue (Queue[Rear] = x)**
- **Step 7: Exit**

Now, you will explore the Enqueue() operation by analyzing different cases of insertion in the circular queue:



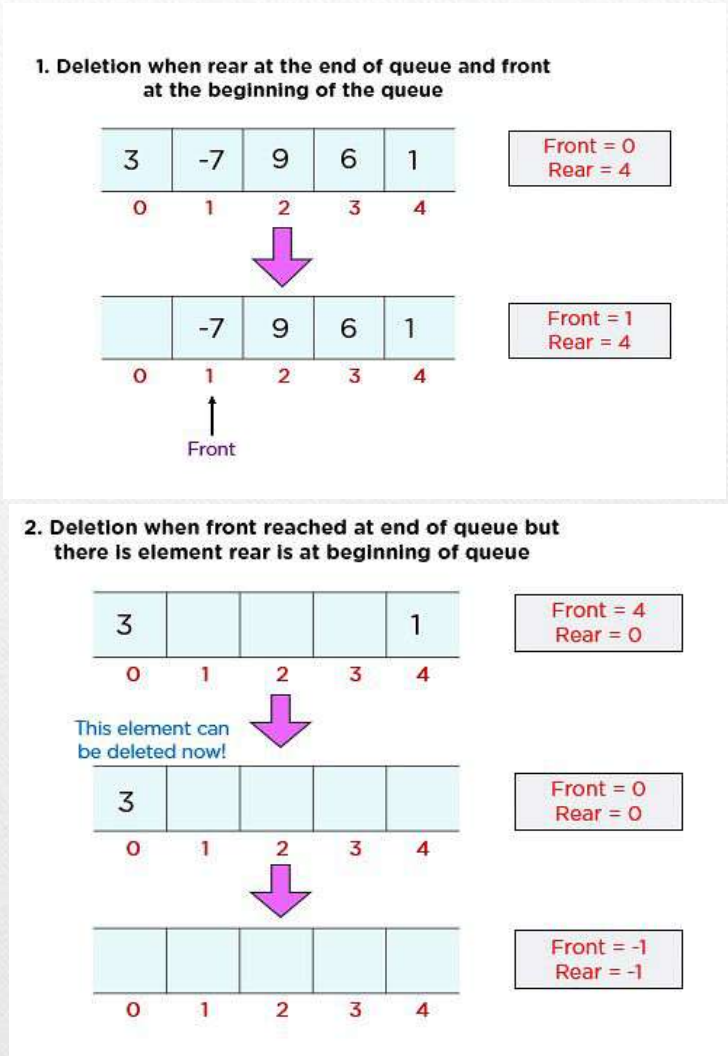


2. Dequeue() Operation:

Obtaining data from the queue comprises two subtasks: access the data where the front is pointing and remove the data after access. You should take the following steps to remove data from a circular queue -

- **Step 1: Check if the queue is empty (Front = -1 & Rear = -1)**
- **Step 2: If the queue is empty, Underflow error**
- **Step 3: Set Element = Queue[Front]**
- **Step 4: If there is only one element in a queue, set both Front and Rear to -1 (IF Front = Rear, set Front = Rear = -1)**
- **Step 5: And if Front = Maxsize -1 set Front = 0**
- **Step 6: Otherwise, set Front = Front + 1**
- **Step 7: Exit**

Let’s understand Dequeue() operation through a diagrammatic representation:



Data Structure...

CS3301

Assignment-1

Program to add the values of the nodes in a linked list & calculate mean...

Data Structures - Problem Solving

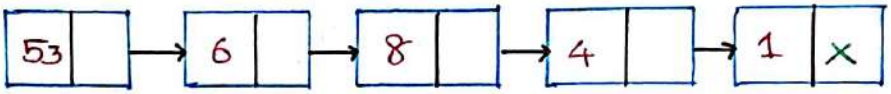
40/40

Well done 6/10

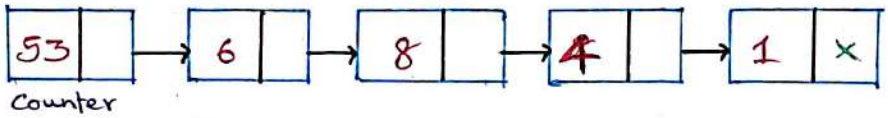
MURUGANANTHAM.P

21CS36

ILLUSTRATION

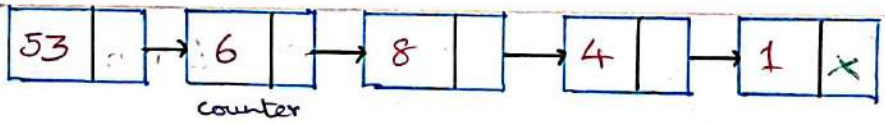


Count = 0 , Sum = 0 , avg = 0.0



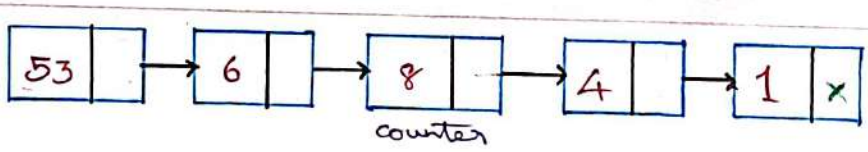
Step - 1

count = 1 , Sum = 0+53 , avg = 53.0
= 53



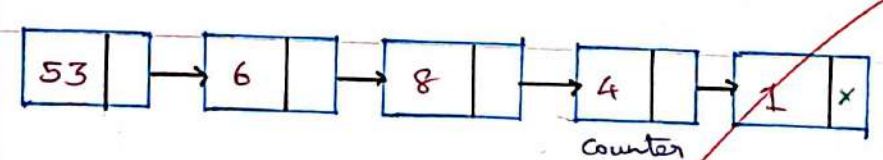
Step - 2

count = 2 , Sum = 53+6 , avg = 29.5
= 59



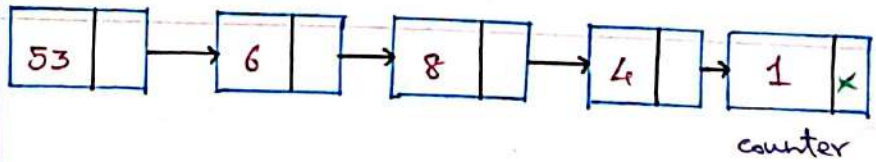
Step - 3

count = 3 , Sum = 59+8 , avg = 22.0
= 67



Count = 4 , Sum = 67+4 , avg = 17.75
= 71

Step - 4



Count = 5 , Sum = 71+1 , avg = 14.4
= 72

Step - 5

PROGRAM

```
// C++ implementation to find the average of nodes of the linked
// list
#include <bits/stdc++.h>
using namespace std;
/* A Linked list node */
Struct Node
{
   int data;
   Struct Node* next;
};
// function to insert a node at the beginning of the linked list
void Push (Struct Node** head_ref, int new_data)
{
  /* allocate node */
  Struct Node* new_node = new Node;
  /* Put in the data */
  new_node->data = new_data;
  /* Link the old list to the new data node*/
  new_node->next = (*head_ref);
  /* move the head to Point to the new node*/
  (*head_ref) = new_node;
}
// Function to iteratively find the avg of nodes of the given linked list
float avgofNodes (Struct Node* head)
{
  // if head = Null
  if (!head)
     return -1;
  int count =0; // Initialize count
  int Sum = 0;
  float avg = 0.0;
  Struct Node* current = head; // Initialize current
  while (current != NULL)
  {
     count++;
     Sum += current->data;
```

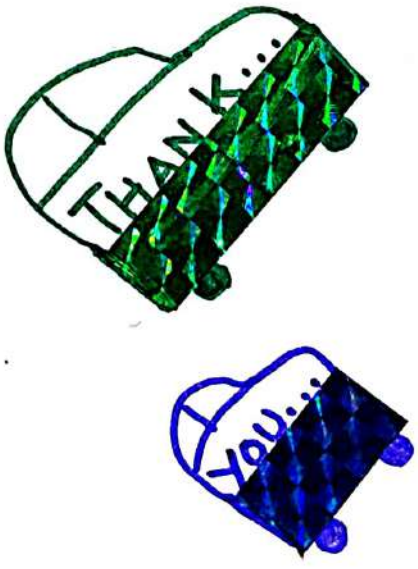
```
        current = current -> next;
    }
    // calculate average
    avg = (double) sum / count;
    return avg;
}
// Driver code
int main()
{
  Struct Node* head = NULL;
  // create linked list  53 -> 6 -> 8 -> 4 -> 1
  Push (&head, 53);
  Push (&head, 6);
  Push (&head, 8);
  Push (&head, 4);
  Push (&head, 1);
  cout << "Average of nodes = " << avgofNodes(head);
  return 0;
}
```

OUTPUT:

Average of nodes = 14.4

RESULT:

Thus, the Program to add the values of the nodes in a linked list and calculate the mean is executed Successfully... ☺



Artificial Intelligence and Machine Learning

POSTER PRESENTATION

Kumaresan K P
21CS26
Assignment-1

Driver Experience

- Reducing Distracted Driving
- Learning & Analyzing Driving Habits
- Customer Accessibility
- Upgraded CX

Supply Chain

- Forecasting & Replenishment
- Automated Routing
- Volume Forecasting
- Automated SCM Decisions

Passenger Experience

- In-Car Delivery
- Personalized Accessibility
- Upgrade CX

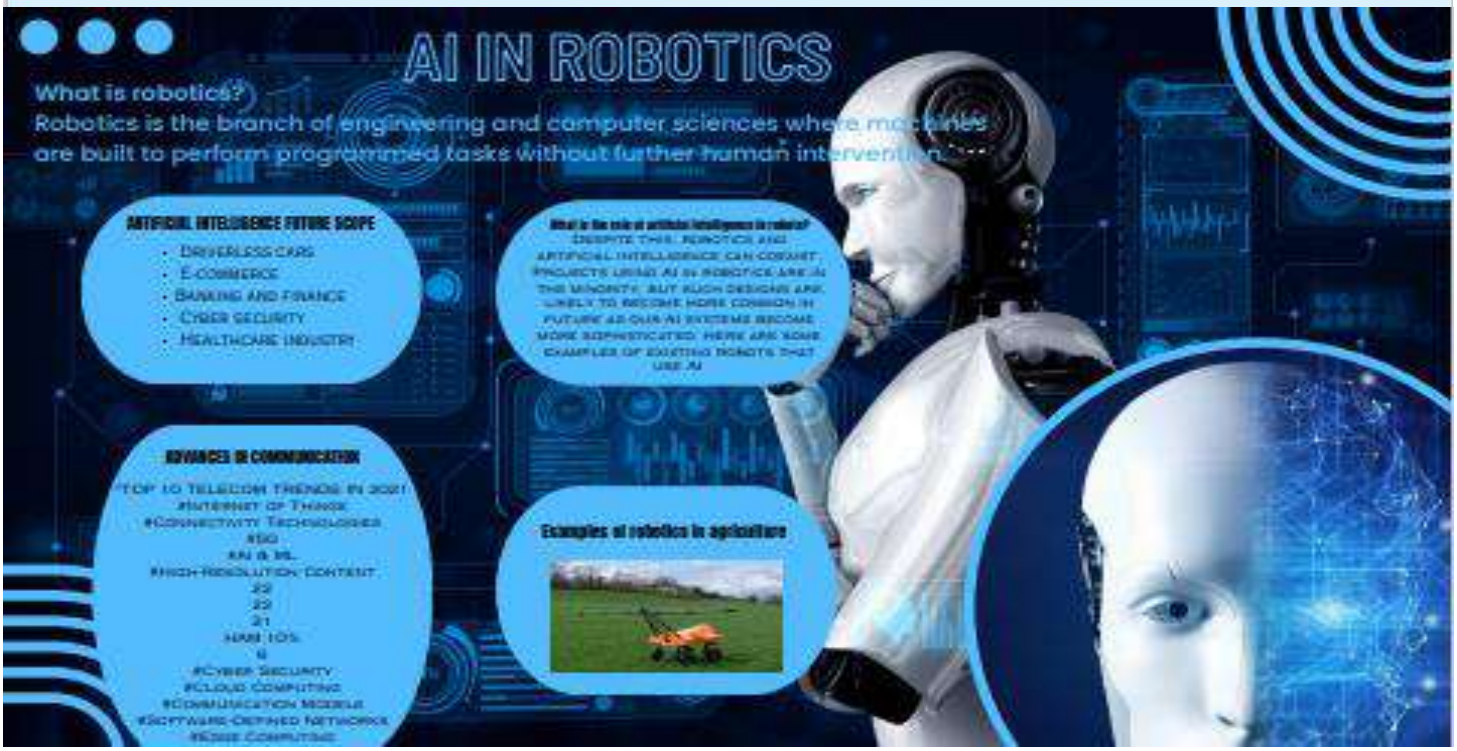
AI in Automotive: Innovative Use Cases

Manufacturing

- Car Assembly
- Supply Chain Optimization
- Robots for Tedious Tasks
- Sensor Data that Improves Performance

Quality Control

- Detecting Defects with Accuracy
- Predictive Monitoring
- Learning & Recognizing Defects
- Crack Detection



AUTONOMOUS DRIVING

AI is a key technology for self-driving cars, which use sensors, cameras, and algorithms to navigate roads and make driving decisions. AI is also used in advanced driver assistance systems (ADAS) that provide features such as lane departure warnings, collision avoidance, and adaptive cruise control.

PREDICTIVE MAINTENANCE

AI is used to analyze vehicle sensor data to predict maintenance needs before a breakdown occurs. This can help reduce downtime, increase vehicle lifespan, and save money on repairs.

PERSONALIZED DRIVING EXPERIENCE

AI can be used to personalize the driving experience for individual users by analyzing their driving behavior and preferences. This could include adjusting the seat and mirror positions, the audio and climate control settings, and even the route taken based on previous choices.

SUPPLY CHAIN OPTIMIZATION

AI can be used to optimize the supply chain for automobile manufacturers by predicting demand, improving logistics, and reducing waste.

DESIGNED BY

J.KEERTHANA

21CS25

IMPROVED MANUFACTURING PROCESSES

AI is used in the design, manufacturing, and assembly of automobiles to improve efficiency and reduce defects. This includes everything from optimizing production lines to detecting quality issues before they become major problems.

The first modern patent Autonomous Vehicles was invented by William L Kelley in 1990

SENSORS USED

Oxygen sensor
Throttle position sensor
Fuel Temperature Sensor
Crankshaft position sensor
Mass flow sensor, MAP sensor
Pressure sensor
LIDAR, Mass Air Flow Sensor
Vehicle Speed Sensor
Parking sensor, Rain sensor
Manifold Absolute Pressure Sensor
Intake Air Temperature Sensor (IAT)

PROS

Prevention of car crashes
Societal cost-savings
Traffic efficiency
Better access and mode of transportation
Environmentally friendly

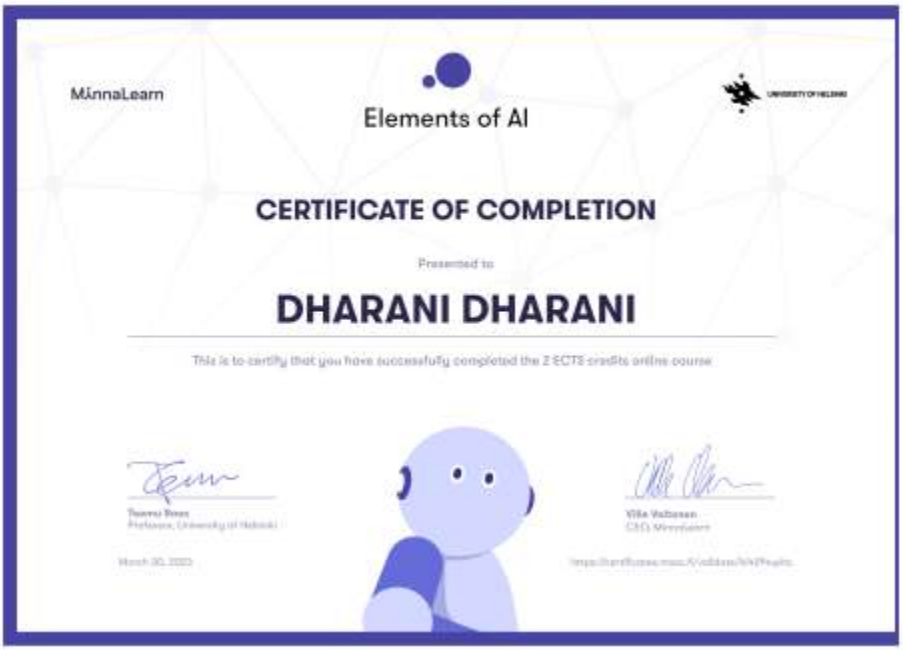
CONS

Security issues
Job losses
Initial costs
Machine error

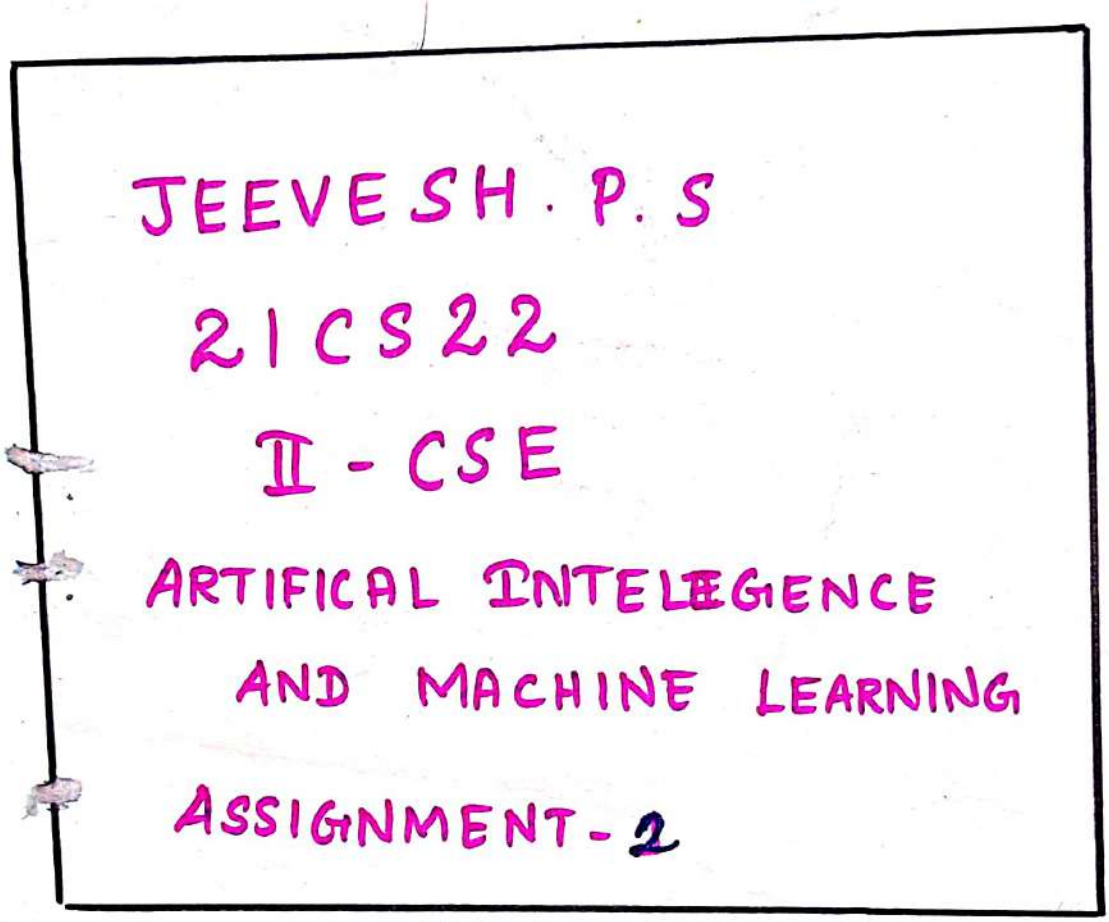
ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

Certification

5/8/24, 10:20 PM certificate-elements-of-ai.png



Artificial & Machine Learning
Real Time Application



ADML

Name: P. S. Jeevesh

Year, Dept: IInd, Year, CSE

Roll No: 21CS22

Sub code: CS8491

Parts:

- (1) Exploring SVM

- (2) SVM with RBF kernel

- (3) SVM with Poly kernel

Describe how the multi-class classification is different for SVC and LinearSVC. Be explicit, don't just describe what's in the documentation. For example, what does 'one-against-one' and 'one-vs-the-rest' mean?

The one-against-one classifier trains binary classifer for N class (multi class) data set. Each classifier recieves a pair of classes from the training set and we learn to classify between these two labels/classes. On the other hand, One versus Rest approach, we train on classifier per class, with the samples from that class labelled as Postive class and the rest as Negative class, and repeating these N times gives us a N class classifier. Now, all the samples are given Weights (probablity) for each class and from them we choose a winner class, giving the final Label. In order to perform Multi class classification we need to transform into a set of binary classification problem. When it comes to multi class classification The main difference between SVC and LinearSVC is they use One Vs One and One Vs Rest approach. One clear difference in SVC and Linear SVC is: SVC offers us different Kernels (rbf or poly) while LinearSVC just produces a linear margin of seperation. While in SVC the max iterations are infinite, LinearSVC limits them to 1000.

The last major difference is, in LinearSVC we have an option to choose between dual form of SVM or single form. In SVC we do no have that option.

Importing the packages and data with Tensorflow

In [20]:

```
from scipy.stats import mode
import numpy as np
#from mnist import MNIST
from time import time
import pandas as pd
import os
import matplotlib.pyplot as matplot
```

```
import matplotlib
%matplotlib inline

import random
matplot.rcdefaults()
from IPython.display import display, HTML
from itertools import chain
from sklearn.metrics import confusion_matrix
from sklearn.metrics import accuracy_score
import seaborn as sb
from sklearn.model_selection import ParameterGrid
from sklearn.svm import SVC, LinearSVC
import warnings
warnings.filterwarnings('ignore')
```

In [21]:

```
from tensorflow.examples.tutorials.mnist import input_data
mnist = input_data.read_data_sets('MNIST_data/')
```

```
Extracting MNIST_data/train-images-idx3-ubyte.gz
Extracting MNIST_data/train-labels-idx1-ubyte.gz
Extracting MNIST_data/t10k-images-idx3-ubyte.gz
Extracting MNIST_data/t10k-labels-idx1-ubyte.gz
```

In [22]:

```
train = mnist.train.images
validation = mnist.validation.images
test = mnist.test.images

trlab = mnist.train.labels
vallab = mnist.validation.labels
tslab = mnist.test.labels

train = np.concatenate((train, validation), axis=0)
trlab = np.concatenate((trlab, vallab), axis=0)
```

Imp thing to remember: Data is 0-1 normalized

We save a lot of compute time by keeping the data that way and we dont lose any significant amount of accuracy

Linear SVC

Running a Sample Linear SVM classifier on default values to see how the model does on MNIST data

In [8]:

```
svm = LinearSVC(dual=False)
svm.fit(train, trlab)
```

Out[8]:

```
LinearSVC(C=1.0, class_weight=None, dual=False, fit_intercept=True,
     intercept_scaling=1, loss='squared_hinge', max_iter=1000,
     multi_class='ovr', penalty='12', random_state=None, tol=0.0001,
     verbose=0)
```

In [11]:

```
svm.coef_
svm.intercept_
```

Out[11]:

```
array([-1.20849557, -0.1362278 , -0.81846194, -1.19352824, -0.50981085,
        0.03587096, -1.14999805, -0.24171445, -2.0858455 , -1.32422686])
```

In [12]:

```
pred = svm.predict(test)
```

In [15]:

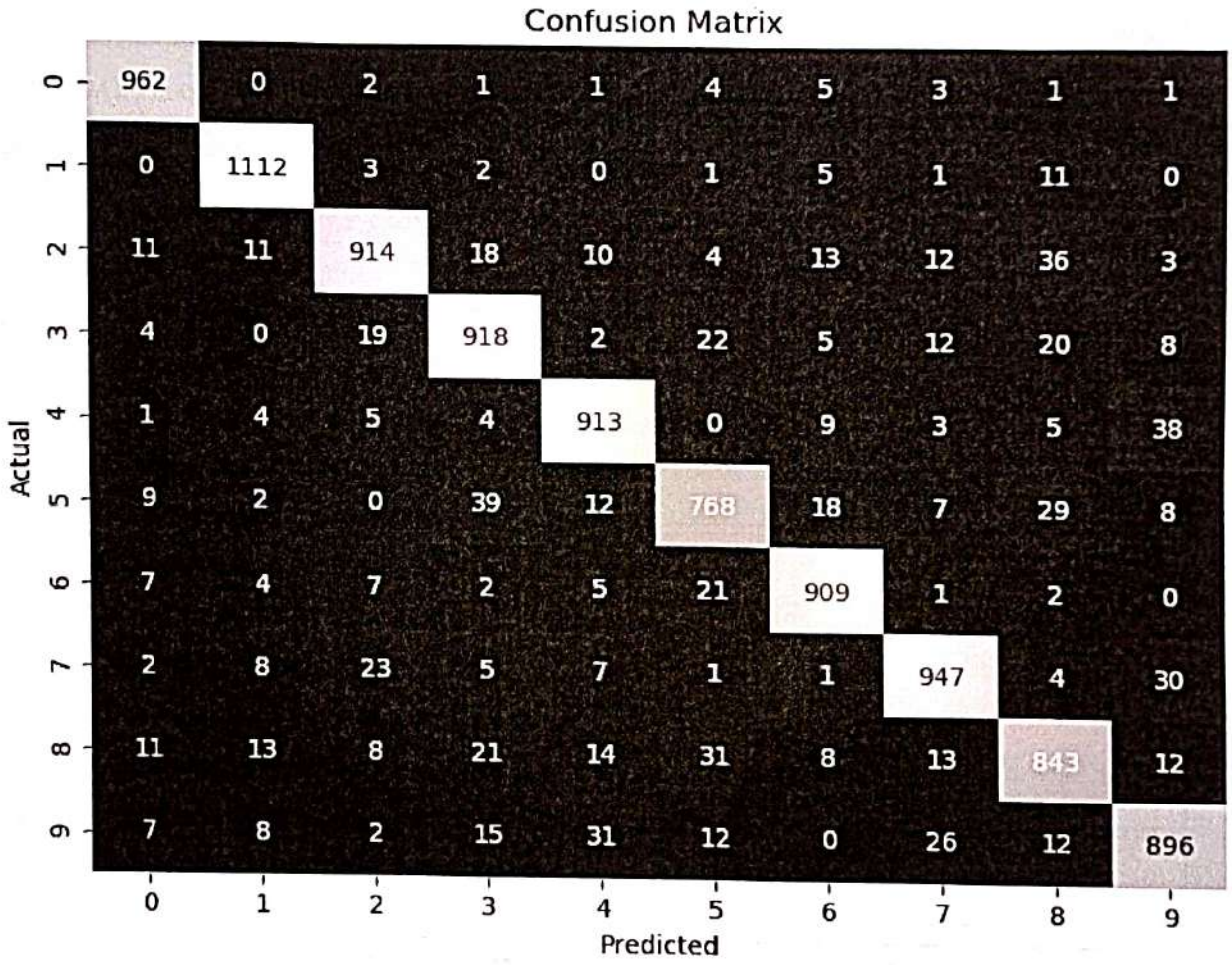
```
accuracy_score(tslab, pred) # Accuracy
```

Out[15]:

```
0.91820000000000002
```

In [13]:

```
cm = confusion_matrix(tslab, pred)
matplot.subplots(figsize=(10, 6))
sb.heatmap(cm, annot = True, fmt = 'g')
matplot.xlabel("Predicted")
matplot.ylabel("Actual")
matplot.title("Confusion Matrix")
matplot.show()
```



As we can see that the SVM does a pretty decent job at classifying, we still get the usual misclassification on 5-8, 2-8, 5-3, 4-9. However, accuracy of **91.82%** is good

(i)

Running Linear SVC for multiple cost factor(s) C

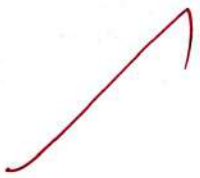
In [23]:

```
acc = []
acc_tr = []
coefficient = []
for c in [0.0001,0.001,0.01,0.1,1,10,100,1000,10000]:
    svm = LinearSVC(dual=False, C=c)
    svm.fit(train, trlab)
    coef = svm.coef_
```

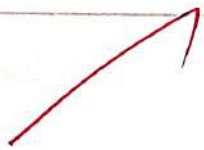
```
    p_tr = svm.predict(train)
    a_tr = accuracy_score(trlab, p_tr)

    pred = svm.predict(test)
    a = accuracy_score(tslab, pred)

    coefficient.append(coef)
    acc_tr.append(a_tr)
    acc.append(a)
```

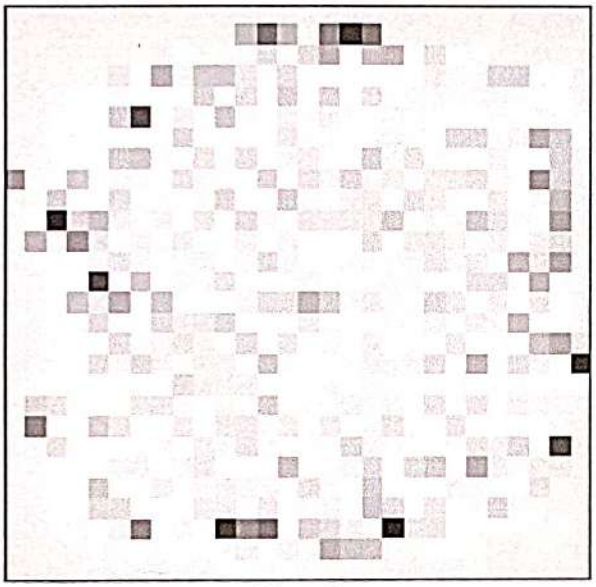
In [24]:

```
c = [0.0001,0.001,0.01,0.1,1,10,100,1000,10000]

matplot.subplots(figsize=(10, 5))
matplot.semilogx(c, acc,'-gD' ,color='red' , label="Testing Accuracy")
matplot.semilogx(c, acc_tr,'-gD' , label="Training Accuracy")
#matplot.xticks(L,L)
matplot.grid(True)
matplot.xlabel("Cost Parameter C")
matplot.ylabel("Accuracy")
matplot.legend()
matplot.title('Accuracy versus the Cost Parameter C (log-scale)')
matplot.show()
```

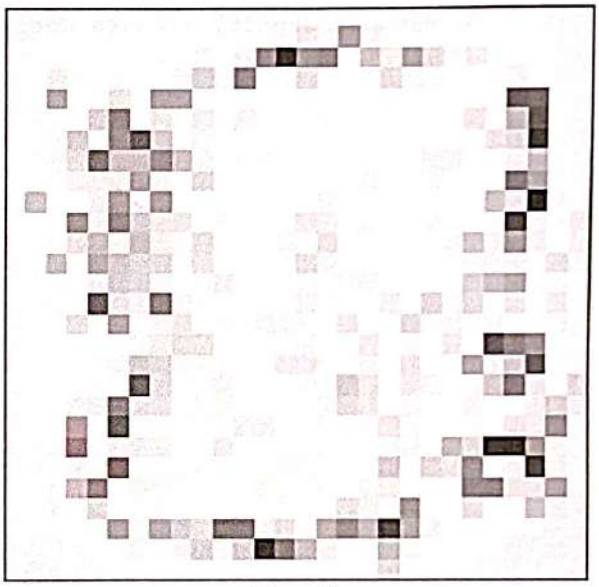


```
for i in range(10):
    l1 = matplot.subplot(2, 5, i + 1)
    l1.imshow(svm_coef[i].reshape(28, 28), cmap=matplot.cm.RdBu)
    l1.set_xticks(())
    l1.set_yticks(())
    l1.set_xlabel('Class %i' % i)
matplot.suptitle('Class Coefficients')
matplot.show()
```

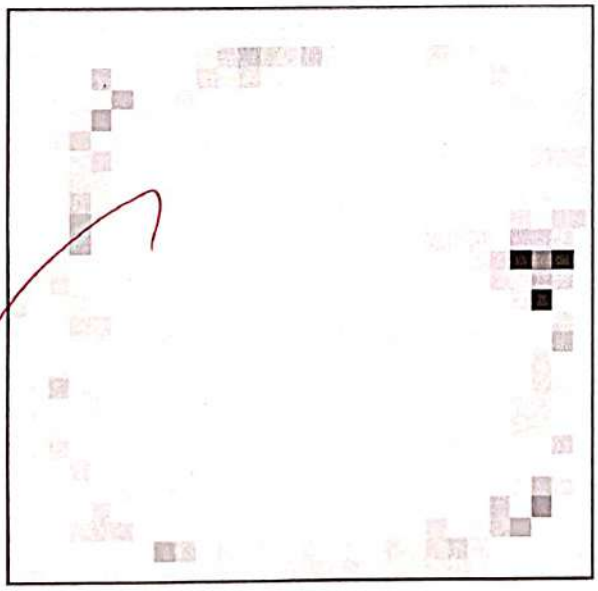




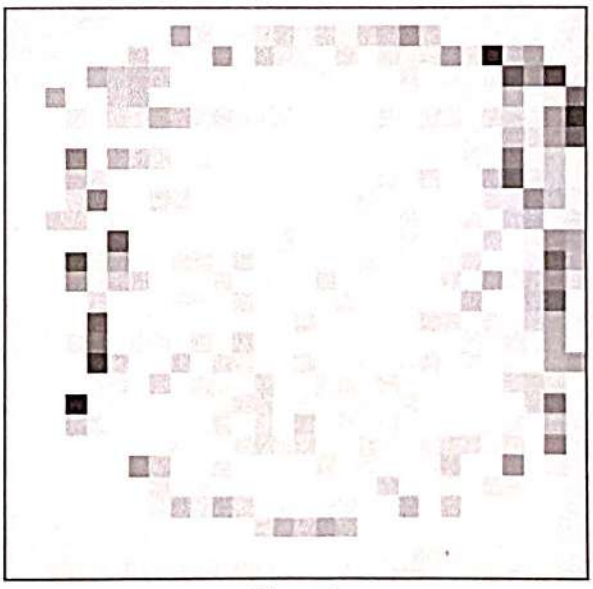
Class 0



Class 1



Class 5



Class 6

These images look nothing like the images we saw in Logistic regression or Naive Bayes. In Naive Bayes, the underlying number was clearly visible, while in Logistice regression the pattern seemed quite distinct between all the classes. However, here you dont see any

(iii)¶

Linear SVC with Penalty: l1

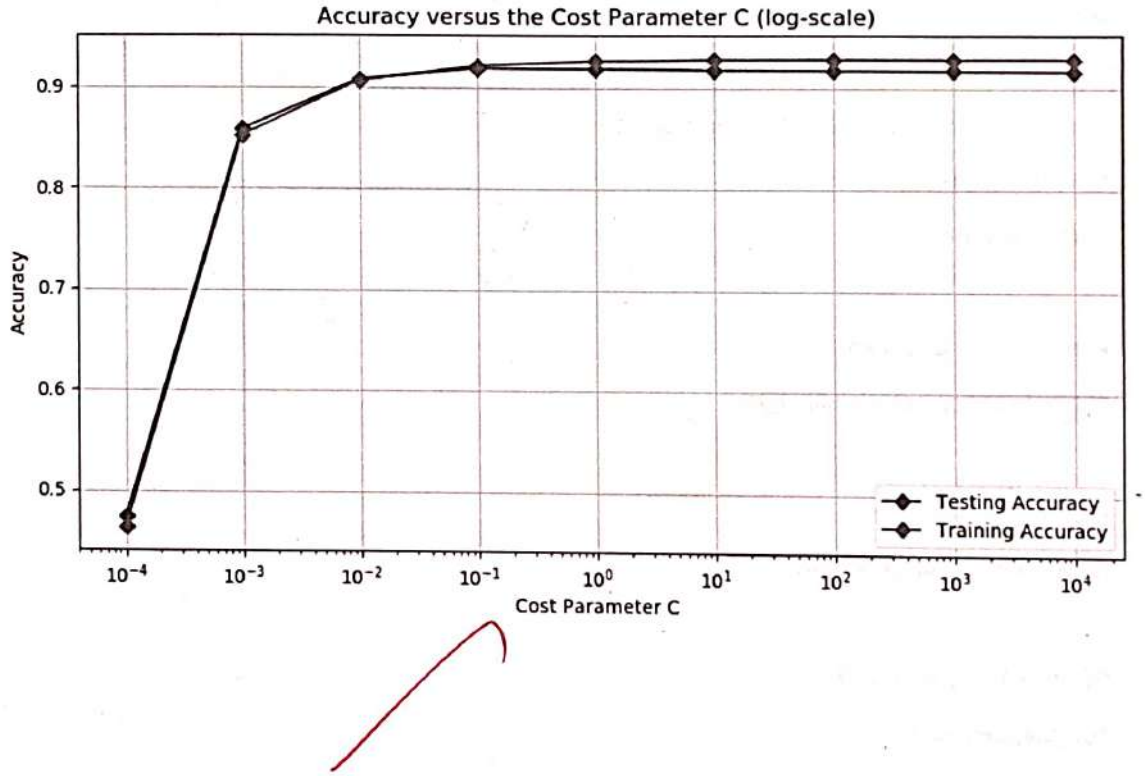
```
Acc = []
Acc_tr = []
Coefficient = []
For c in [0.0001,0.001,0.01,0.1,1,10,100,1000,10000]:
   Svm = LinearSVC(dual=False, C=c, penalty='l1')
   Svm.fit(train, trlab)
   Coef = svm.coef_

   P_tr = svm.predict(train)
   A_tr = accuracy_score(trlab, p_tr)

   Pred = svm.predict(test)
   A = accuracy_score(tslab, pred)

   Coefficient.append(coef)
   Acc_tr.append(a_tr)
   Acc.append(a)
C = [0.0001,0.001,0.01,0.1,1,10,100,1000,10000]

Matplot.subplots(figsize=(10, 5))
Matplot.semilogx(c, acc,'-gD' ,color='red' , label="Testing Accuracy")
Matplot.semilogx(c, acc_tr,'-gD' , label="Training Accuracy")
#matplot.xticks(L,L)
Matplot.grid(True)
Matplot.xlabel("Cost Parameter C")
```

Matplot.ylabel("Accuracy")

Matplot.legend()

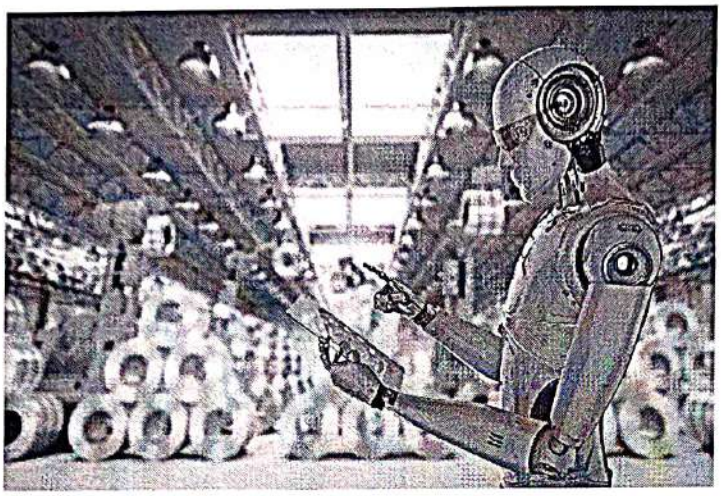
Matplot.title('Accuracy versus the Cost Parameter C (log-scale)')

Matplot.show()



Artificial & Machine Learning
Real Time Application

AI IN MANUFACTURING



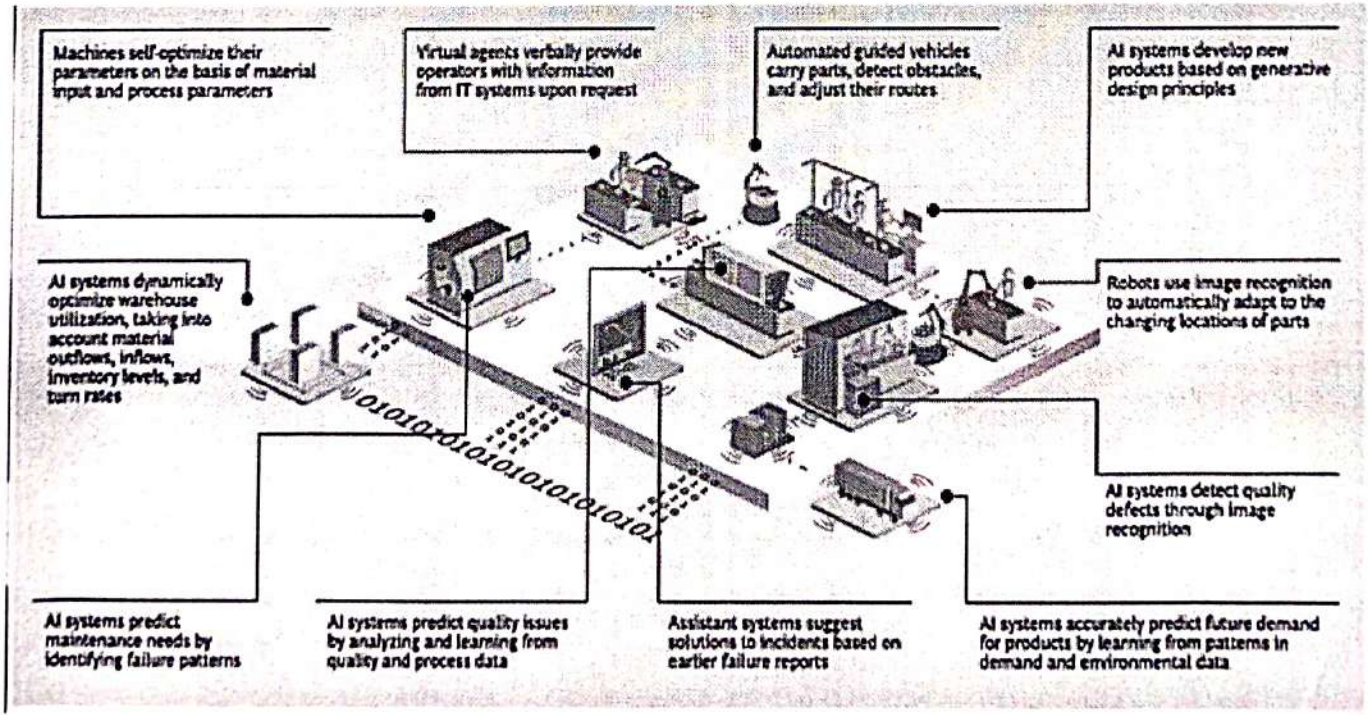
SUBMITTED BY:

KARTHI

II-CSE

ROLL NO: 24

SUBJECT:AI&ML



CREATING DIGITAL FUTURES

Advanced Analytics is at the core of Smart Manufacturing

Predictive Maintenance

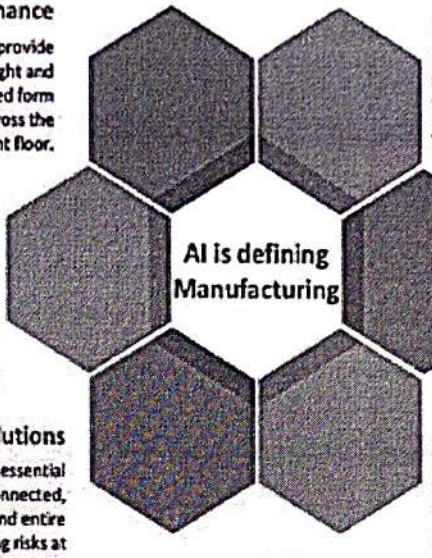
Using the power of machine learning to provide manufacturers with contextual insight and intelligence based on data captured form machinery performance and processes across the plant floor.

Demand Forecasting and Inventory optimization

Robust demand forecasting based on critical demand drivers; improved decision making through structured scenario analysis. Inventory optimization using statistical modelling techniques to perform inventory stock level vs lost sales scenario analysis

Intelligent data security solutions

The role of cybersecurity becomes even more essential today as significant operational risks for connected, smart manufacturing, digital supply networks, and entire manufacturing ecosystems emerge, highlighting risks at the intersection of cyber and physical infrastructure.



Human Robotics Collaborative Ecosystems

New generation of robotics capable of image and speech recognition are taking over precision operations in the factory with human workers undertaking higher-level jobs such as programming, maintaining and coordinating robotic operations.

Intelligent Factory Operations

IoT is revolutionizing many aspects of manufacturing operations including real-time production monitoring, improving the accuracy of key metrics including Overall Equipment Effectiveness (OEE), production yield rates and production efficiency.

Application of Digital Twins

The Digital design, simulation, and integration (DDSI) market are predicted to grow from $2.5B in 2016 to $4.5B in 2021. Simulation will enable the virtual testing of plant production system at planning stage to prevent any potential faults.

Source: News Analysis, PWC, BCG

Roadmap for developing the AI and Analytics Strategy

CREATING DIGITAL FUTURES

01 — **Understand your starting position**

Understand the consumer expectations and then review your current maturity and identify areas for improvement

02 — **Find a Champion**

Identify the right leader to sponsor innovation and change. Your COO, CFO, and CDO can help minimize internal resistance and define your new organization as you start to implement changes.

03 — **Define your strategy**

Determine your target maturity level and the vision that best supports your business strategy

04 — **Develop the appropriate road map**

Settle on the necessary implementation steps and work them into a detailed road map

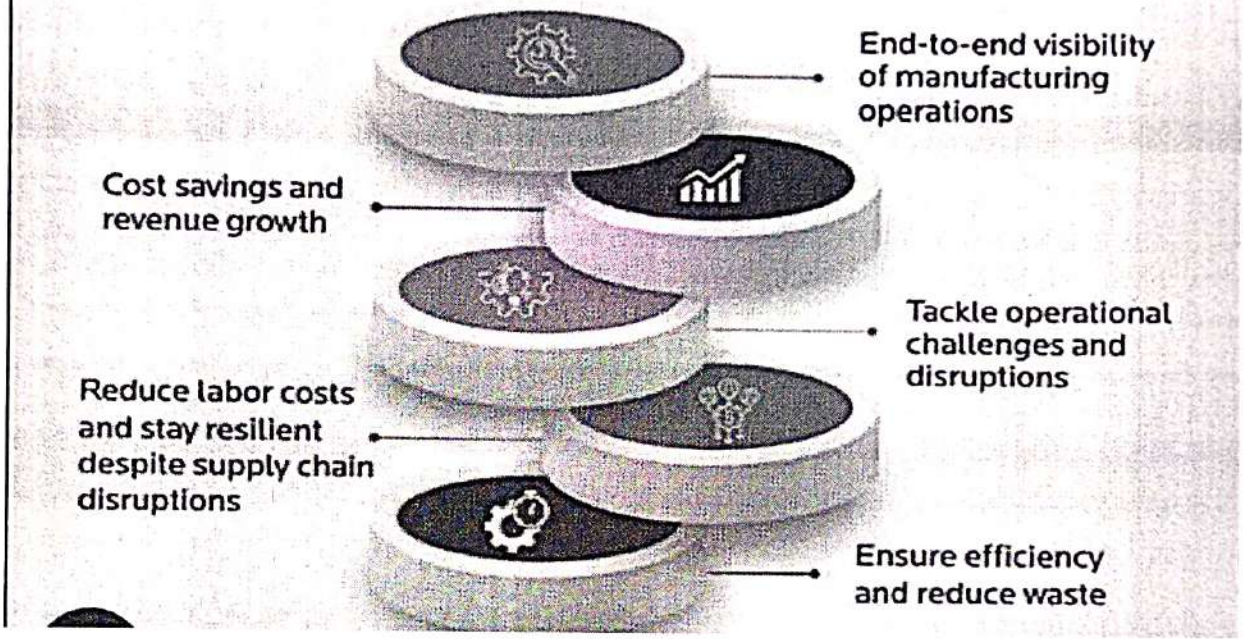
05 — **Deploy small pilots**

These "lighthouse" projects should aim at testing the end to end flow for a specific function, rather than implementing a limited set of technologies on a broader scale

06 — **Segmented rollout and capability development**

After a successful pilot, the rollout should start with those business areas where expected benefit is highest.

AI AND THE FUTURE OF MANUFACTURING

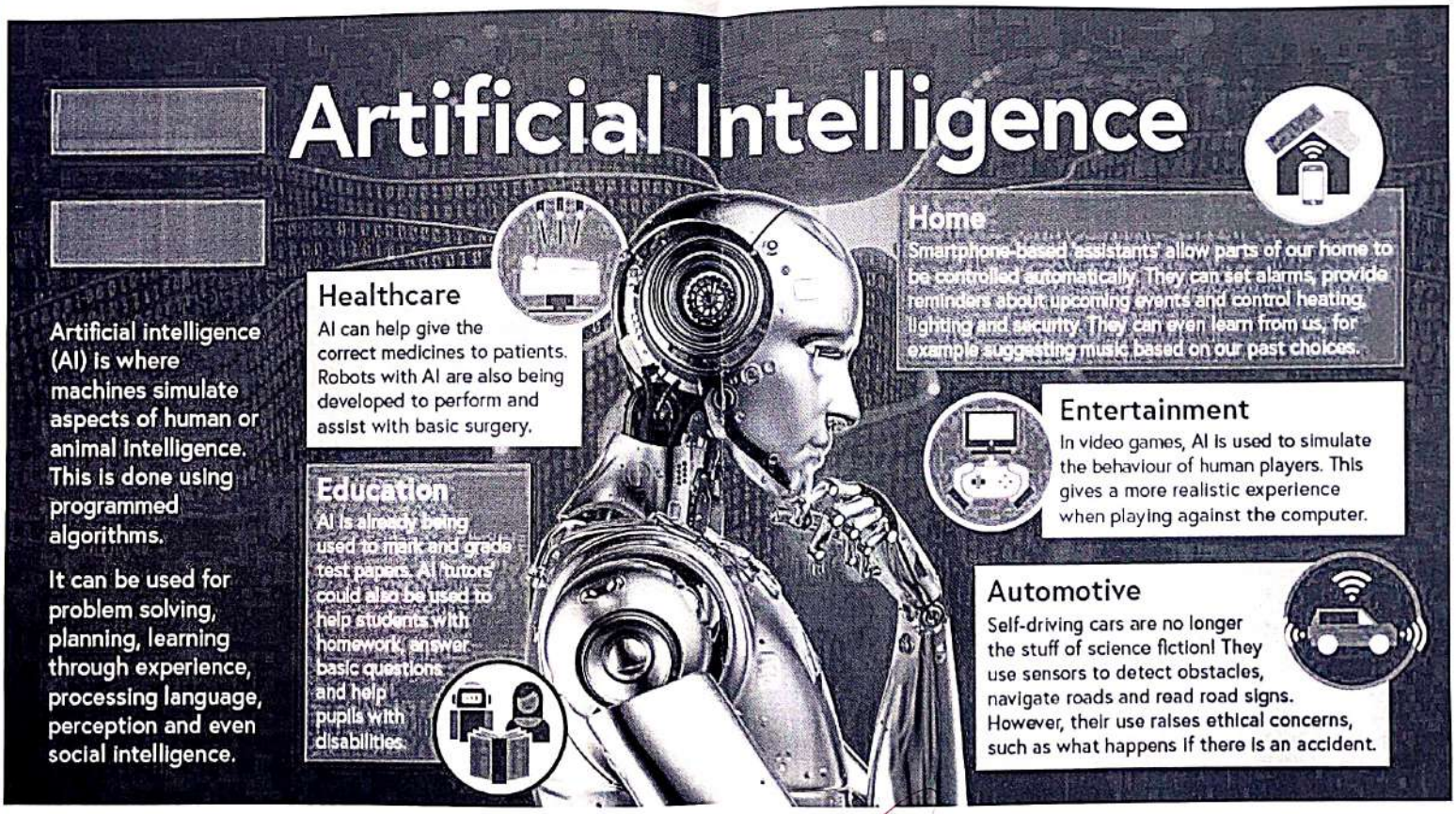


USE CASES OF AI IN MANUFACTURING INDUSTRY

- Logistics
- AI Based Robots
- Supply Chain Management
- AI Autonomous Vehicles
- Factory Automation
- IT Operations
- Design and Manufacturing
- Artificial Intelligence and IoT
- Warehouse Management
- Process Automation
- Predictive Maintenance
- Product Development
- Connected Factory
- Visual Inspections and Quality Control
- Purchasing Price Variance
- Order Management
- Cybersecurity

Artificial & Machine Learning Poster Presentation

Johara kani. S
CSE - 2nd



30/30 Good!

Artificial & Machine Learning Poster Presentation

AI IN ENTERTAINMENT

One of the most exciting potential applications of AI in the entertainment industry is its ability to create personalized experiences for users.

MOVIE PRODUCTION

MOVIE PRODUCTION REQUIRES MULTIPLE METHODS SUCH AS SCREENWRITING, LOCATION SCOUTING, GENERATING SHOT LISTS, STORYBOARDING, BUDGETING, RECORDING, SCHEDULING, AND EDITING.

THESE METHODS ARE BROUGHT OUT BY COLLUDING WITH MANY FILM PRODUCTION PROFESSIONALS. THEREFORE, FILM PRODUCTION IS A COMPLEX AND TIME-CONSUMING MEANS.

VR AND AR

AUGMENTED REALITY OR VIRTUAL REALITY APPS WILL LIKEWISE MAKE THIS PROVINCE MORE IMMERSIVE AND CAPTIVATING, AS WE ARE NOW ENCOUNTERING THE VALUE OF AR IN THE ADVERTISEMENT.

WE SHALL BE CAPABLE OF CAPTURING A 360° ASPECT OF EFFECTS THAT WILL LET US BECOME MORE ENHANCED AND IMPROVED EXPERTISE. AI WILL ASSIST US TO EXPERIENCE THE FEELING OF THE AUTHENTIC AND LIVE EVENT

GAMING

AI in gaming refers to responsive and adaptive video game experiences. These AI-powered interactive experiences are usually generated via non-player characters, or NPCs, that act intelligently or creatively, as if controlled by a human game-player. AI is the engine that determines an NPC's behavior in the game world.

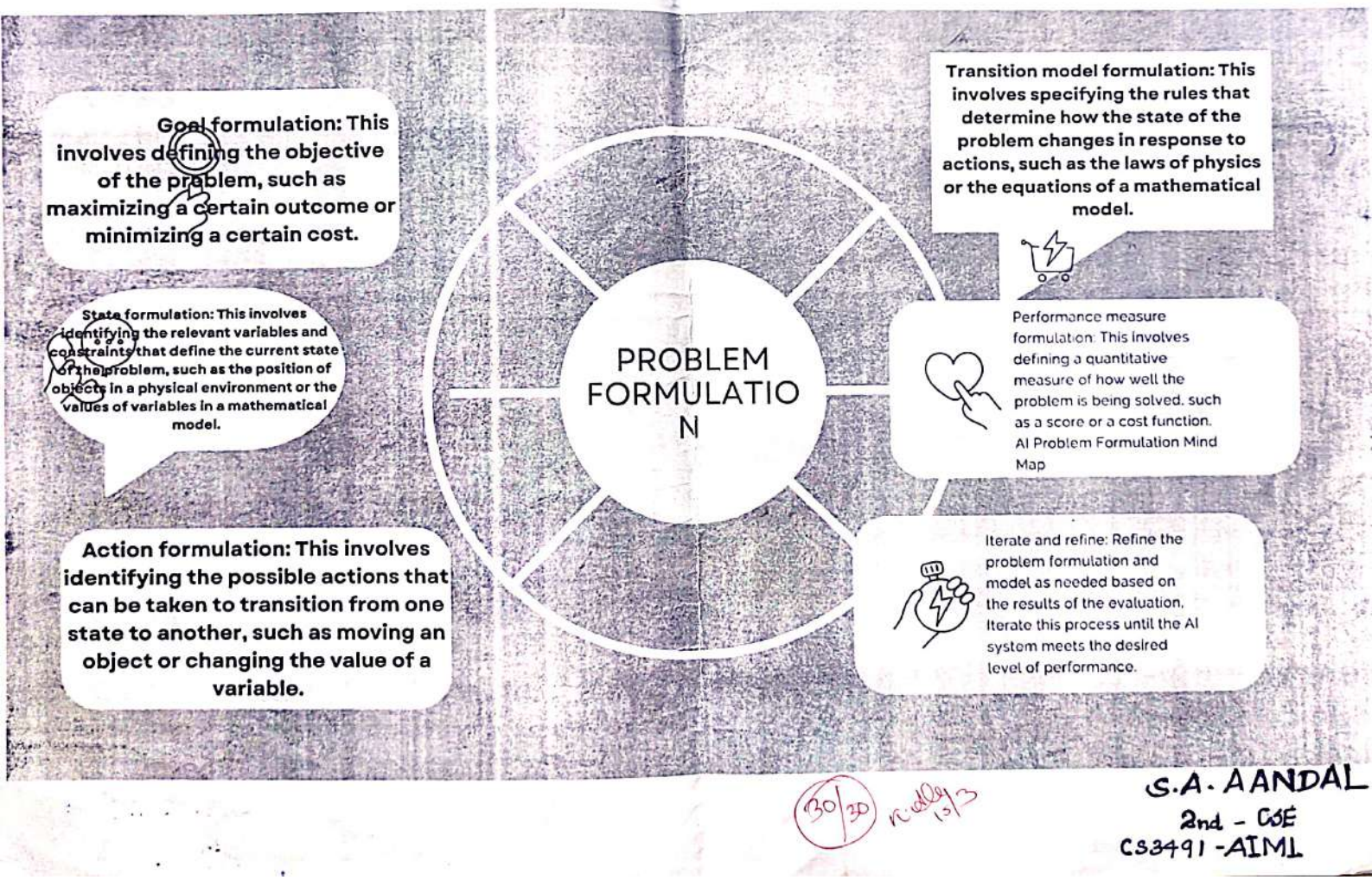
SPORTS BROADCAST

AI SYSTEMS CAN BE TRAINED TO IDENTIFY OBJECTS AND ACTIONS IN SPORTS EVENTS. IT CAN ALSO USE FOOTAGE CAPTURED BY DRONES TO DELIVER BROADCAST THAT OFFERS ENGAGING CONTENT AS WELL AS DEEPER SPORTS INSIGHTS. FOR EXAMPLE, IN A FOOTBALL MATCH, LIVE FOOTAGE DEVELOPED BY AI CAN CAPTURE ADRENALINE-FUELED ACTION AS WELL AS PLAYERS' AND FANS' REACTIONS AFTER EVERY GOAL. THIS NOT ONLY HELPS DELIVER ACTION-PACKED SPORTS BROADCASTING BUT A TRULY ENGAGING SPORTS VIEWING EXPERIENCE.

M. Manoj
21CG29

30/30
15/3

Artificial & Machine Learning Poster Presentation



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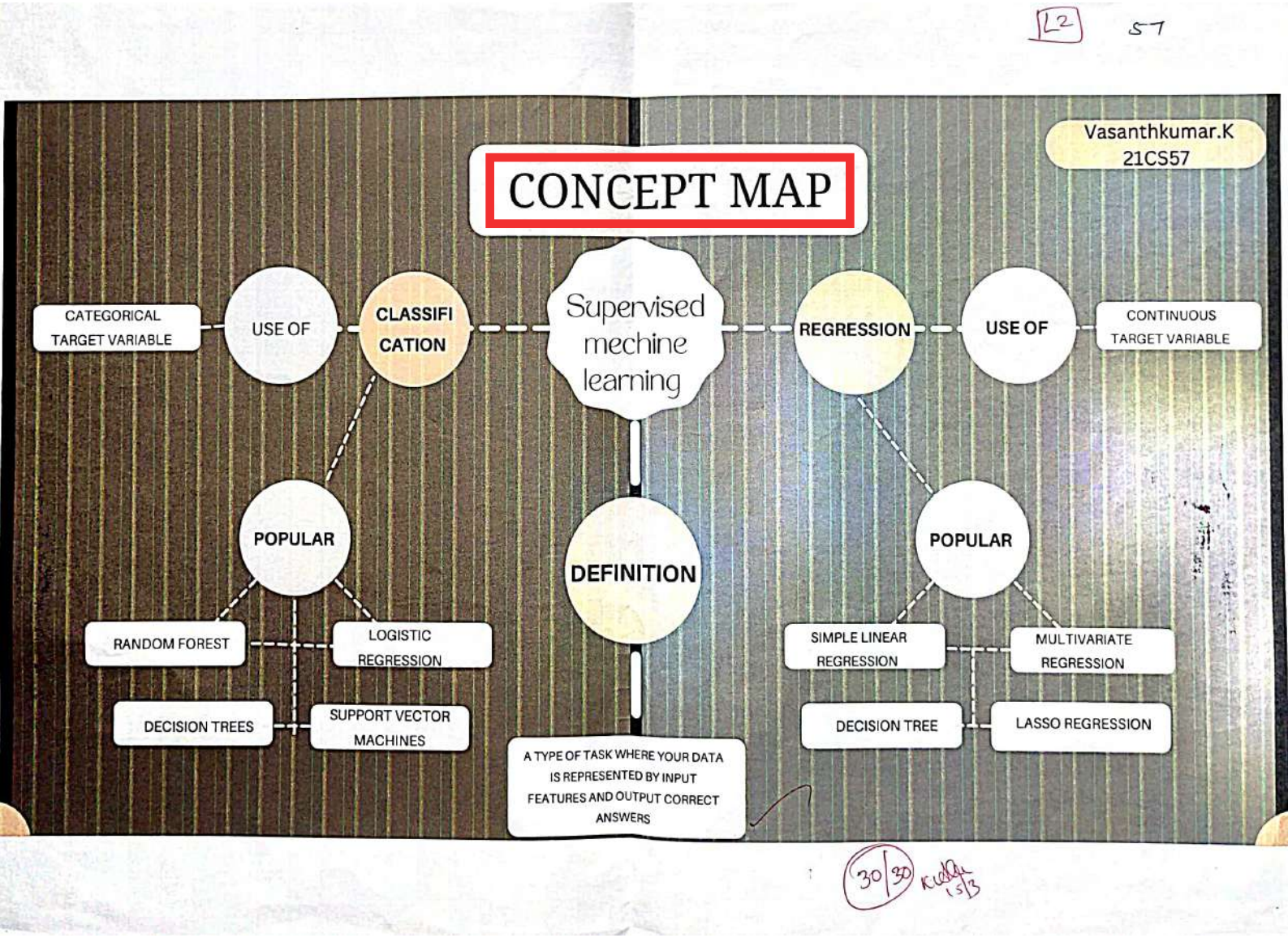
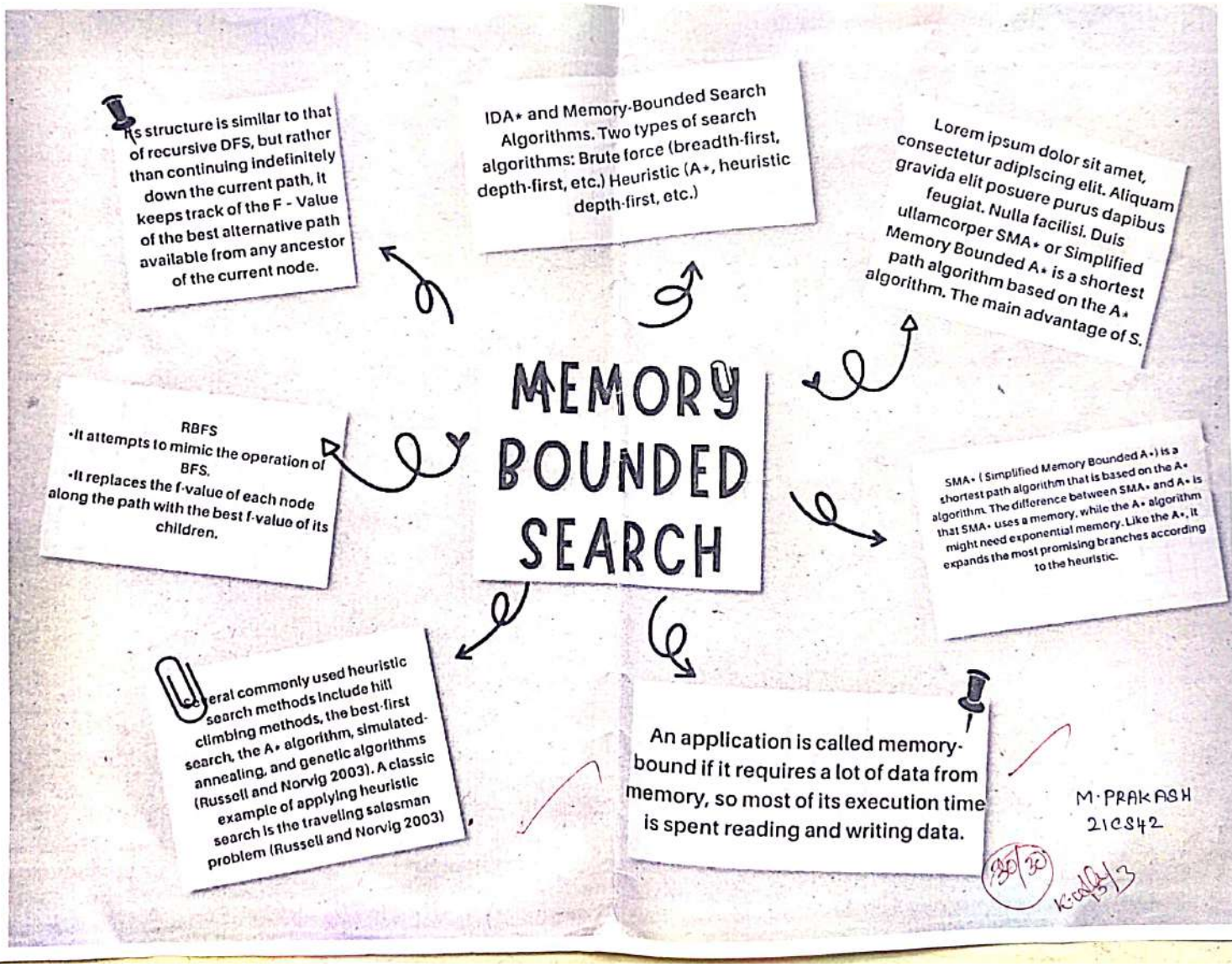
S.A. AANDAL
2nd - CSE
CS3491 -AIML

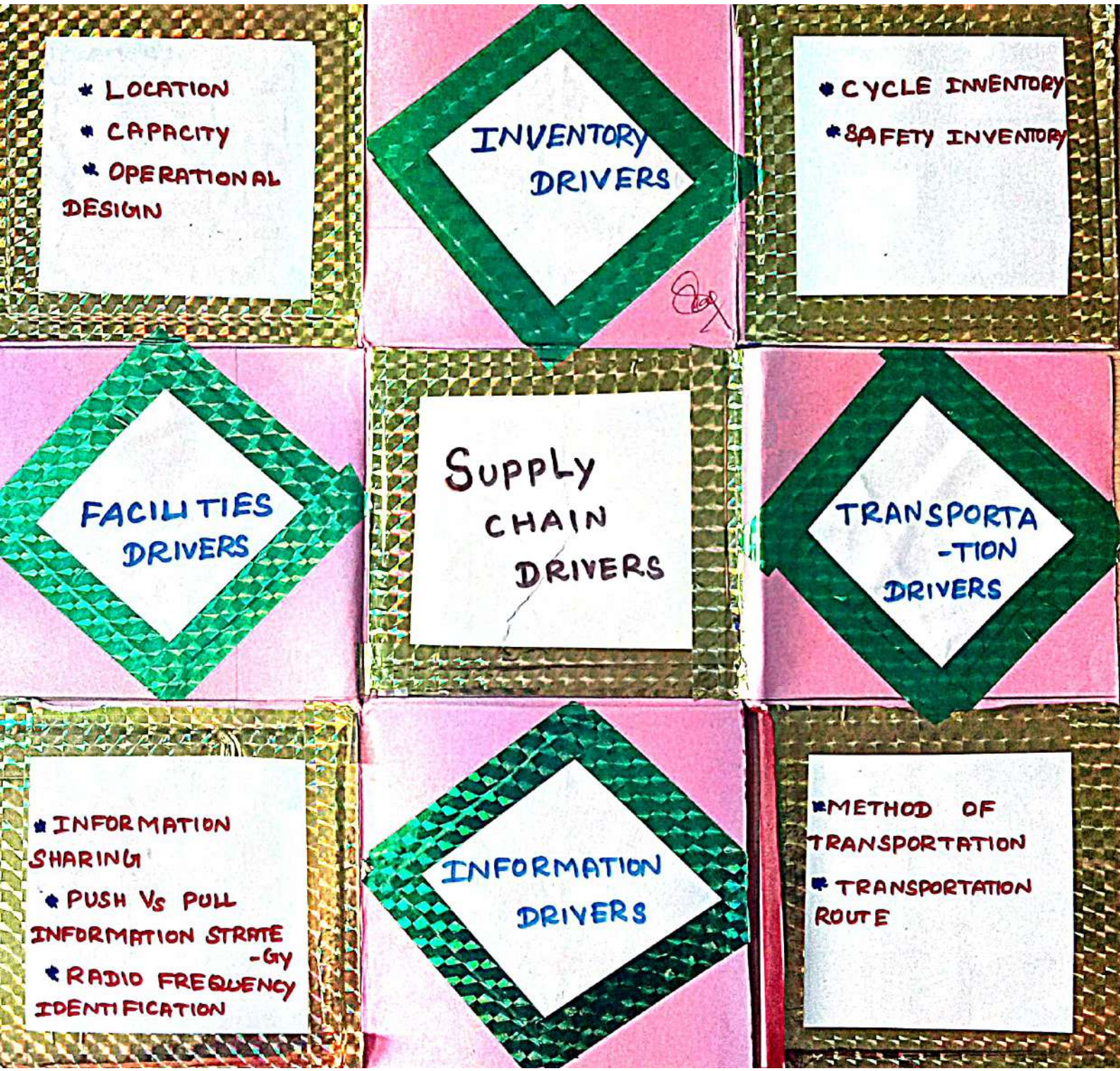
Artificial & Machine Learning Concept Map



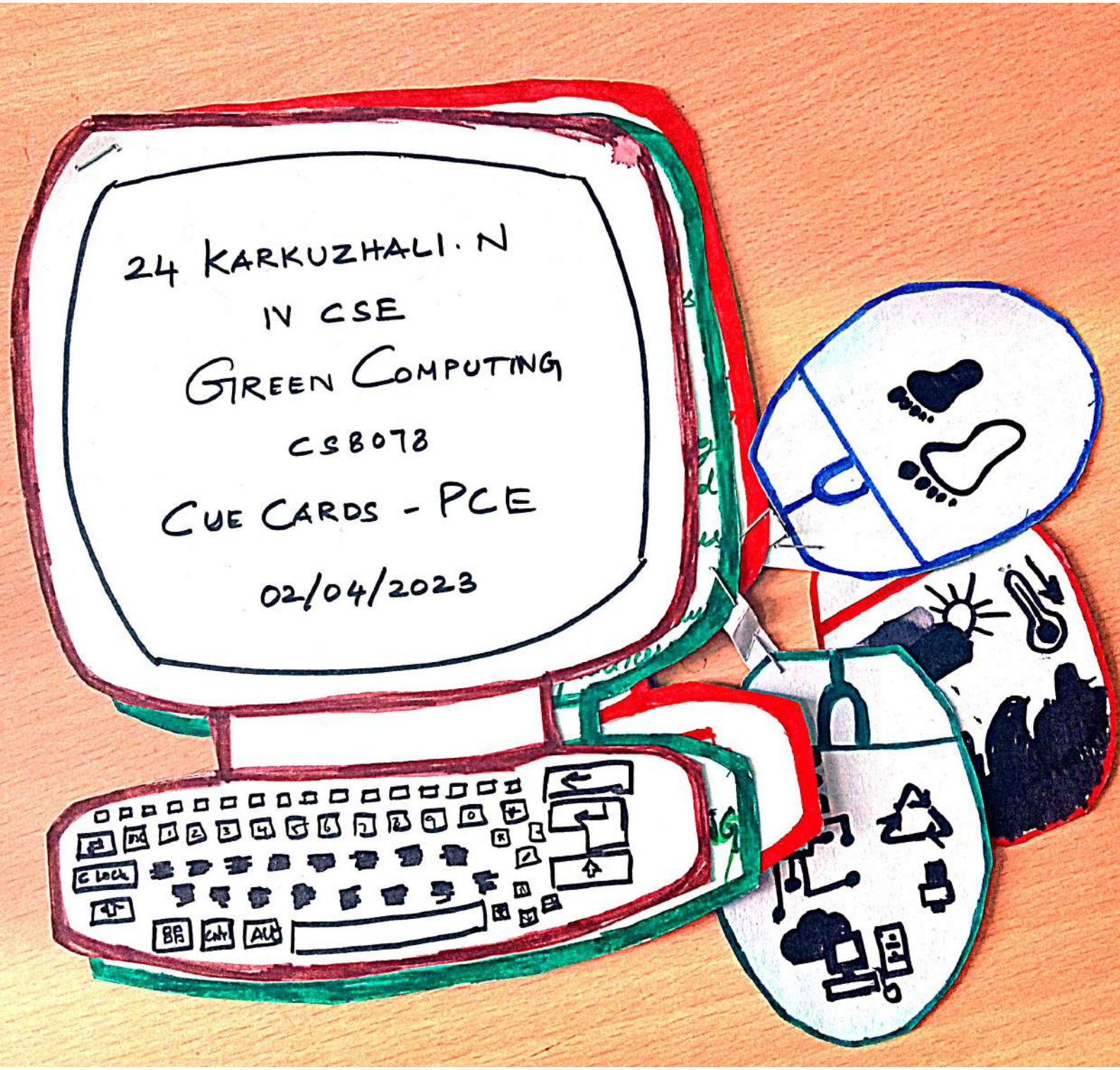
Artificial & Machine Learning Concept Map



Supply Chain Management
Cue Cards



Green Computing
Flash Cards



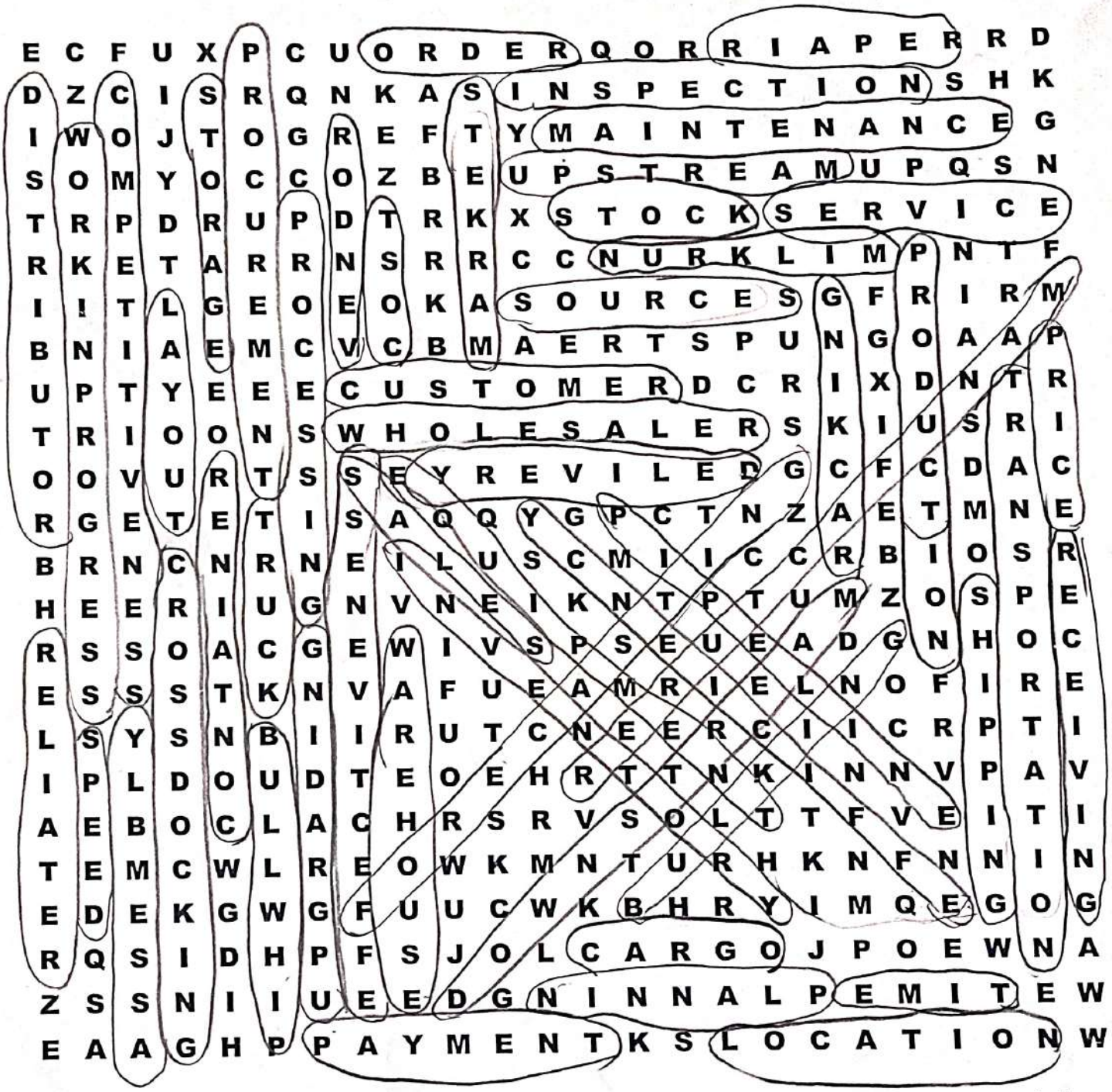
Green Computing
Real Time Application

+91 73970 26945
today at 8.51 am

P. Gopinath
MCS20

Green Computing
Cross Word Puzzle

SUPPLY CHAIN LOGISTICS



wholesalers
production
payment
sales
cargo
layout
sources
shipping
storage
product
bullwhip

effectiveness
competitiveness
truck
time
equipment
pipeline
markets
retailer
location
price
warehouse

efficiency
distributor
upgrading
speed
racking
workinprogress
milkrun
receiving
service
cost
upstream

planning
manufacturer
forecasting
procurement
bulking
repair
crossdocking
downstream
assembly
vendor

transportation
processing
order
container
inspection
maintenance
stock
customer
delivery
inventory

NAME : BAKIYA LAKSHMI.A

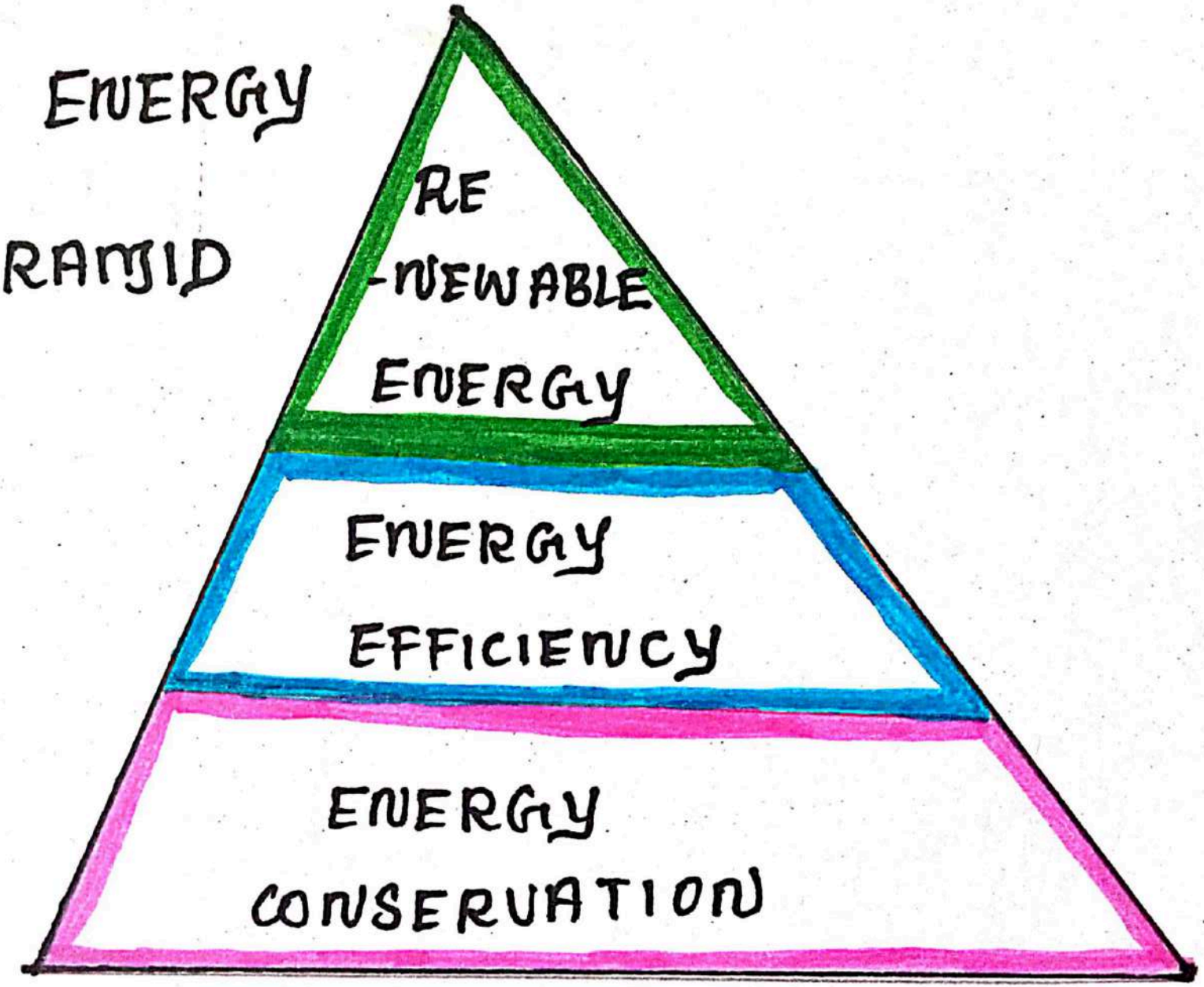
CLASS : IV-CSE

ROLL NO : 08

SUBJECT : GREEN COMPUTING
CUE CARDS

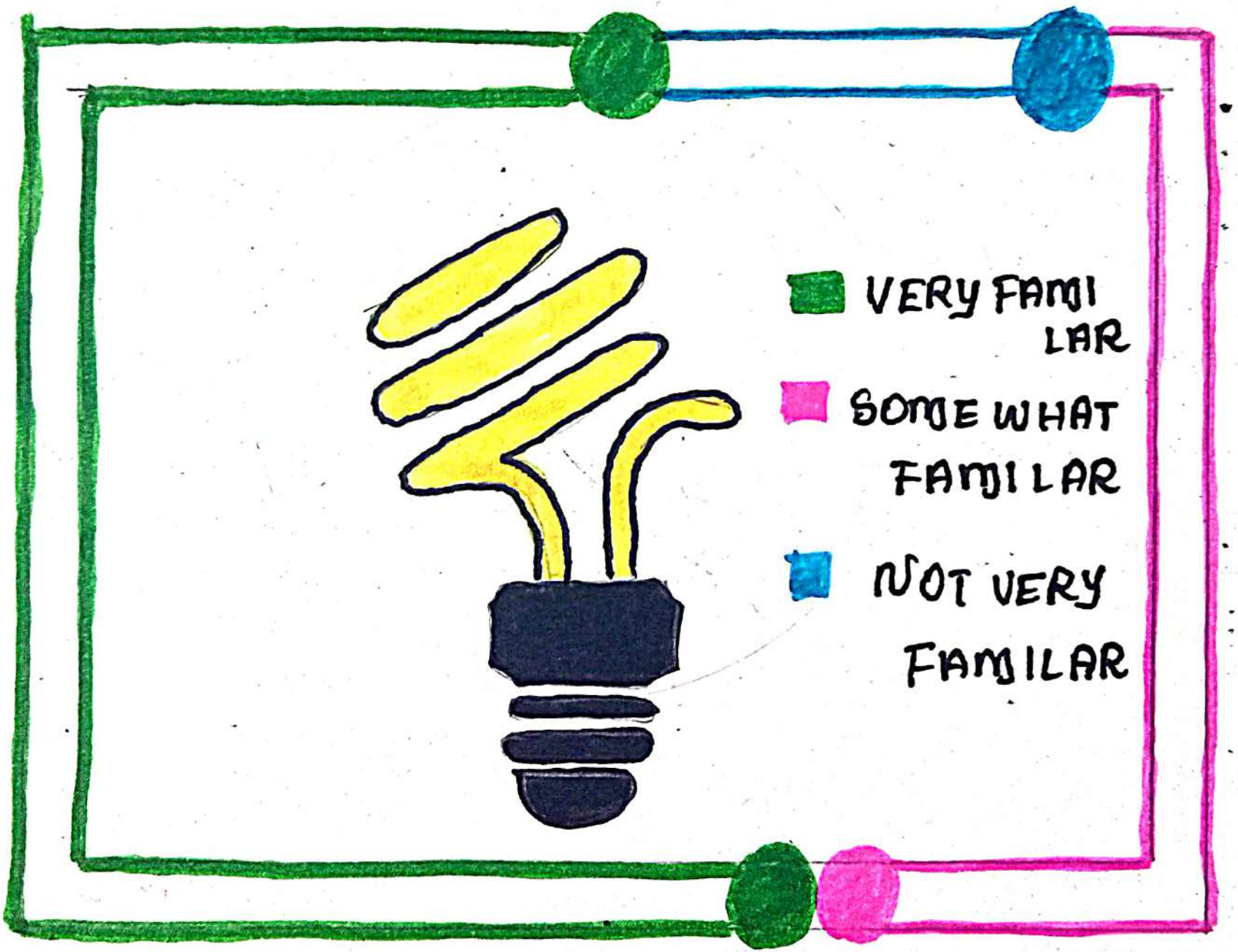
DATE : 31.03.2023

THE ENERGY PYRAMID



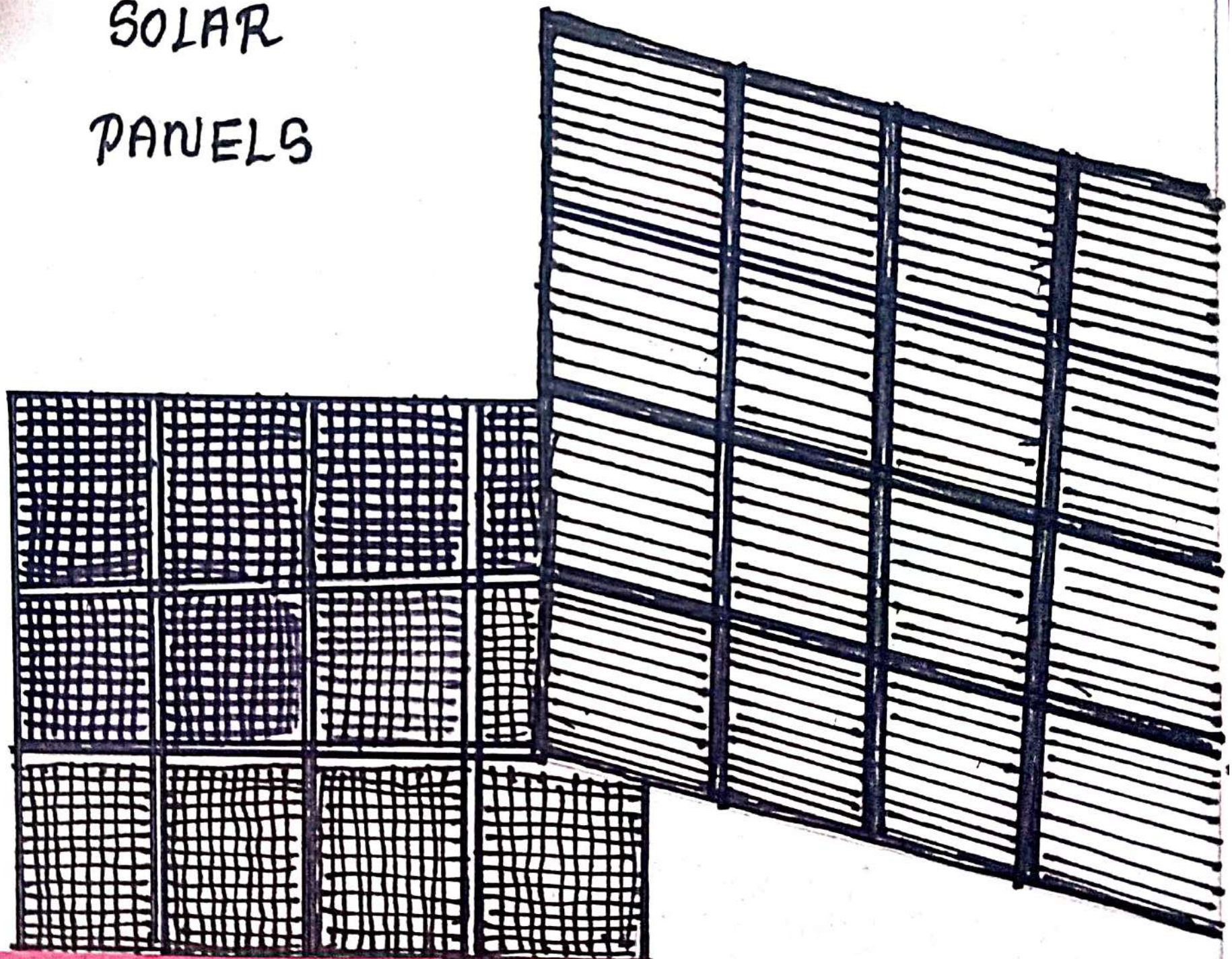

energy
ENERGY STAR

LIGHT BULBS, SUCH AS LEDS OR CFLS

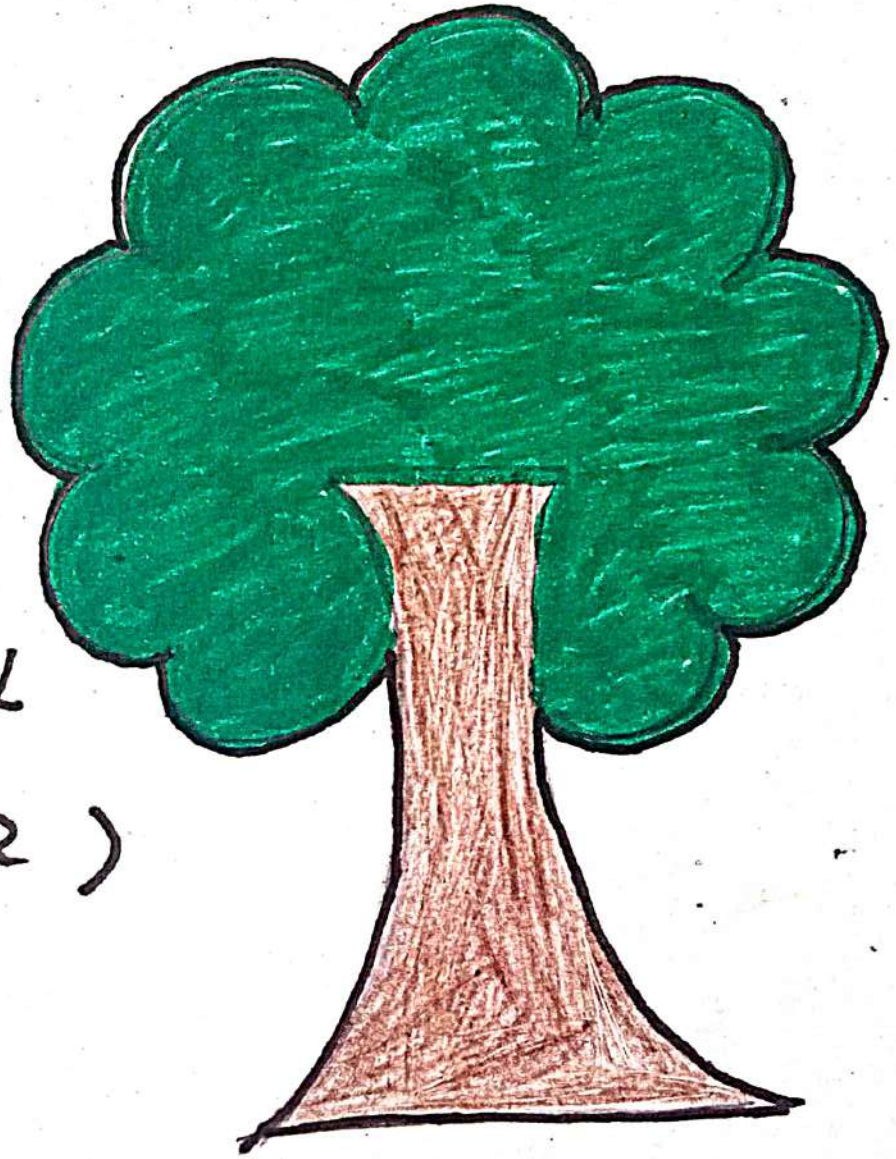


SOLAR

PANELS



TREES AROUND HOME (SHADING & COOL AIR)



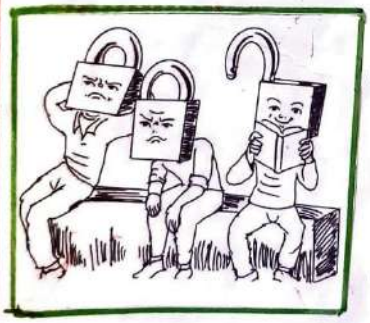
DISTRIBUTED COMPUTING

DISTRIBUTED COMPUTING

TOPIC : CASUAL ORDER INTERACTION CLASS

40/40

29/5/23



SUBMITTED BY:

R. Dharani
III - "CSE"
821121104-012

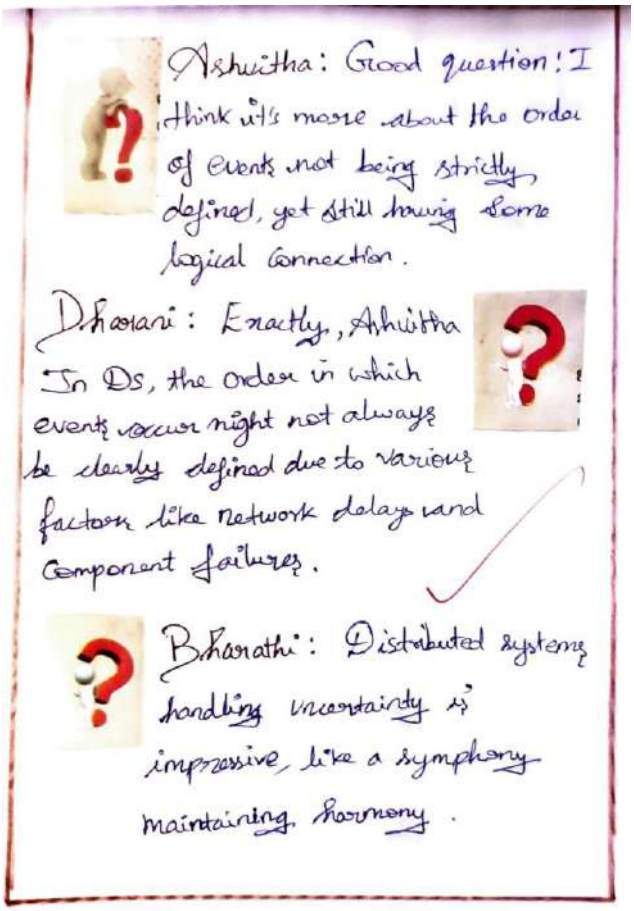
Assignment No: 1

Tech talk - Unraveling Casual Order in Distributed Computing

Dharani : Welcome, Tech enthusiasts, to today's talk on a fascinating aspect of distributed systems - casual order.

In this interconnected world of computers, how do you events and messages find their rhythm ? Let's dive in !

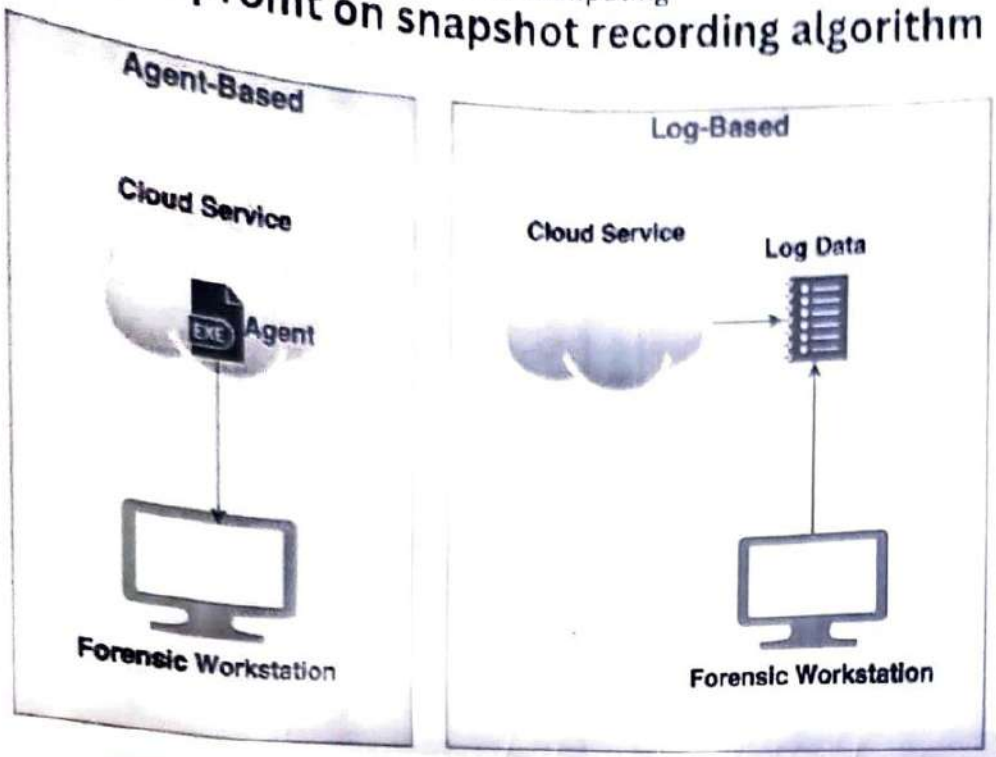
Bharathi : Hey, dharani ! So, casual order in distributed systems, does it mean things happen randomly ?

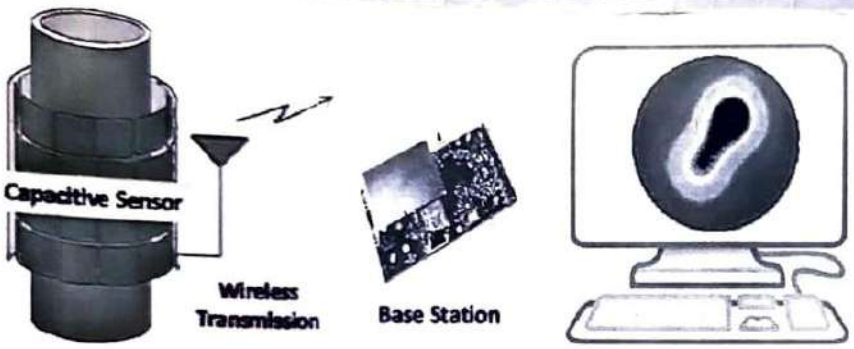

Ashwitha: Good question! I think it's more about the order of events not being strictly defined, yet still having some logical connection.
Dharani: Exactly, Ashwitha In DS, the order in which events occur might not always be clearly defined due to various factors like network delays and component failures.
Bharathi: Distributed systems handling uncertainty is impressive, like a symphony maintaining harmony.


Ming Map
To execute the critical section
Site Si enters the critical section if it has received the REPLY message from all other sites
To enter Critical section:
When a site Si wants to enter the critical section, it send a timestamped REQUEST message to all other sites
To release the critical section:
Upon exiting site Si sends REPLY message to all the deferred requests
Ricart-Agarwala algorithm
Ricart-Agarwala algorithm
??
Problem
Very good.
29/8/23
K.Hariharan
21CS15
CS351

Distributed Computing

Picture promt on snapshot recording algorithm





ECT Data Acquisition Unit

Control Image Reconstruction Display unit

V. Good

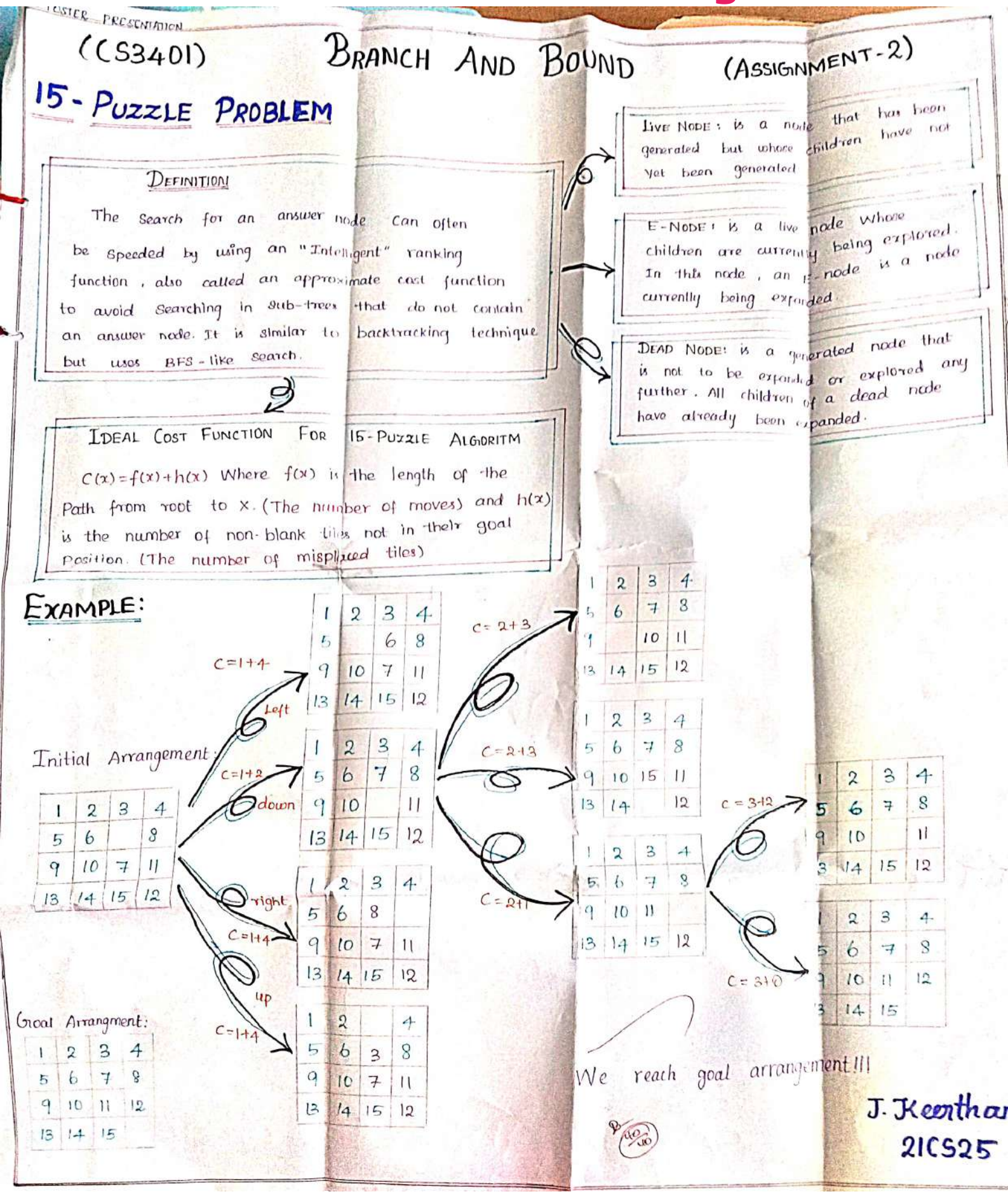
8 01/09/23

40/40

Submitted By:
Prasanna . R
Roll no: 21CS43
Code : CS3551

30/10/23

Algorithms
Problem Solving



FASTER PRESENTATION

(CS3401) BRANCH AND BOUND (ASSIGNMENT-2)

15-PUZZLE PROBLEM

DEFINITION

The search for an answer node can often be speeded by using an "intelligent" ranking function, also called an approximate cost function to avoid searching in sub-trees that do not contain an answer node. It is similar to backtracking technique but uses BFS-like search.

LIVE NODE: is a node that has been generated but whose children have not yet been generated

E-NODE: is a live node whose children are currently being explored. In this node, an E-node is a node currently being expanded.

DEAD NODE: is a generated node that is not to be expanded or explored any further. All children of a dead node have already been expanded.

IDEAL COST FUNCTION FOR 15-PUZZLE ALGORITM

$C(x) = f(x) + h(x)$ Where $f(x)$ is the length of the path from root to x. (The number of moves) and $h(x)$ is the number of non-blank tiles not in their goal position. (The number of misplaced tiles)

EXAMPLE:

Initial Arrangement:

1	2	3	4
5	6		8
9	10	7	11
13	14	15	12

Goal Arrangement:

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	

C=1+4 (left)

1	2	3	4
5		6	8
9	10	7	11
13	14	15	12

C=1+3 (down)

1	2	3	4
5	6	7	8
9	10		11
13	14	15	12

C=1+4 (right)

1	2	3	4
5	6	8	
9	10	7	11
13	14	15	12

C=1+4 (up)

1	2		4
5	6	3	8
9	10	7	11
13	14	15	12

C=2+3

1	2	3	4
5	6	7	8
9		10	11
13	14	15	12

C=2+3

1	2	3	4
5	6	7	8
9	10	15	11
13	14		12

C=2+3

1	2	3	4
5	6	7	8
9	10	11	
13	14	15	12

C=3+2

1	2	3	4
5	6	7	8
9	10		11
13	14	15	12

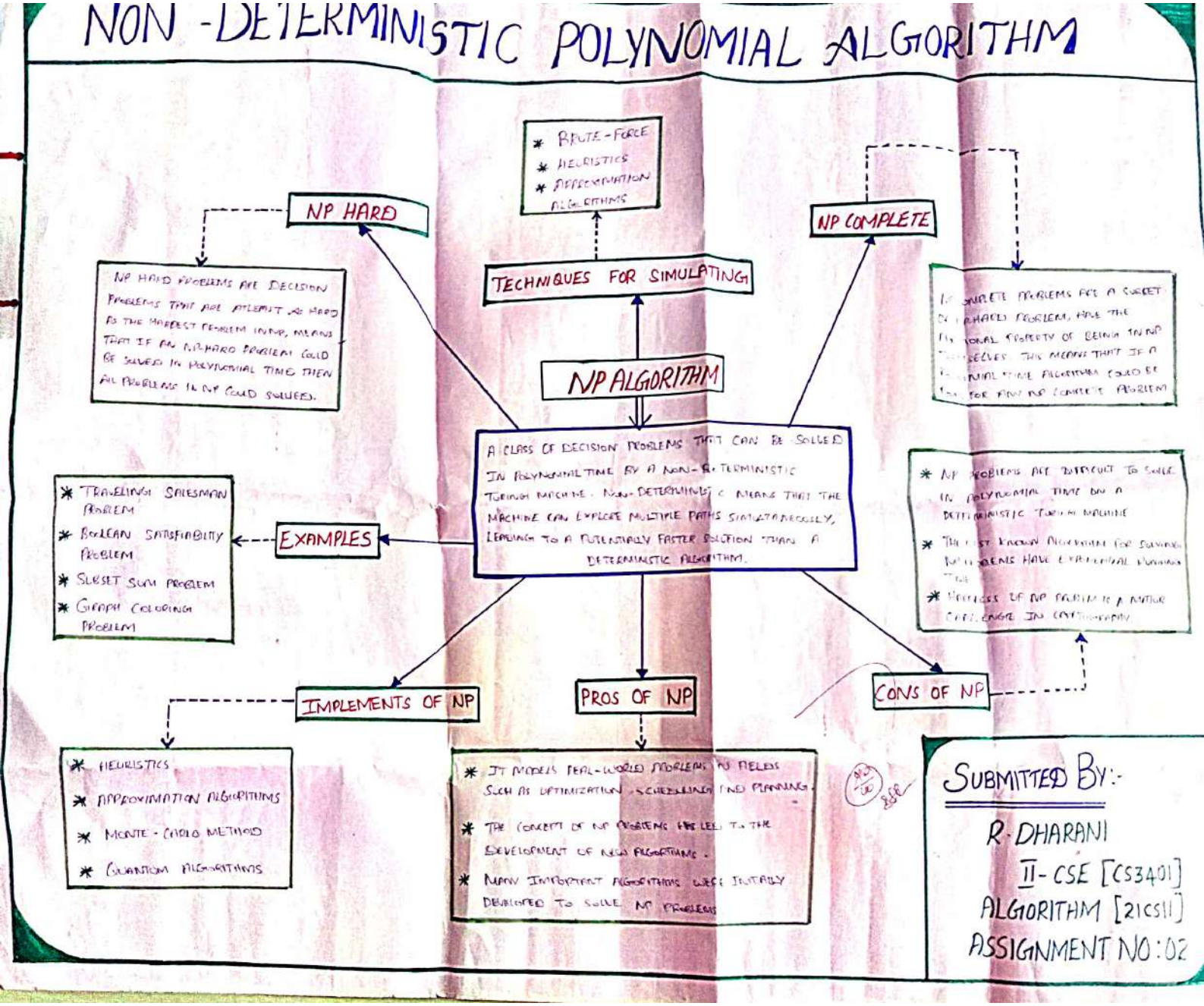
C=3+0

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	

We reach goal arrangement!!!

J. Keerthana
21CS25

Algorithms
Picture Prompt



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Recognised under 2(f) & 12(B) of UGC
Approved by AICTE, New Delhi.
Affiliated to Anna University, Chennai.

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ACADEMIC YEAR 2022-2023

PROFESSIONAL CAREER ENHANCEMENT SKILLS

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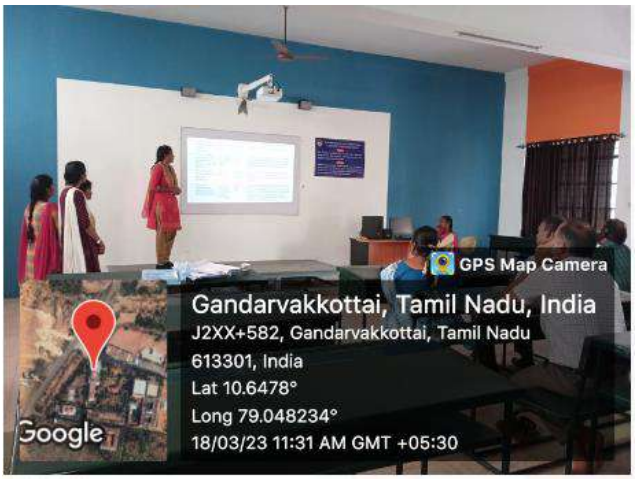
Affiliated to Anna University, Chennai.

ACCREDITED WITH GRADE B++ NAAC

DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

EC8094- SATELLITE COMMUNICATION

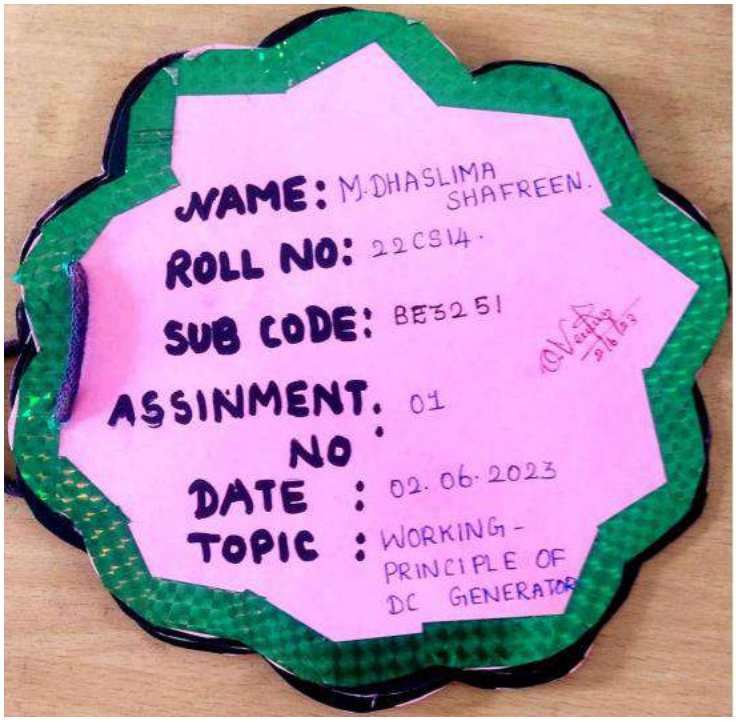
PCE ACTIVITY – SEMINAR

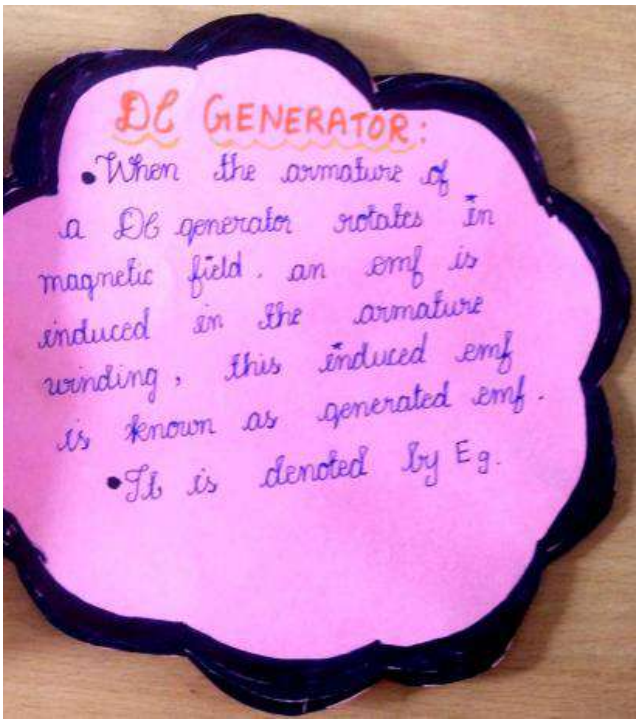


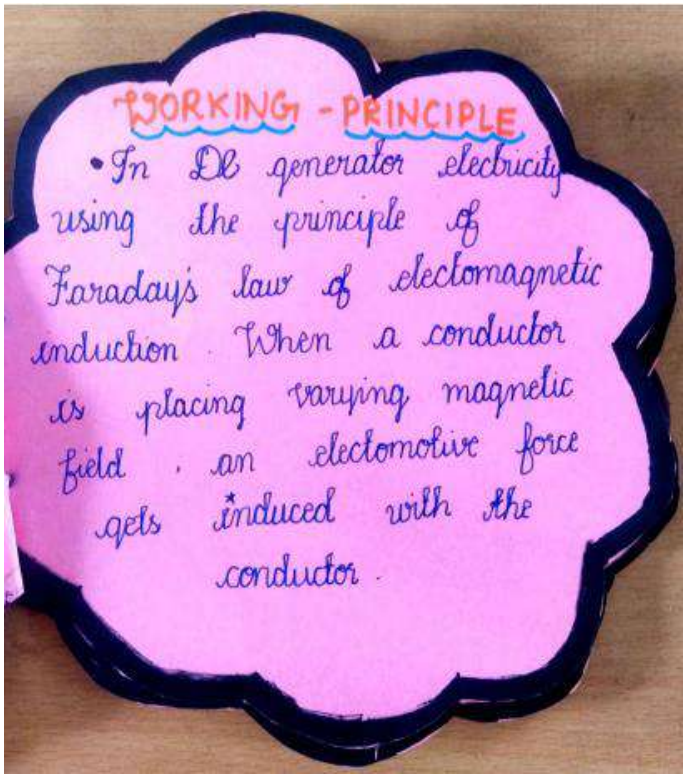
STUDENTS PRESENTING THEIR TOPIC

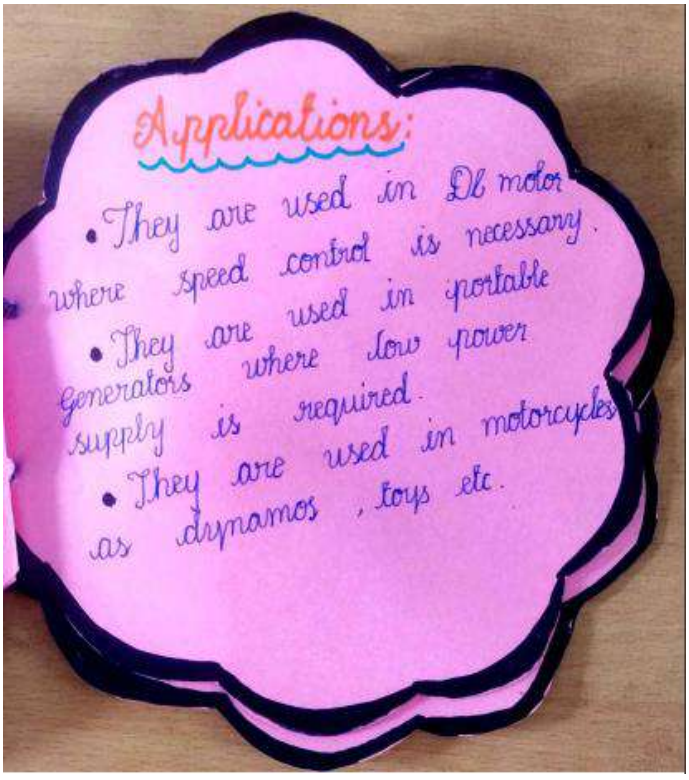
BE3251- BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

PCE ACTIVITY – CLUE CARDS









ASSIGNMENT-I

TOPIC : Construction and Working of Synchronous motor

NAME : S. Nesika

CLASS : I-CSE

ROLL NO: 22CSE39

SUB : BEEE

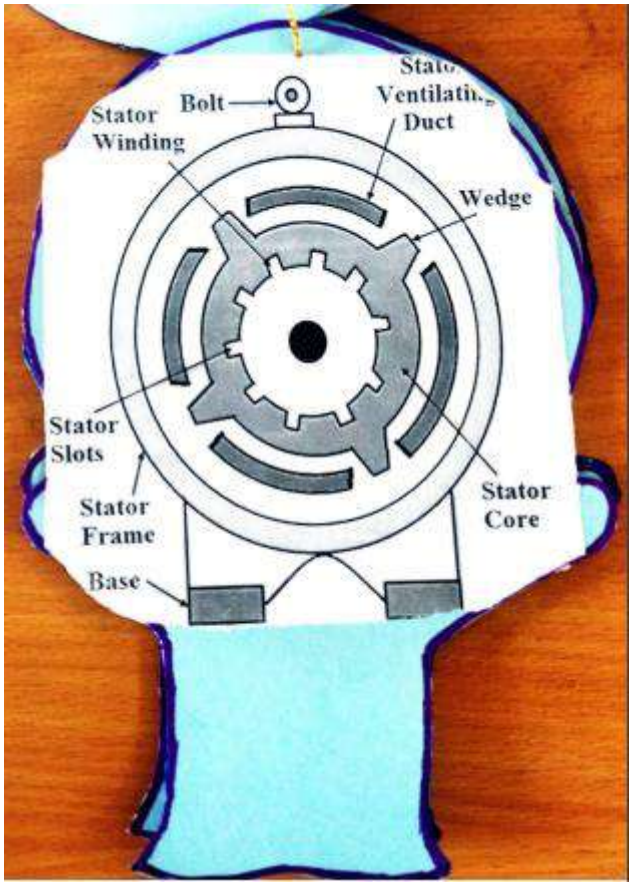
SUB CODE: BES 1251

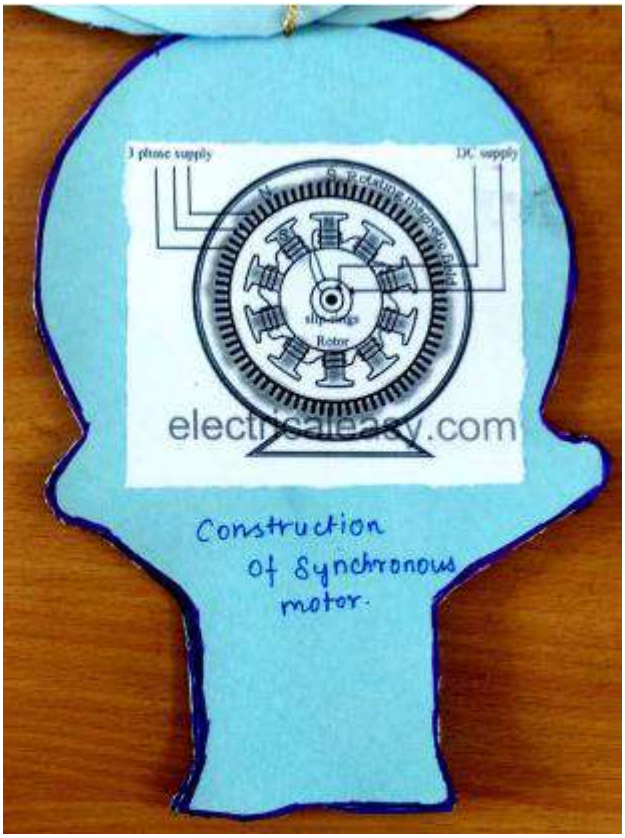
Verified

Synchronous Motor.

PRINCIPLE:-

⇒ The principle of Operation of a Synchronous motor can be understood by considering the stator windings to be connected to a three-phase alternating-current supply. The effect of the Stator current is to establish a magnetic field rotating at 120 f/p revolutions per minute for a frequency of f

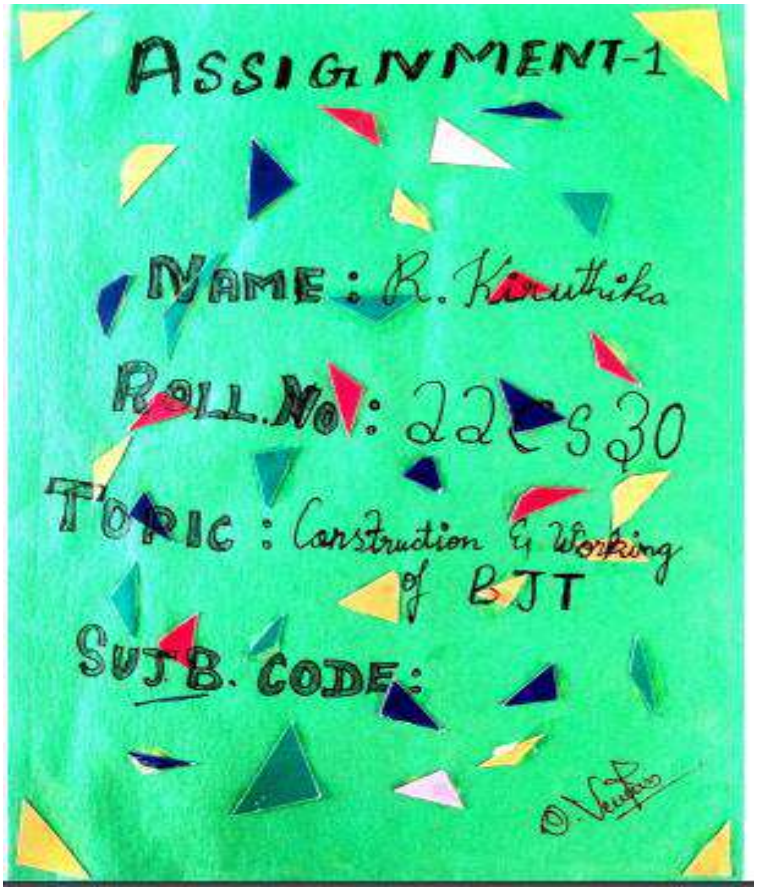




Construction of Synchronous motor.

BE3251- BASIC ELECTRICAL AND ELECTRONICS ENGINEERING

PCE ACTIVITY – POWER POINT PRESENTATION



NAME : E.RAJASHREE

ROLL NO : 22CS47

DEPARTMENT : CSE

SUBJECT : BASIC ELECTRICAL AND ELECTRONIC ENGINEERING

SUBJECT CODE : BE3251

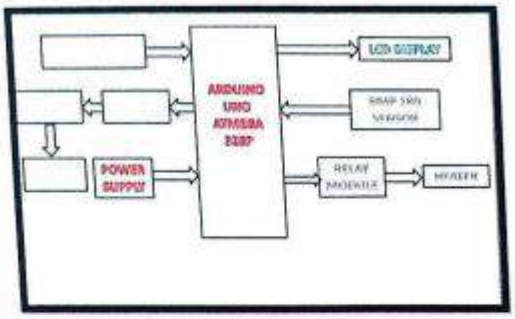
TOPIC : PLANT MOISTURE MONITORING SYSTEM

ASSIGNMENT NO : 01

SUMMITED DATE : 01/06/2023

TABLE OF CONTENTS

BLOCK DIAGRAM



AIM

- To observe and study the working and uses of plant moisture monitoring system and analyze the construction and function of the system.

CONSTRUCTION

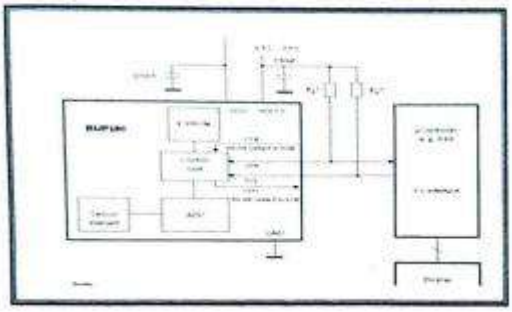
☆ THE ARDUINO

- The Arduino is an open source microcontroller based kit for building digital devices and interactive objects that can sense and control objects in the physical world.
- The Arduino board provides sets of digital and analog I/O pins that can be interfaced to various expansion boards ("shields") and other circuits.
- The board features RS- 232 serial communication interface, including USB on some models, for loading programs from personal computers.
- For programming the microcontrollers, the Arduino has a specific software associated with it which provides an Integrated Development Environment (IDE) based on the processing project, which includes support for the C and C++ programming languages.

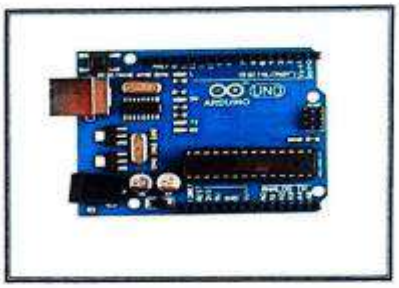
APPARATUS REQUIRED

- Arduino Uno
- BMP 180 Barometric pressure/ altitude / Temperature sensor
- Soil moisture sensor
- Motor driver IC L293D
- Servo motor SG 90
- DC motor
- Relay
- LCD Display
- Vero board
- Wires and Jumper cords

INTERNAL DIAGRAM OF BMP 180



THE ARDUINO

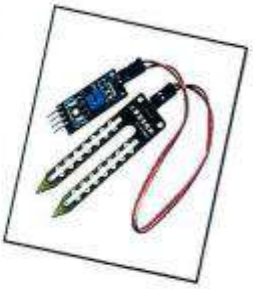


☆ SOIL MOISTURE SENSOR

○ Soil Moisture Sensors measure the volumetric water content in Soil indirectly by using some other property of the soil, such as electrical resistance, dielectric constant or interaction with neutrons, as a proxy for the Moisture content.

○ The Soil Moisture Sensor uses capacitance to measure dielectric permittivity of the surrounding medium. In soil, dielectric permittivity is a function of the water content.

○ The sensor creates a voltage proportional to the dielectric permittivity, and therefore the water content of the soil.



☆ BMP 180 SENSOR

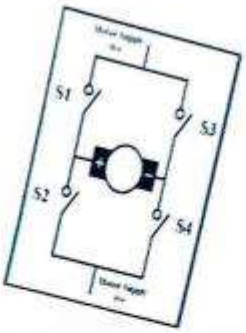
◇ BMP 180 is a Barometric pressure sensor that is mainly used to measure altitude. It has also one inbuilt temperature sensor.

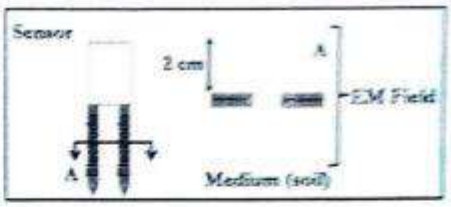
◇ It works with the I2C interface and has a voltage input of 3 to 5V DC . Pressure sensing range of 300 – 1100 h Pa (9000m -500m above sea level), -40 to +85° C operational range and temperature accuracy of +/- 2°C.

◇ This board/ chip uses 12C 7- bit address.

◇ The BMP 180 Sensor has four important internal peripherals namely Sensor Element, ADC (analog to digital convertor), Control Unit, EEPROM.

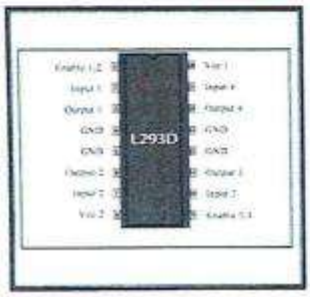
❱ The switches S1,S2,S3 and S4 are released by MOSFETS and with the help of different combinations of them turning on or off controls the direction of rotation of the motor shaft.





NOTE : The sensor averages the water content over the entire length of the sensor. There is a 2 cm zone of influence with respect to the surface of the sensor

IC L293D



☆ MOTOR DRIVER IC L293D

❱ L293D is a motor driver integrated circuit which can control a set of two DC motors simultaneously.

❱ The L293D uses 5V for its own power and external power source is needed to drive the motors.

❱ Motor driver is basically a current amplifier which takes a low-current signal from the microcontroller and gives out proportionally higher current signal which can control and drive a motor.

❱ The special feature of this IC is controlling the direction of rotation of the motor, which is done with the help of an H- bridge.

☆ RELAY

- The Relay is an automatic protective and switching device which is capable of sensing abnormal conditions in electrical circuits.
- These are operated to open or close the load contacts in response to one or more electrical quantities like voltage and current.
- Relays are used to realize logic functions. They play a very important role in providing safety critical logic.
- Relay are also used to provide time delay functions. They are used to time the delay open and delay close of contacts.

☆ SERVO MOTOR

- A Servo motor is a rotary actuator that allows for precise control of angular or linear position, velocity and acceleration.
- It consists of a suitable motor coupled to a sensor for position feedback.
- The input to its control is some signal, either analog or digital, representing the position commanded for the output shaft.
- The Arduino controls the rotation by specifying the exact angle of rotation

☆ LCD DISPLAY

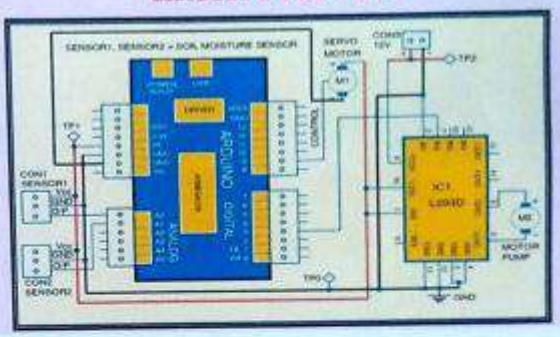
- A Display device is an output device for presentation of information in visual.
- When the input information supplied has an electrical signal, the display is called an electronic display.
- The main principle behind Liquid Crystal Display is that when an electric current is supplied to them, they tend to untwist.
- This causes a change in the light angle passing through them. This causes a change in the angle of the top polarizing filter with respect to it.
- So little light is allowed to pass through that particular area of LCD. Thus that area becomes darker comparing to others and information displays clearly.

☆ DC MOTOR

- A DC Motor is any of a class of electrical machines that converts direct current electrical power into mechanical power.
- The most common type of DC motors rely on the forces produced by magnetic fields.
- A DC motor's speed can be controlled over a wide range, using either a variable supply voltage or by changing the strength of current in its field windings.

AN EXPERIMENTAL MODEL OF PLANT MOISTURE MONITORING SYSTEM

CIRCUIT DIAGRAM



USES

- The main advantage of using soil moisture monitoring system to plan irrigation is more efficient water usage. Thus by using this system, We can reduce water consumption while allowing plant roots to grow deeper.
- With this system, over-watering can be avoided which eliminates favorable conditions for growth of some pests and fungus and promote the growth of pest- free plants.
- Nutrient leaching of the soil can also be avoided.
- This system is mainly used for irrigation in Agriculture fields especially for paddy or rice fields.

WORKING PRINCIPLE

- The soil moisture sensor continuously monitors the volumetric moisture content in the soil and sends the information to Arduino with values lying in the range 0 to 1023.
- If the soil moisture content goes below a certain point, which is decided by the threshold value given in the Arduino code, the Arduino signals the Servo motor and the DC motor to start the watering mechanism.
- As soon as the Arduino decides that the soil needs watering, it tells the Servo motor how much to rotate and along with it the water holding container is tilted to let the water flow.
- Along with the Servo motor, DC motor or Pump motor is running to maintain a steady flow of water.
- The system continues the watering process until the soil surrounding the plant is moisturized enough.

PCE ACTIVITY – CROSSWORD PUZZLE

Name : E. Karthikeyan

Roll no : 29

Subject : Basic Electrical and Electronics Engineering

Subject code : BE 3251

Title : Induction motor

project : Cross Word puzzle

A. Vendhan 19/8/23

Verified

PCE ACTIVITY - CROSS WORD PUZZLE ON INDUCTION MOTOR

Across:	
5	No load test of 3-phase induction motor used to determine ..... loss.
7	The good power factor of an induction motor can be achieved if the average flux density in the air gap is .....
8	The frame of an induction motor is usually made of .....
9	The starting torque of a squirrel-cage induction motor is .....
14	The crawling in the induction motor is caused by ..... developed in the motor.
15	A three-phase, 50 Hz induction motor has a full load speed of 1440 rpm. The full load slip will be .....%
16	In induction generator operation the slip is always.....
17	Slip ring of an induction motor is usually made up of ..... Bronze
18	A 50 Hz, 3-phase induction motor has a full load speed of 1440 r.p.m. The number of poles in the motor is.....
19	An induction Motor is ..... with low torque
Down:	
1	In an induction motor, no-load the slip is generally ..... than 1%
2	The shaft of an induction motor must be of .....
3	A double squirrel-cage induction motor has Two parallel windings in .....
4	The term 'cogging' is associated with ..... Motor
6	The efficiency of an induction motor can be expected to be nearly ...%
10	A 3-phase 440 V, 50 Hz induction motor has 4% slip. The frequency of rotor e.m.f. will be
11	It is advisable to avoid line-starting of induction motor and use starter because Motor takes five to seven times its full load current .....
12	The number of slip rings on a squirrel cage induction motor is usually .....
13	The shaft of an induction motor is made of .....
20	Induction Motor Construction Is Classified Into .....Types

NAME : R. SRIHARINI

CLASS : I - CSE

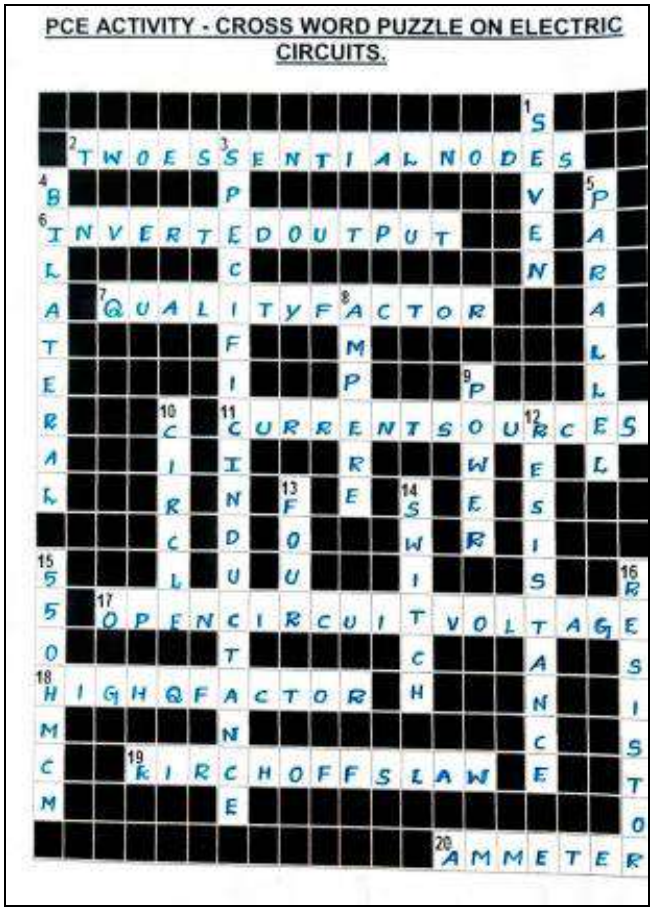
SUBJECT : BEEE

ROLL NO : 22CS57

TOPIC : CROSSWORD PUZZLE

ASSIGNMENT NO : 1

A. Vendhan 19/8/23



CLUES

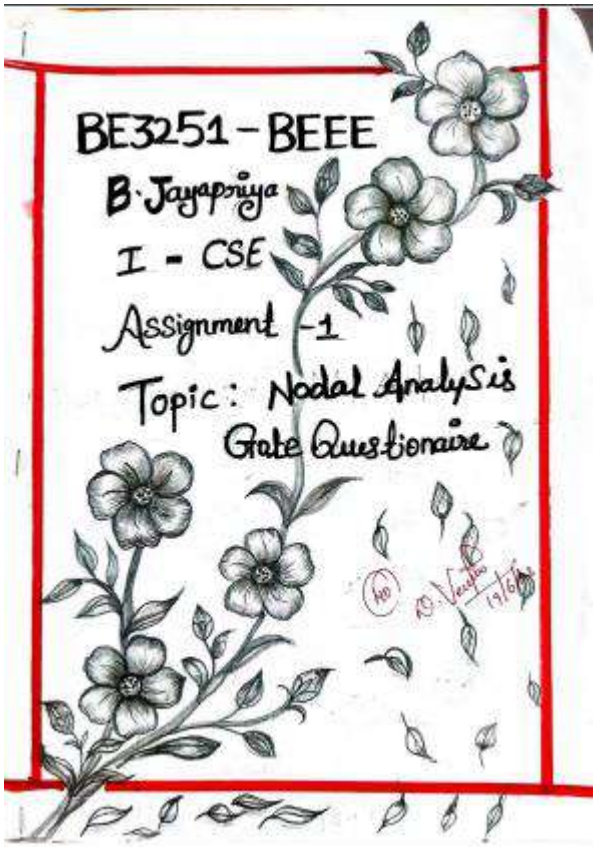
Across:

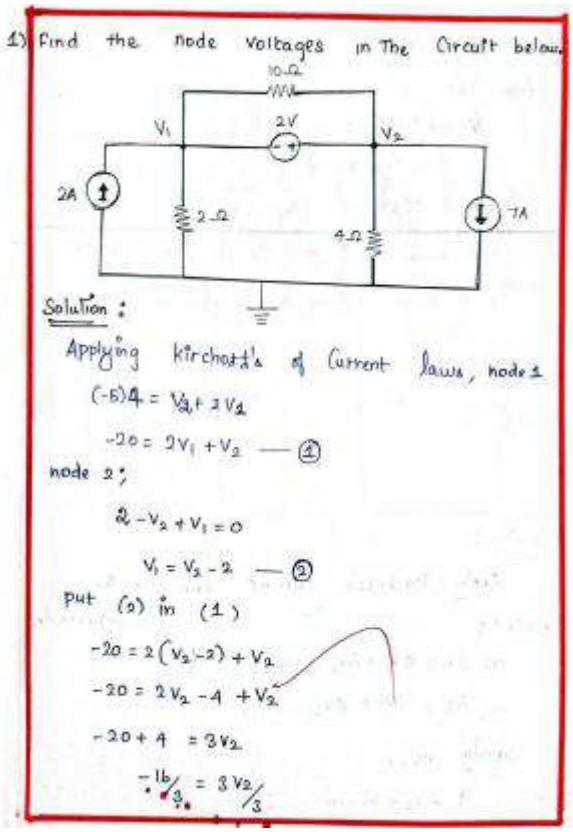
2	A supernode is situated between ...
6	The input applied to an inverting amplifier is equal to -
7	The symbol Q refers to the
11	Mesh analysis is suitable for .....
17	A voltage equal to thevenin's voltage is
18	Network is designed with ..... to obtain high efficiency.
19	The basic laws for analyzing an electric circuit.
20	An instrument used to measure electric current .

Down:

1	There are 13 branches in a complicated network and nearly 8 nodes. ..... equations are required to solve the circuit in node-voltage method?
3	The other name of relative permittivity is
4	Source transformation is
5	A tank circuit is a ..... LC circuit
8	The S.I. Unit of Electric Current is------
9	20. The rate at which workdone by electrical energy per unit time is called the .....
10	symbol used for representing the independent sources
12	The opposing capacity of materials, against the current flow.
13	How many types are the dependent sources?
14	A component that is used to close or break a circuit is--------
15	The specific resistance of a pure germanium
16	A component which provides resistance is called

PCE ACTIVITY- GATE QUESTIONAIRE





$V_2 = -5.33\,V$

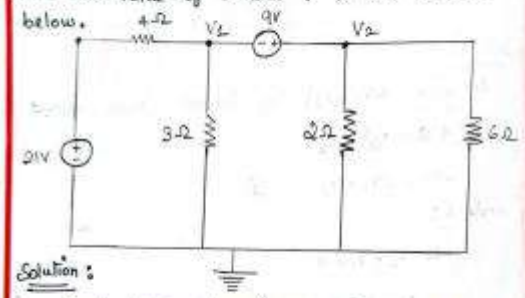
from (2)

$V_1 = -5.33 - 2$

$= -7.33\,V$

$\therefore$ $V_1 = -7.33\,V$, $V_2 = -5.33\,V$.

3) Find the value of i and v in the Circuit below.



Solution :

Apply kirchoff's Current law at the supernode, node 1 :

$63 - 3V_1 = 4V_1 + 6V_2 + 2V_2$

$63 = 7V_1 + 8V_2$ — (1)

apply KVL,

$9 - V_2 + V_1 = 0$

$9 + V_1 = V_2$ — (2)

put (2) in (1)

$63 = 7V_1 + 8(9 + V_1)$

$63 = 7V_1 + 72 + 8V_1$

$63 - 72 = 15V_1$

$-9 = 15V_1$

$V_1 = -9/15$

$V_1 = -3/5$, $V_1 = -0.6V$

where,

$V_1 = V = -0.6\,V$

from equ (2)

$V_2 = V_1 + 9$

$= -0.6 + 9$

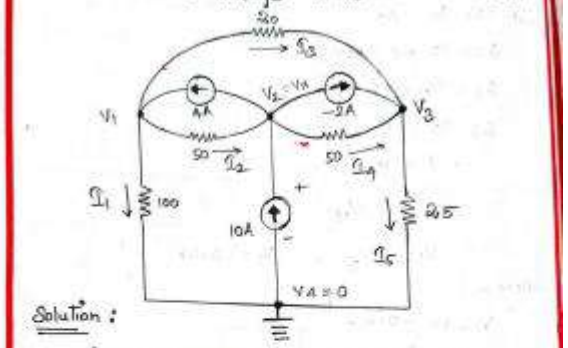
$V_2 = 8.4V$

$\therefore$ $i = \frac{V_2 - 0}{2}$

$i = 8.4/2$

$i = 4.2\,A$, $V_1 = 0.6V$, $V_2 = 8.4V$

5) Find the nodes voltage in the Circuit below.



Solution :

Total number of nodes , $n = 4$

Total no. of unknown , $= 4 - 1 = 3$

Applying kirchoff's Current law at Node 1 :

$4 = I_1 + I_2 + I_3$

$4 = \frac{V_1 - V_4}{100} + \frac{V_1 - V_2}{50} + \frac{V_1 - V_3}{20}$

$4 = V_1\left[\frac{1}{100} + \frac{1}{50} + \frac{1}{20}\right] - \frac{V_2}{50} - \frac{V_3}{20}$ — (1)

at Node 2,

$10 + I_2 = 4 - 2 + I_4$

$8 = -\frac{V_1}{50} + \frac{V_2}{50} + \frac{V_3}{25}$ — (2)

at nodes 3 ;

$-2 + I_4 + I_3 = I_5$

$I_3 + I_4 - I_5 = 2$

$\frac{V_1 - V_3}{20} + \frac{V_2 - V_3}{50} - \frac{V_3}{25} = 2$

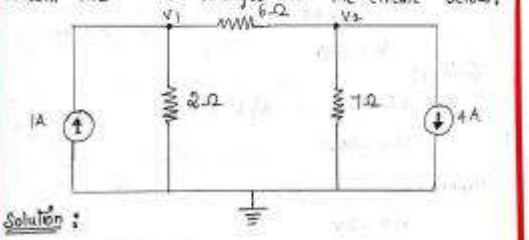
$\frac{V_1}{20} + \frac{V_2}{50} - V_3\left[\frac{1}{20} + \frac{1}{50} + \frac{1}{25}\right] = 2$ — (3)

where,

$V_1 = 224.096V$, $V_2 = 334.94V$, $V_3 = 144.68V$

$V_2 = V_4 = 334.94V$.

6) Obtain the node voltages in the Circuit below.



Solution :

at node 1

$1 = V_1/2 + \frac{V_1 - V_2}{6}$

ASSIGNMENT - 01

NAME - B. BHUVANESWARI

YEAR - I - CSE

ROLL NO - 822511

SUB - BEEE

TOPIC - OHM'S LAW

SUB CODE - BE3251

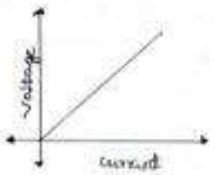
Vaidhy 19/8/23

GATE QUESTIONS OF OHM'S LAW

Ohm's Law:

Ohm's law states that the voltage across a conductor is directly proportional to the current flowing through it, provided all physical conditions and temperature remain constant.

$$V = IR$$



PROBLEMS BASED ON OHM'S LAW

Find the resistance of an electrical circuit with a voltage supply of 15V and a current of 3 mA.

Solution:

$V = 15V$

$I = 3mA = 0.003A$

The resistance of an electrical circuit is given as

$R = V/I$

$= 15V / 0.003A$

$= 5000\ \Omega$

$= 5\ k\Omega$

The resistance of an electrical circuit is 5 $k\Omega$.

If the resistance of an electric iron is 10 Ω and a current of 6 A flows through the resistance. Find the voltage between two points.

Solution

$I = 6A$, $R = 10\ \Omega$

The formula to calculate voltage is

$V = I \times R$

$V = 6A \times 10\ \Omega$

$V = 60V$

Hence the voltage between two point is 60V.

Find the current passing through the conductor drawing 60 volts when the power drawn by it is 60 watts.

Solution

According to ohm's law $P = VI$

$P = 60$ watt, $V = 20$ volt

$I = P/V$

$= 60/20$

$I = 3A$

The current flowing through the conductor is 3A.

What voltage will produce a 0.35 A current through a 750 Ω resistor?

Solution:

$V = I \times R$

$V = 0.35A$

$R = 750\ \Omega \Rightarrow V = 0.35 \times 750$

$V = 262.5V$

What voltage must a battery have to produce 0.5A current through a 40 Ω resistor?

ROLL NO : 22CS12
NAME : RIDHANYALAKSHMI
CLASS : I - CSE
ASSIGNMENT: 01 SUBCODE : BE3251
SEMESTER : 02
TOPIC : ZENER DIODE [SEMINAR]

ZENER DIODE

CONTENT

ZENER DIODE EXPLANATION :

* A zener Diode, also known as a breakdown diode, is a heavily doped semiconductor device that is designed to operate in the reverse direction.

* When the voltage across the terminals of a zener diode is reversed, and the potential reaches the zener voltage (knee voltage), the junction breaks down, and the current flows in the reverse direction. This effect is known as zener effect.

ZENER DIODE DEFINITION :

* A zener diode is a heavily doped semiconductor device that is designed to operate in the reverse direction.

* zener diode are manufactured with a great variety of zener voltages (V_Z).

HISTORY OF ZENER DIODE :

* "Clarence Melvin Zener" was the first person to describe the electrical properties of zener Diode. Clarence zener was a theoretical physicist who worked at Bell labs.

* As a result of his work, the zener diode was named after him. He first postulated the breakdown effect that bears his name in a paper that published in 1934.

WORK IN REVERSE BIAS :

* A zener diode operates just like a normal diode when it is forward-biased. However, a small leakage current flows through the diode when connected in reverse-biased mode.

* As the reverse voltage increases to the predetermined breakdown voltage (V_Z), current starts flowing through the diode.

PCE ACTIVITY- POWER POINT PRESENTATION

NAME : LEXMA DURAI.S

CLASS : I - CSE

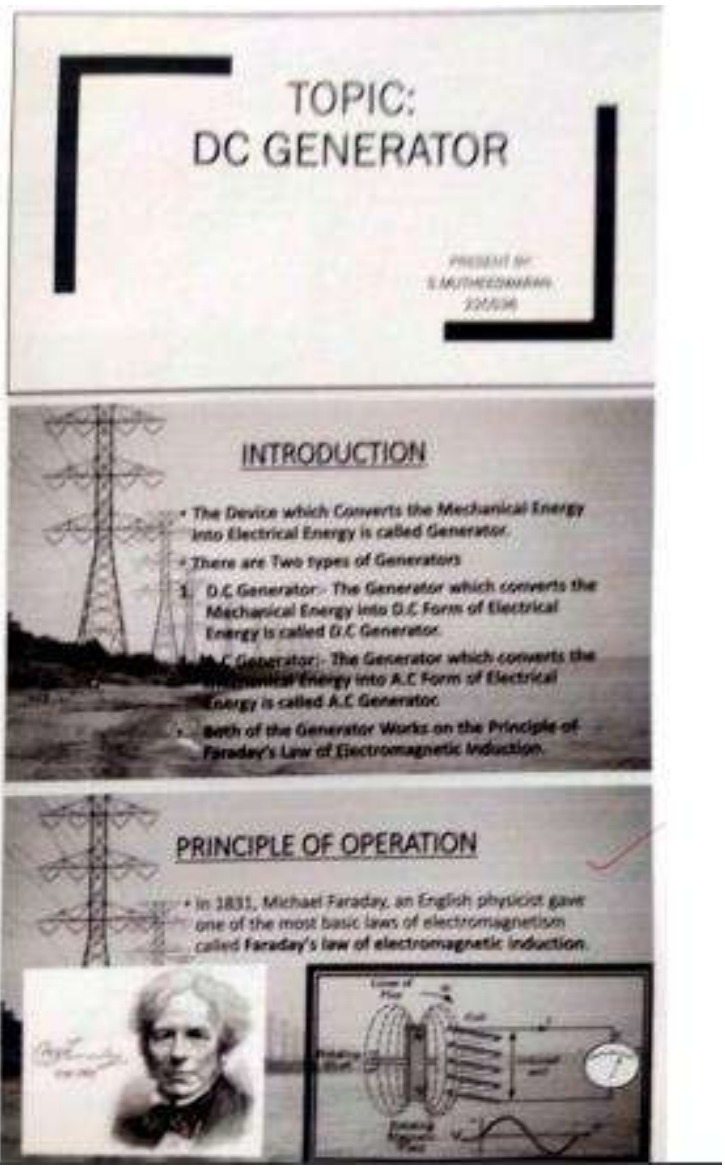
SUBJECT : BE8251

TOPIC : pn JUNCTION

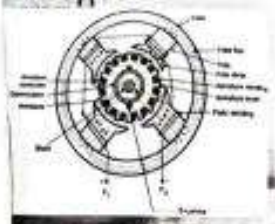
ASSIGNMENT

NO : 1

Covered



CONSTRUCTION

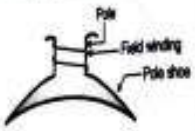


- **Important Parts of D.C Generator**
1. YOKE
2. POLES
3. FIELD WINDING
4. ARMATURE
5. COMMUTATOR,BRUSHES and GEAR
6. BEARINGS

YOKE

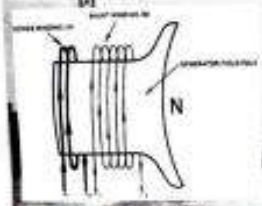
- Yoke is also called as frame. It provides protection to the rotating and other parts of the machine from moisture, dust etc.
- Yoke is an iron body which provides the path for flux
- It provides the mechanical support for the poles.
- Materials used for yoke are cast iron, silicon steel, cast steel, rolled steel etc.

POLE



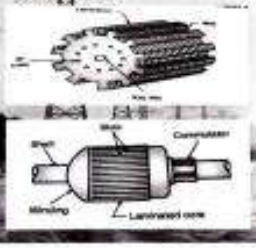
- Pole produce the magnetic flux when the field winding is excited.
- Materials used for Pole is cast steel or cast iron.
- Pole is a Part on Which Field Winding is Wound Over.

FIELD WINDING



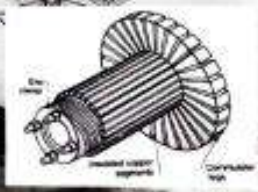
- The field winding is also called as exciting winding.
- Current is passed through the field winding in a specific direction ,to magnetize the pole.
- The metal is used for the field conductor is copper.

ARMATURE CORE



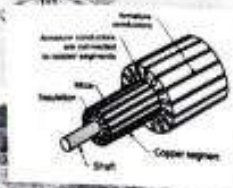
- All these slots are parallel to the shaft axis.
- Armature conductor are placed in these slots.
- Armature core provides a low reluctance path to the flux produced by the field winding.
- Cast steel or cast iron are used for the armature core.

COMMUTATOR



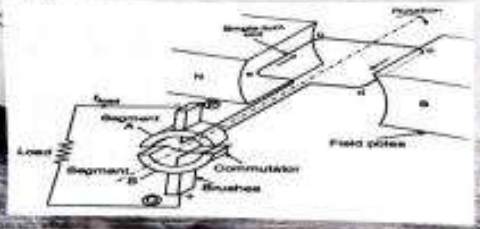
- The commutator converts the alternating emf generated internally in a D.C. voltage .
- It collects the current from the armature conductors and passes it to the external load via brush.

ROTOR



- The Rotor is the moving part of a D.C. generator.
- The rotor rotates because the wires and magnetic field of the motor are arranged so that a torque is developed about the rotor's axis.

WORKING of DC GENERATOR

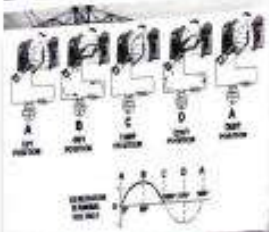


- The Dc Generator Converts Mechanical Energy into Electrical Energy.
- In this DC Generator the Single Turn Alternator is used.
- The Coil can Rotate in Clockwise or Anticlockwise Direction.
- The Commutator Brush is Connected to the Coil.
- Commutator is Divided into Two Parts A and B.
- The Coil is Suspended between the Field Poles.
- The Coil is Given the Mechanical Energy which Results in the Rotation of It.
- As the Commutator Segments A&B is Connected with Conductor Coil ab and cd Respectively they Rotate
- Due to Which the Flux is Produced Resulting in the Generation of Electric Current.

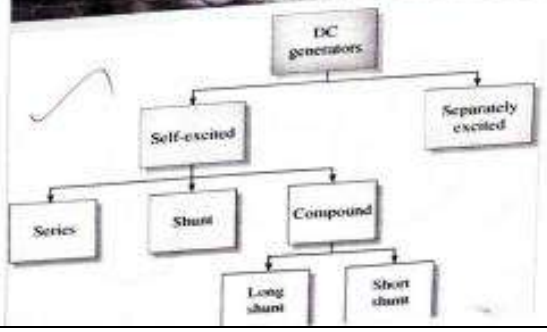
As the Commutator has the Property of Converting the Bidirectional Emf(AC) into Unidirectional Emf (DC) .

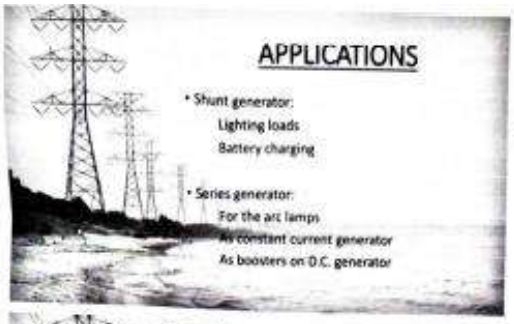
- The DC Current is Generated by the DC Generator.
- Which can Directly Used by Connecting the Output across the Load or it Can be stored inatteries and Can be used Later on.

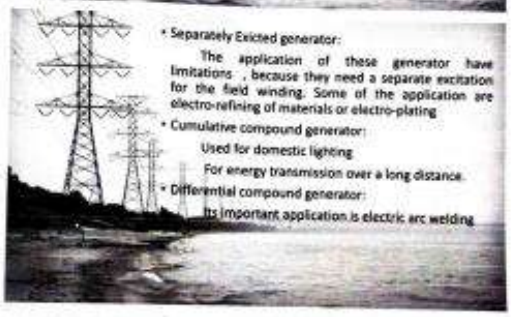
GENERATION OF AC VOLTAGE



- As Shown in Fig the Coil is in Rotating Form.
- The EMF is Generated by Rotation of Coil.
- In this Fig A,B,C and D is used to Describe the Position of the Coil.
- When the Coil is stationary the EMF Generated is Null.
- When the Coil Rotates at 90 Degree as Shown in Fig B.The Flux is Generated resulting in the AC Voltage at Output.
- When the Coil Reaches at C the Half Cycle of the Rotation is Complete .
- When the Coil Rotates Further another Half Cycle of Sine wave is Generated .
- The Efficiency of the DC Generator can be Increased by Combining Two or More Number of Coils at Same Time .
- Which Will Result in Attaining 360 Degrees at only One Rotation of the Coil

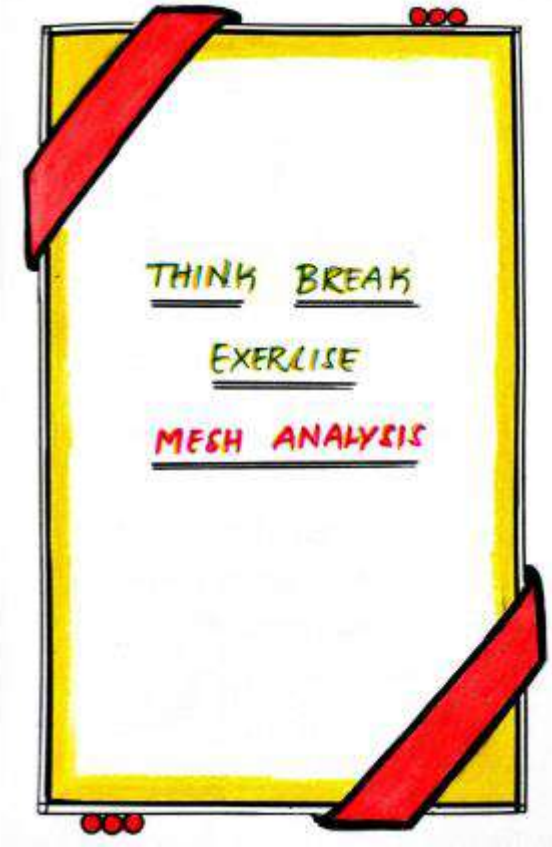


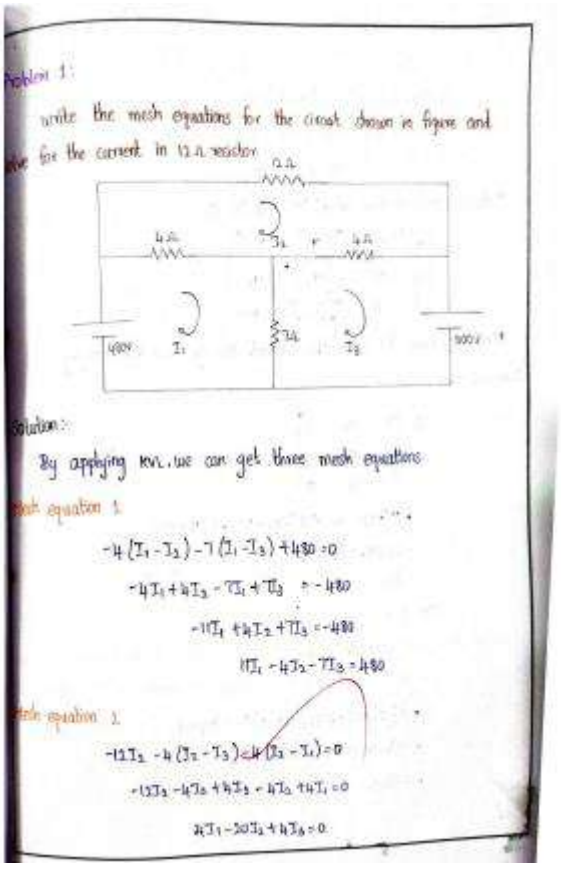

APPLICATIONS
• Shunt generator:
Lighting loads
Battery charging
• Series generator:
For the arc lamps
As constant current generator
As boosters on D.C. generator


• Separately Excited generator:
The application of these generator have limitations , because they need a separate excitation for the field winding. Some of the application are electro-refining of materials or electro-plating
• Cumulative compound generator:
Used for domestic lighting
For energy transmission over a long distance.
• Differential compound generator:
Its important application is electric arc welding


Thank you!


NAME : S.S. DHARSHINI
ROLL NO : 22CC13
SUBJECT : BEEE
ASSIGNMENT NO:1


THINK BREAK
EXERCISE
MESH ANALYSIS


Problem 1:
write the mesh equations for the circuit shown in figure and solve for the current in 12 Ω resistor
Solution:
By applying KVL, we can get three mesh equations
Mesh equation 1
-4(I1 - I2) - 7(I1 - I3) + 480 = 0
-4I1 + 4I2 - 7I1 + 7I3 = -480
-11I1 + 4I2 + 7I3 = -480
11I1 - 4I2 - 7I3 = 480
Mesh equation 2
-12I2 - 4(I2 - I3) - 4(I2 - I1) = 0
-12I2 - 4I2 + 4I3 - 4I2 + 4I1 = 0
4I1 - 20I2 + 4I3 = 0

Mesh equation 3

$$-4(I_3 - I_2) - 600 - 7(I_3 - I_1) = 0$$

$$-4I_3 + 4I_2 - 7I_3 + 7I_1 = 600$$

$$7I_1 + 4I_2 - 11I_3 = 600$$

Matrix representation of (1), (2) and (3) is

$$\begin{bmatrix} 11 & -4 & -7 \\ 4 & -20 & 4 \\ 7 & 4 & -11 \end{bmatrix} \begin{bmatrix} I_1 \\ I_2 \\ I_3 \end{bmatrix} = \begin{bmatrix} 480 \\ 0 \\ 600 \end{bmatrix}$$

Here we have to solve the current through 10Ω by applying Cramer's rule

$$\Delta = \begin{vmatrix} 11 & -4 & -7 \\ 4 & -20 & 4 \\ 7 & 4 & -11 \end{vmatrix}$$

$$= 11[320 - 16] + 4[-44 - 28] - 7[16 + 140]$$

$$= 2244 - 288 - 1092$$

$$= 864$$

$$\Delta I_2 = \begin{vmatrix} 11 & 480 & -7 \\ 4 & 0 & 4 \\ 7 & 600 & -11 \end{vmatrix}$$

$$= 11(-2400) - 480(-44 - 28) - 7(2400)$$

$$= -26400 + 34560 - 16800$$

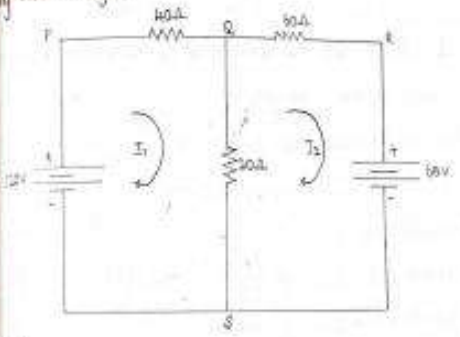
$$= -8640$$

$$I_2 = \frac{\Delta I_2}{\Delta} = \frac{-8640}{864} = -10A$$

The current through 10Ω resistor I_2 is 10A. The minus sign indicates that the current through the 10Ω resistor I_2 is reversed.

Problem 2:

In the circuit shown in figure, find the current in each branch using mesh analysis.



Solution:

First assign mesh currents I_1 and I_2 to meshes PQSP and QRSQ respectively. It is shown in figure

Mesh PQSP

$$-40I_1 - 30(I_1 - I_2) + 120 = 0$$

$$70I_1 - 30I_2 = 120 \quad -(1)$$

Mesh QRSQ

$$-60I_2 - 50 - 30(I_2 - I_1) = 0$$

$$30I_1 - 90I_2 = 50 \quad -(2)$$

Equation (1) $\times 3 \Rightarrow 210I_1 - 90I_2 = 360$

Equation (2) $\times 7 \Rightarrow -210I_1 + 630I_2 = -350$

$$540I_2 = -90$$

Solving these two equations, we can get

$$\therefore I_2 = -0.1745A$$

Negative sign indicates that the direction of I_2 is anticlockwise. Substituting I_2 value in equation (1), we get

$$70I_1 - 30(-0.1745) = 120$$

$$I_1 = 2.29A$$

Current in branch QPS, $I_1 = 2.29A$

Current in branch QRS, $I_2 = 0.1745A$

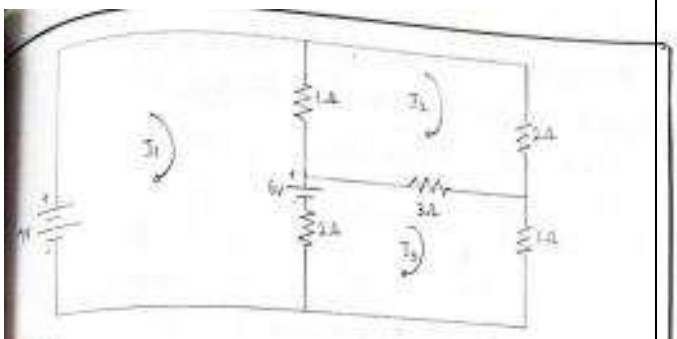
Current in branch QS $= I_1 + I_2$

$$= 2.29 + 0.2742$$

$$= I_1 + I_2 = 2.5642A$$

Problem 3:

Use mesh analysis to determine the three mesh currents in the circuit of figure shown in below.



Solution:

The three required mesh currents are assigned as shown in figure. Applying KVL, we can get three mesh equations

For equation 1

$$-1(I_1 - I_2) - 6 - 2(I_1 - I_3) + 7 = 0$$

$$3I_1 - I_2 - 2I_3 = 1$$

For equation 2

$$-2I_2 - 3(I_2 - I_3) - 1(I_2 - I_1) = 0$$

$$-I_1 + 6I_2 - 3I_3 = 0$$

For equation 3

$$I_3 + 2(I_3 - I_1) + 6 - 3(I_3 - I_2) = 0$$

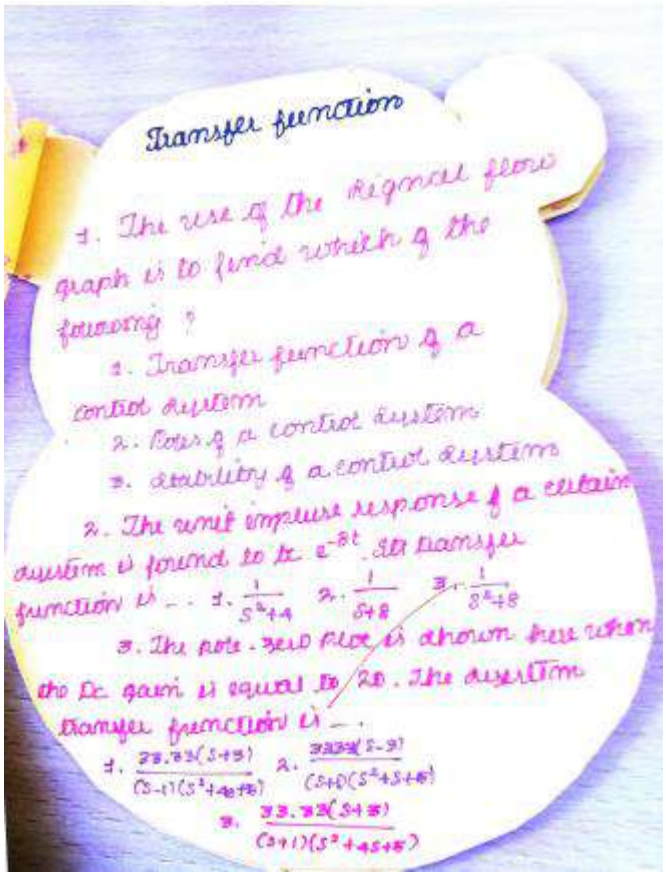
$$-2I_1 - 3I_2 + 6I_3 = 6$$

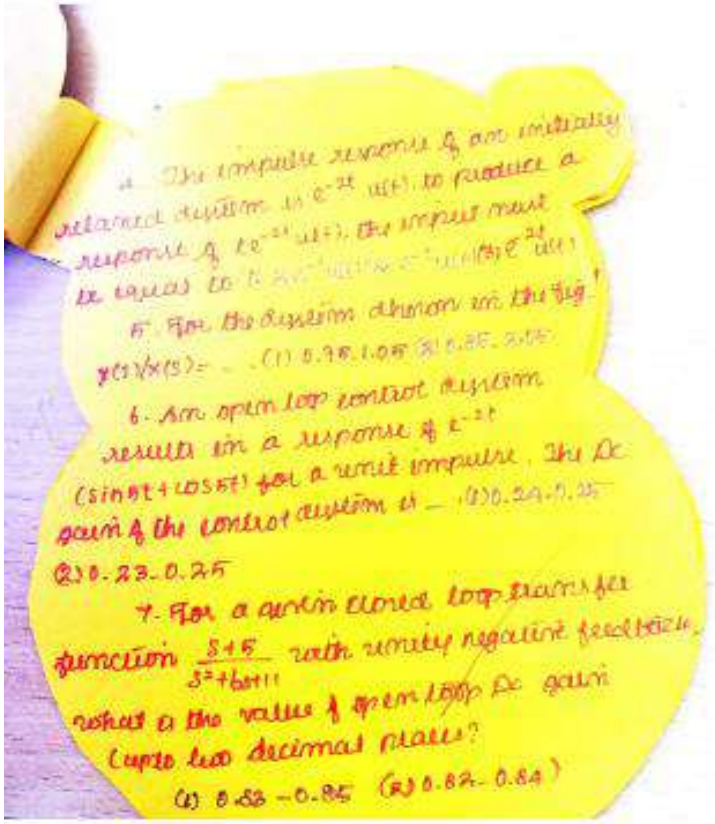
Matrix representation of (1), (2) & (3)

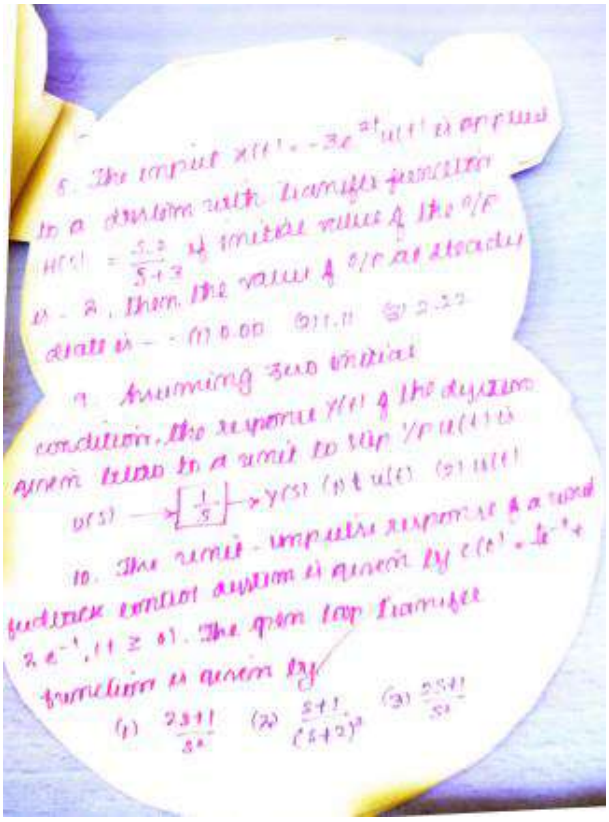
$$\begin{bmatrix} 3 & -1 & -2 \\ -1 & 6 & -3 \\ -2 & -3 & 6 \end{bmatrix} \begin{bmatrix} I_1 \\ I_2 \\ I_3 \end{bmatrix} = \begin{bmatrix} 1 \\ 0 \\ 6 \end{bmatrix}$$

EC 3151- CONTROL SYSTEMS

PCE ACTIVITY - QUIZ







11. The impulse $x(t)$ to a system is related output $y(t)$ as $\frac{dy(t)}{dt} + y(t) = 3x(t-3)u(t-3)$ then response a unit impulse function the transfer function of the system is -

(1) $\frac{3e^{-3s}}{s+1}$ (2) $\frac{e^{-3s}}{s+3}$ 3. $\frac{3e^{-(s+3)}}{s+1}$

12. The roots of a system having a transfer function $G(s) = \frac{s(s+2)}{(s+3)(s+4)}$ will be.

(1) either -3 (2) -4 (2) either -3 or -4

13. The various modes of a system is

(1) Transfer function (2) Block diagrams

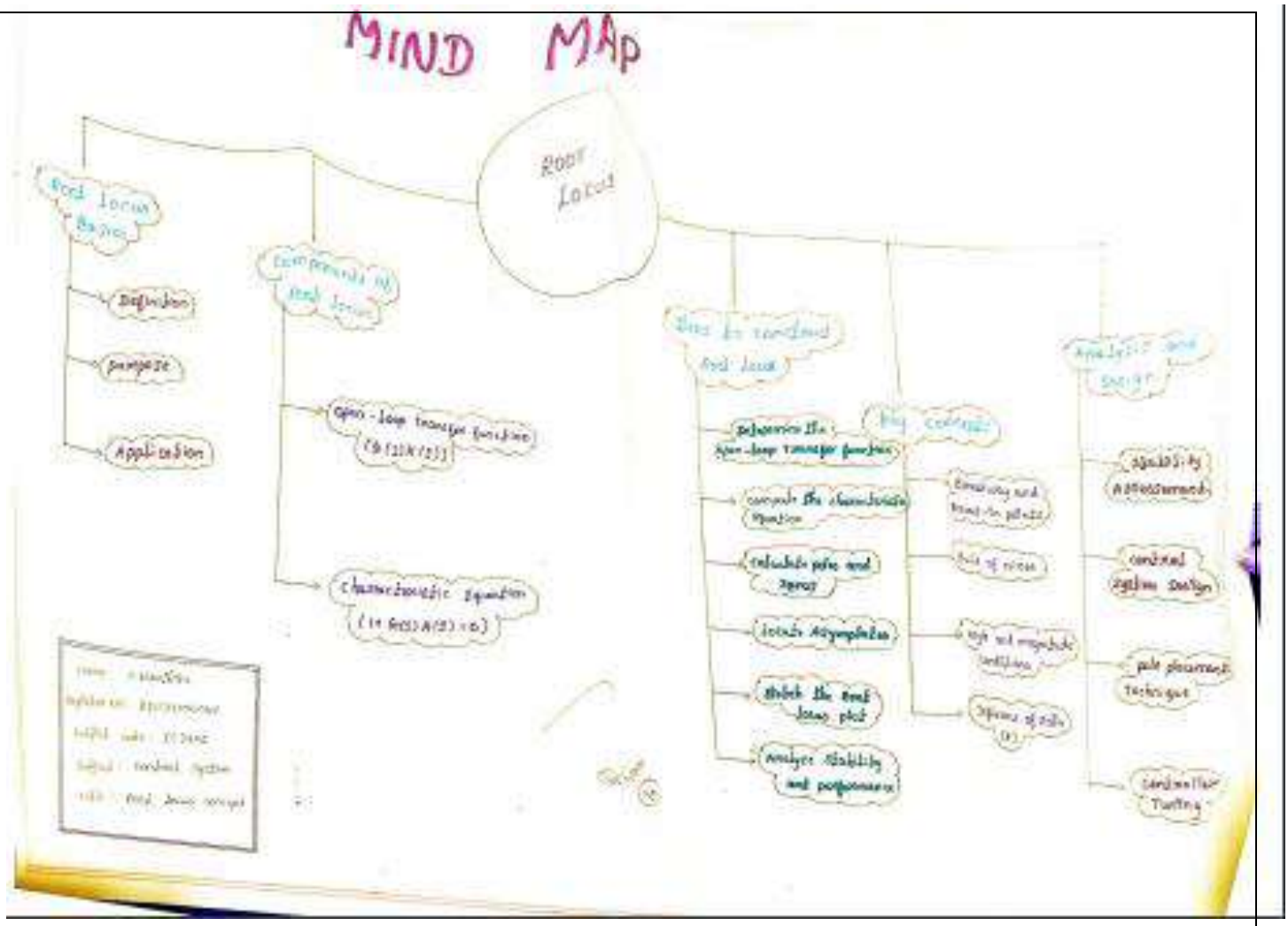
14. The impulse response of the transfer function is (1) an impulse function (2) stepfunction

15. The transfer function does not contain

which of the following types of terms?

(1) simple conjugate pole

(2) Real poles


MIND MAP
Root Locus
Definition
Application
Open - loop transfer function
Characteristic equation
Sketch the root locus plot
Analyse stability and performance


Assignment - 2
Roll no: 22ECA28.
Name: S. HASIDHIKSHANA
Class : II - ECE 'A'
Subject: CONTROL SYSTEM
Title : Root locus or Root locci
SUBCODE: EC3351
Assignment topic: clue card


Root
Locus
Concept...

Root locus:

This is the locus or Path of the roots trace on the S plane as its parameter is change.

Sketch the locus for OLT of unity feedback control s/m $G(s) = \frac{K}{s(s+2)(s+4)}$ find the value of K so that damping ratio Δ close loop s/m is 0.5

Step 1: To locate poles at zero

No. of poles = 3

$P_1 = 0$, $P_2 = -2$, $P_3 = -4$.

Zeros = 0

Poles are marked by X (cross)

Step 2: No of seperate root locus

No. of poles = 3

Sketch the locus for OLT of unity feedback control s/m $G(s) = \frac{K}{s(s+2)(s+4)}$ find the value of K so that damping ratio Δ close loop s/m is 0.5

Step 1: To locate poles at zero

No. of poles = 3

$P_1 = 0$, $P_2 = -2$, $P_3 = -4$.

Zeros = 0

Poles are marked by X (cross)

Step 2: No of seperate root locus

No. of poles = 3

Step 3: Stability point of root locus respective poles 0, −2, −4. ending point is ∞

Step 4: To locate zeros at ∞ draw gaiding lines about the asymptotes branch is

$N_a = P - Z = 3 - 0 = 3$.

Point asymptots meets real axis

$$\sigma_a = \frac{\sum P - \sum Z}{P-Z} = \frac{(0-2-4)-0}{3} = \frac{-6}{3} = -2$$

$\sigma_a = -2$.

Angle of asymptots:

$N_a = 3$, $K = 0, 1, 2$

$$\theta_K = \frac{2K+1}{P-Z}\pi$$

$$= \frac{(2(0)+1)}{3}\pi$$

$$= \frac{\pi}{3} = 60^\circ$$

ASSIGNMENT -1

EC 3351

CONTROL SYSTEM

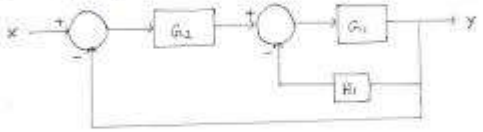
GATE QUESTIONS

ON

BLOCK DIAGRAM MODELS

P. ANITHA
II - ECE 'A'
22EC06

1) The block diagram of a feedback control system is shown in figure. The overall closed - loop gain G of the system is,



A) $G = \frac{G_1 G_2}{1 + G_1 H_1}$

B) $G = \frac{G_1 G_2}{1 + G_1 G_2 + G_1 H_1}$

C) $G = \frac{G_1 G_2}{1 + G_1 G_2 H_1}$

D) $G = \frac{G_1 G_2}{1 + G_1 G_2 + G_1 G_2 H_1}$

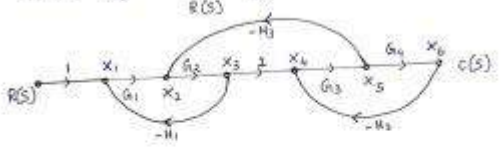
2) By performing cascading and summing / differencing operations using transfer function blocks $G_1(S)$ and $G_2(S)$, one cannot realize TF form.

A) $G_1(S)\ G_2(S)$

B) $\frac{G_1(S)}{G_2(S)}$

C) $G_1(S)\left[\frac{1}{G_1(S)} + G_2(S)\right]$

1) For the signal flow graph shown in figure, the values of $\frac{C(S)}{R(S)}$ is

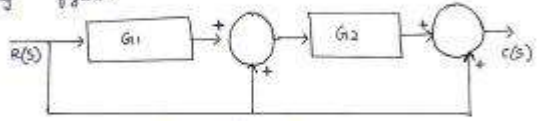


A) $\frac{G_1}{1 - G_1 G_2 H_1 - G_3 G_4 H_2 - G_2 G_3 H_3 + G_1 G_2 G_3 G_4 H_1 H_2}$

B) $\frac{1}{1 - G_1 G_2 H_1 - G_3 G_4 H_2 - G_2 G_3 H_3 + G_1 G_2 G_3 H_1 H_2}$

C) $\frac{G_1 G_2 G_3 G_4}{1 + G_1 G_2 H_1 + G_3 G_4 H_2 + G_2 G_3 H_3 + G_1 G_2 G_3 G_4 H_1 H_2}$

2) Consider the following block diagram in the following figure.



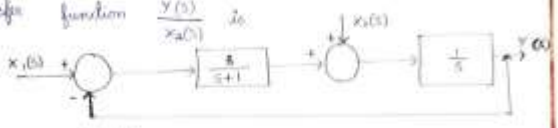
The Transfer function $\frac{C(S)}{R(S)}$ is

A) $\frac{G_1 G_2}{1 + G_1 G_2}$

B) $G_1 G_2 + G_2 + 1$

C) $G_1 G_2 + G_1 + 1$

3) For the following system, when $X_1(S) = 0$, the transfer function $\frac{Y(S)}{X_2(S)}$ is

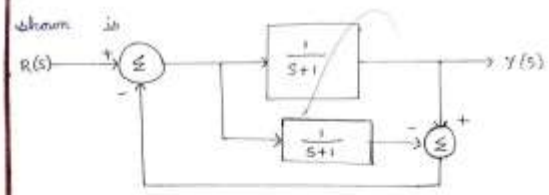


A) $\frac{S+1}{S^2}$

B) $\frac{1}{S+1}$

C) $\frac{S+1}{S(S+2)}$

4) The transfer function $Y(S)/R(S)$ of the system shown is



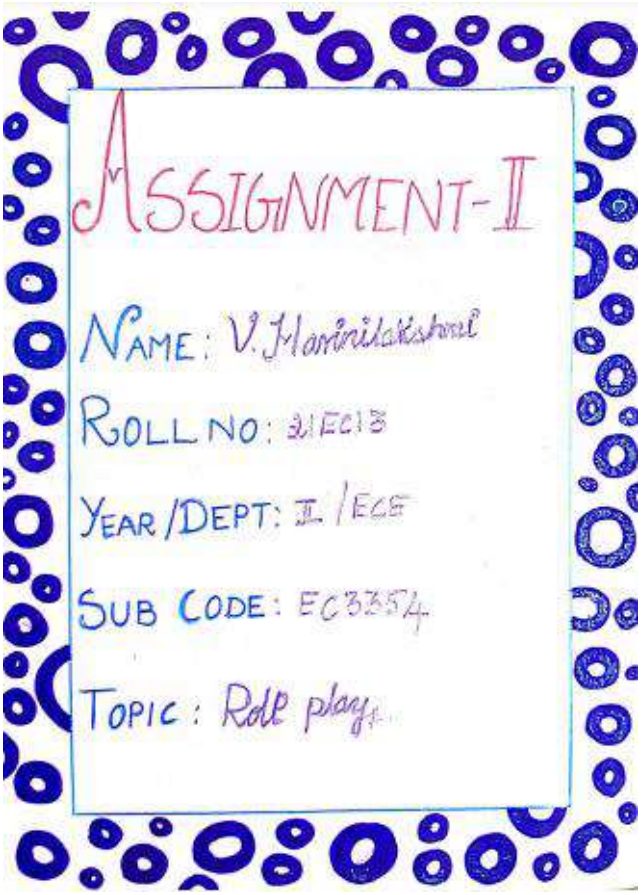
A) 0

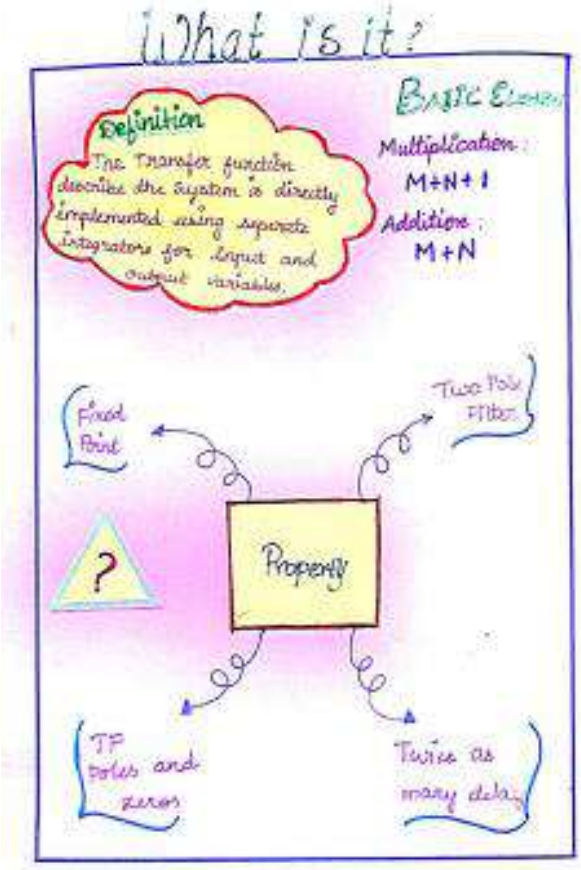
B) $\frac{1}{S+1}$

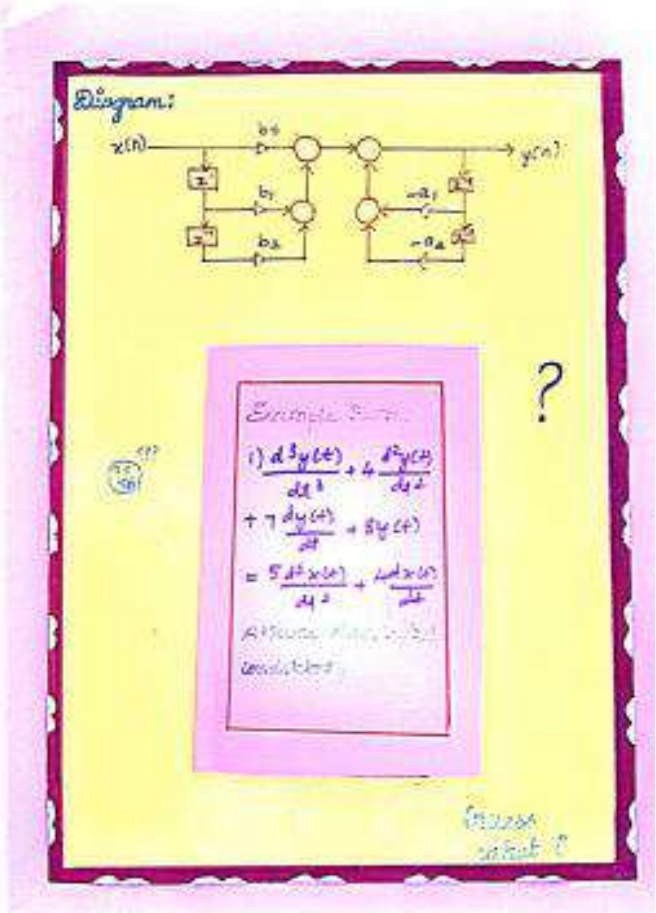
C) $\frac{1}{S+2}$

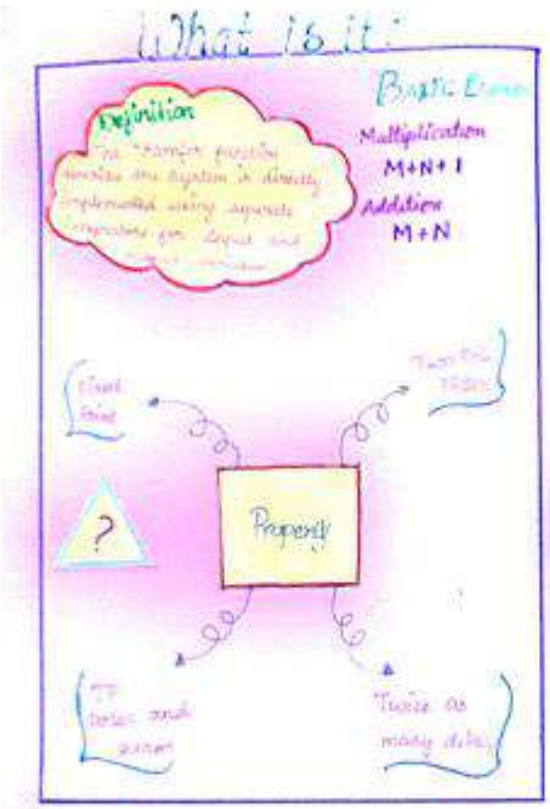
EC 3354- SIGNALS AND SYSTEMS

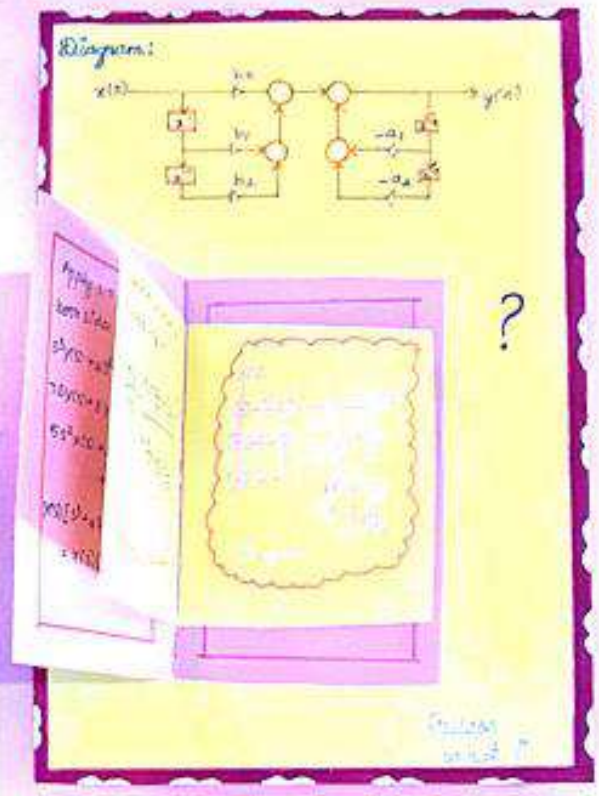
PCE ACTIVITY - QUIZ











PCA ACTIVITY-I SIGNALS & SYSTEMS EC3354

Standard Test Signals

1) Impulse Signal :-

CT :-

$$\delta(t) = \begin{cases} A & ; t = 0 \\ 0 & ; t \neq 0 \end{cases}$$

DT :-

$$\delta[n] = \begin{cases} A & ; n = 0 \\ 0 & ; n \neq 0 \end{cases}$$

2) Step Signal :-

CT :-

$$u(t) = \begin{cases} A & ; t \geq 0 \\ 0 & ; t < 0 \end{cases}$$

DT :-

$$u[n] = \begin{cases} A & ; n \geq 0 \\ 0 & ; n < 0 \end{cases}$$

3) Ramp Signal :-

CT :-

$$r(t) = \begin{cases} At & ; t \geq 0 \\ 0 & ; t < 0 \end{cases}$$

DT :-

$$r[n] = \begin{cases} An & ; n \geq 0 \\ 0 & ; n < 0 \end{cases}$$

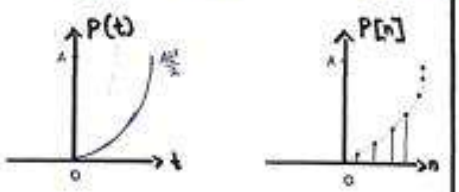
4) Parabolic Signal :-

CT :-

$$P(t) = \begin{cases} At^2/2 & ; t \geq 0 \\ 0 & ; t < 0 \end{cases}$$

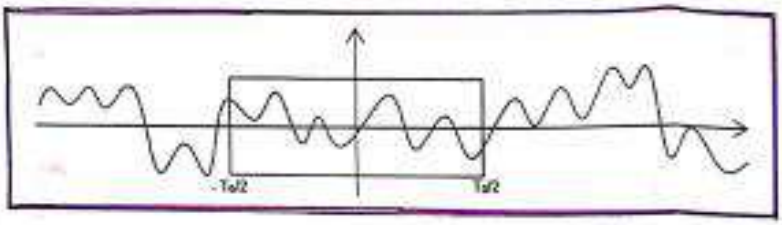
DT :-

$$P[n] = \begin{cases} An^2/2 & ; t \geq 0 \\ 0 & ; t < 0 \end{cases}$$

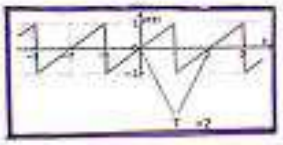


K. Dinesh Kumar V. Krishnamoory M. Mohamed Yaseen

Role Play

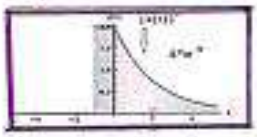


Determine the ~~~ of the given signal

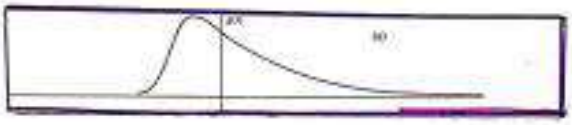


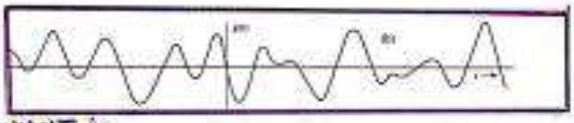
$P = x^2 dt$
$P = x^2 dt$
$P = 1/2 [t^{2+1}/2+1]$
$P = 1/2 [t^3/3]$
$P = (1/2)^*(3)$
$[1^3 - (-1)^3] = 1/3$ watts

Determine the ~~~ of the given signal



$E = x^2 dt$
$E = x^2 dt + e^{-t} dt$
$E = 1[1] - 1[-e^{-t}]$
$E = 1[1-(-1)]$ $1[-e^{-\infty}]$
$E = 1+1$
$E = 2$ joules





Formula:

- $\int_0^T x^2(t)\,dt$
- $\int_{-\infty}^{\infty} |x(t)|^2\,dt$
- $\lim_{T\to\infty} \frac{1}{T}\int_{-T/2}^{T/2} x^2(t)\,dt$
- $\lim_{T\to\infty} \frac{1}{T}\int_{-T/2}^{T/2} |x(t)|^2\,dt$

ASSIGNMENT - 2
Name: Ranjan Dev S
Yr: II Dept: ECE
Roll No: 21621
Sub: Signal & System
Lecturer: Fr. Tony

Relation between DTFT and Z-Transform

DTFT :

★ Fourier Transform of discrete-time signals is known as the discrete-time Fourier Transform.

$$X(j\omega) = \sum_{n=-\infty}^{\infty} x[n]\, e^{-j\omega n}$$

Z-Transform

★ Z-Transform is a mathematical which is used to convert the difference eqns in time domain into algebraic eqns in z-domain.

$$X(z) = \sum_{n=-\infty}^{\infty} x[n] \cdot z^{-n}$$

Relation between DTFT and Z-Transform :

DTFT of a discrete time sequence,

$$X(j\omega) = \sum_{n=-\infty}^{\infty} x[n]\, e^{-j\omega} \longrightarrow (1)$$

Z-Transform of the sequence $x(n)$,

$$X(z) = \sum_{n=-\infty}^{\infty} x[n] \cdot z^{-n} \longrightarrow (2)$$

Sub $z = re^{j\omega}$

$$X(z) = X(re^{j\omega}) = \sum_{n=-\infty}^{\infty} x(n)(re^{j\omega})^{-n}$$

$$\Rightarrow X(z) = \sum_{n=-\infty}^{\infty} [x(n)r^{-n}]\, e^{j\omega n} \longrightarrow (3)$$

For the existance of the z-transform,

$$\sum_{n=-\infty}^{\infty} |x(n)r^{-n}| < \infty$$

$$Z[x(n)] = F[x(n)r^{-n}]$$

↳ Thus, the DTFT for many sequences may not exist but the z-transform may exist.

M. SAJJEEVAN
II ECE-B
ECE-T-ASSIGNMENT

KINGS COLLEGE OF ENGINEERING
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Approved by AICTE, New Delhi.
Affiliated to Anna University, Chennai.

ACADEMIC YEAR 2022-2023

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

PROFESSIONAL CAREER ENHANCEMENT SKILLS

DEPARTMENT OF ELECTRICAL AND ELECTRONICS ENGINEERING

ACADEMIC YEAR 2022-23 ODD SEMESTER

CLASS: IV-EEE **PCE ACTIVITY** **BATCH:** 2019-23

SUBJECT CODE / NAME: EE8701 / HIGH VOLTAGE ENGINEERING

FACULTY NAME: S.R.KARTHIKEYAN, AP/EEE

ROLL NO	REGISTER NUMBER	NAME OF THE STUDENT	PCE ACTIVITY	MARK
1	821119105001	S.BHARANITHARAN	PCE Activity 1 PCE Activity 2	50
2	821119105002	M.E.KRISHNA	PCE Activity 1 PCE Activity 2	50
3	821119105003	P.PANDIDEVI	PCE Activity 1 PCE Activity 2 PCE Activity 4	50
4	821119105004	R.PURUSOTHAMAN	PCE Activity 1 PCE Activity 2 PCE Activity 6	50
5	821119105005	V.RAGUL	PCE Activity 1 PCE Activity 2 PCE Activity 6	50
6	821119105006	R.REGINA	PCE Activity 1 PCE Activity 2 PCE Activity 5	50
7	821119105008	B.YUGESHWARAN	PCE Activity 1 PCE Activity 2	50
8	821119105301	A.SARATHKUMAR	PCE Activity 1 PCE Activity 2 PCE Activity 3	50
9	821119105501	K.VETRIVEL	PCE Activity 1 PCE Activity 2 PCE Activity 6	50

PCE Activity 1: Technical Quiz
PCE Activity 2: Virtual Lab
PCE Activity 3: Poster Presentation
PCE Activity 4: Gate Question Solved
PCE Activity 5: Case Study Presentation
PCE Activity 6: APH

S.R. Karthikeyan 6/10/22
FACULTY IN-CHARGE

6/10/22
HOD/EEE

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Department of Electrical & Electronics Engineering
Academic year 2022-23 (Odd)
Virtual Lab - Report

Objective:

1. To provide remote-access to Labs in various disciplines of Science and Engineering. These Virtual Labs would cater to students at the undergraduatelevel, post graduate level as well as to research scholars.

2. To enthuse students to conduct experiments by arousing their curiosity. This would help them in learning basic and advanced concepts through remote experimentation.

3. To provide a complete Learning Management System around the Virtual Labs where the students can avail the various tools for learning, including additional web-resources, video-lectures, animated demonstrations and self evaluation.

4. To share costly equipment and resources, which are otherwise available to limited number of users due to constraints on time and geographical distances

Virtual High Voltage Laboratory:

Digital computers are universal machines that can simulate any machine or any process that can be precisely described. Engineers use advanced computer systems to build and study working simulations. Laboratory experiences are essential to learning in all areas of engineering. Most of the benefits of a traditional laboratory can be captured in a virtual laboratory. Moreover, the virtual laboratory has some educational advantages not available in the traditional laboratory. Virtual High Voltage Laboratory (VHVL) is an implementation of this concept in the field of high voltage engineering. VHVL deals with standard voltage & current generation (DC and AC both), insulation tests of various power apparatus viz. impulse voltage testing (power cables, power and instrument transformers), impulse current testing (surge arresters, power transformers) and rectangular impulse current testing (surge arresters).

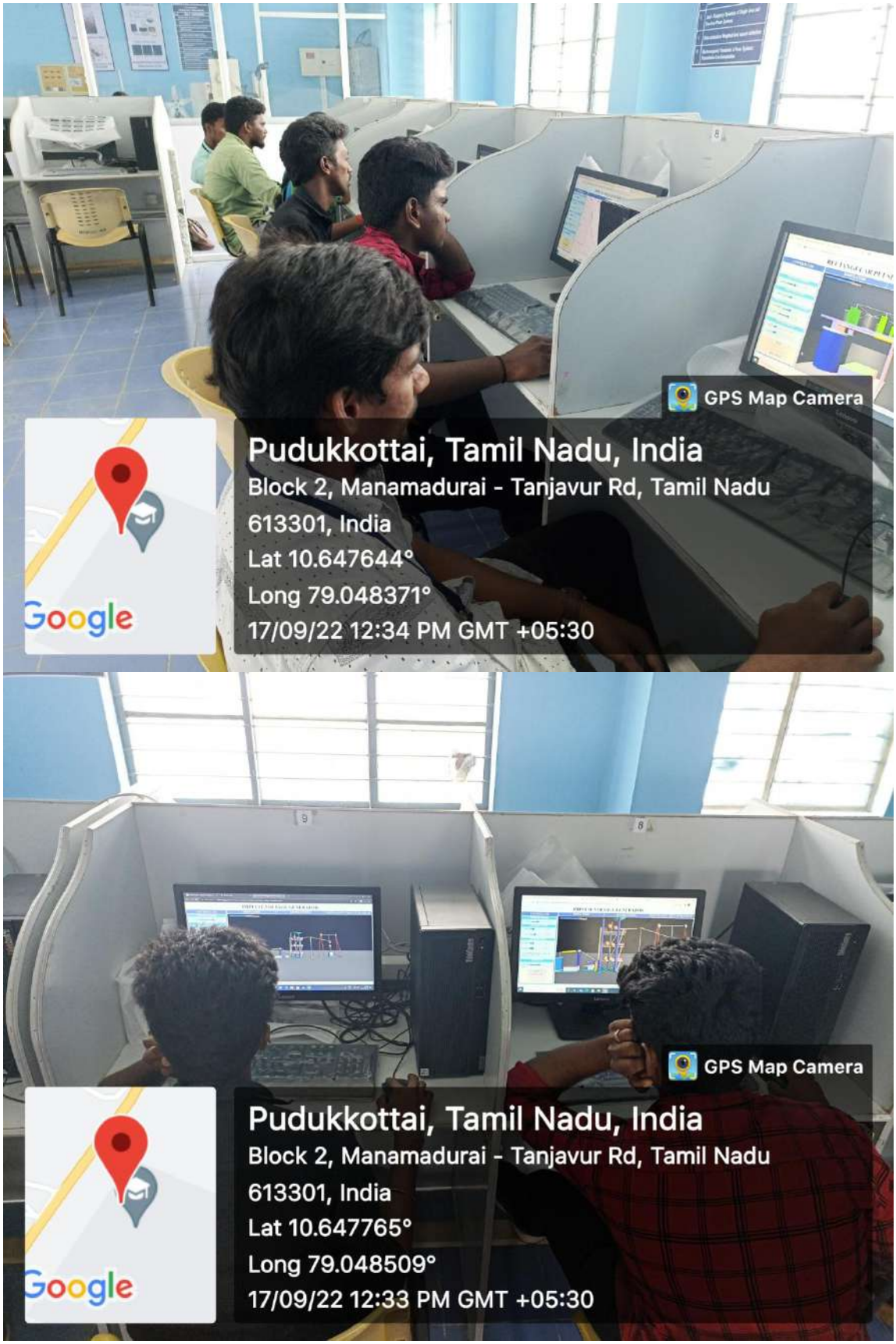
Course of the Virtual Lab: EE8701 – High Voltage Engineering

Class: IV EEE

Batch: 2019-23

Date: 17.09.2022

Venue: Power System Simulation Lab



Snapshot from Virtual lab

Evaluation from Quiz

SNo	Name of the Student	Mark / 100
1	Bharanitharan.S	100
2	Krishna .M.E	100
3	Pandidevi.P	100
4	Purusothaman.R	90
5	Ragul.V	100
6	Regina.R	100
7	Yugeshwaran.B	90
8	Sarath Kumar.A	100
9.	Vetrivel.K	90

6/10/22
IQAC Member/EEE

6/10/22
HOD/EEE

Department of Electrical & Electronics Engineering

Academic year 2022-23 (Even)

Course Code : EE8018

Course Name : Microcontroller Based System Design

Class : IV EEE

Batch : 2019-23

Regulation : 2017

Student Name : K.Vetrivel

PCE : Poster Presentation

Topic Name : Smart Card Reader

EE8018 - MCBSD - SMART CARD READER

USB READER

SMART CAC

CONTACTLESS READER WITH LCD

COMPACT SMARTCARD READER

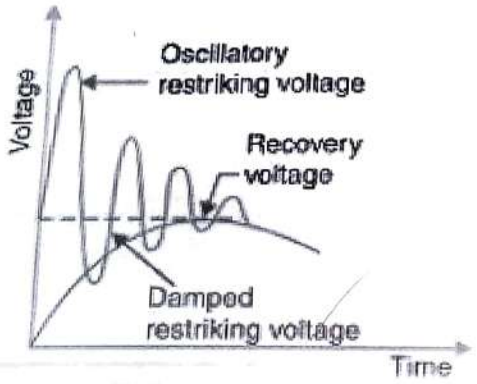
MICRO - USB

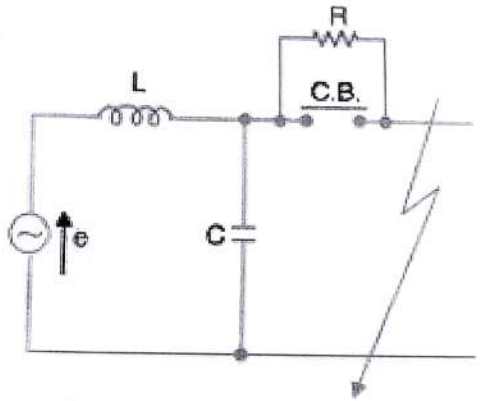
UNIVERSAL PORTABLE SCR

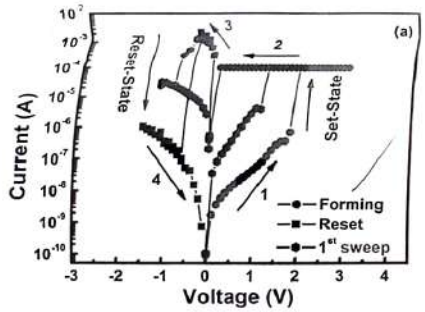
K. Vetrivel
IV-EEE
Assignment - II

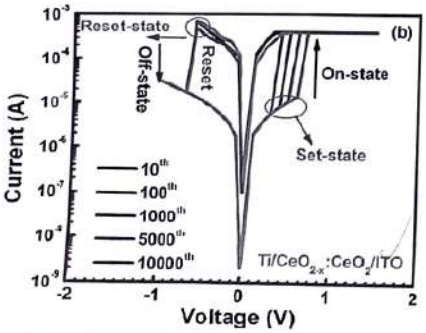
021 - USB SMARTCARD READER

EE8010 - Power System Transients

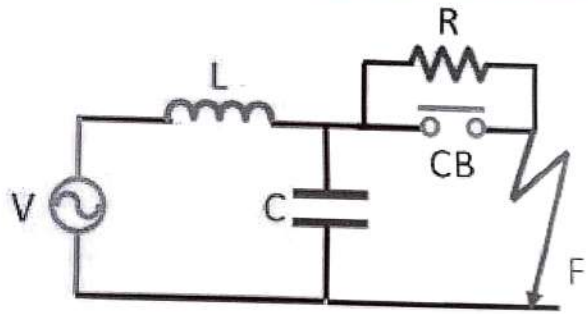








Resistance switching



Resistance Switching Circuit

NAME : B. Yugeshwaran
class : IV EEE
PCE Activity - II

Department of Electrical & Electronics Engineering

Academic year 2022-23 (Odd)

Course Code : EE3301

Course Name : Electromagnetic Field

Class : II EEE

Batch : 2021-25

Regulation : 2021

Student Name : K.C.Gayathri

PCE : Technical Quiz

Topic Name : Theorems and Applications

Electromagnetic field Assignment.....

TOPIC:

QUIZ: Theorems and Applications

20×2 (40)

B.D.P

submitted by

Jayathri. K.C

2nd EEE

1) Stoke theorem is used to convert — into —

a) surface integral, volume integral

b) line integral, volume integral

c) line integral, surface integral

d) none of the above.

Ans: c

2) which of the following is related with Stoke's theorem?

a) A line integral and a surface integral

b) A surface Integral and a volume integral

c) none of these above

Ans: a

3) which among the following theorems use the curl operation?

a) Green's theorem

b) Stoke's theorem

c) Ampere circuital law

Ans: b

4) consider a vector field $\vec{A}$ ($\vec{r}$). The closed loop line integral $\oint \vec{A} \cdot d\vec{l}$ can be expressed as

a) $\iint (\vec{\nabla} \times \vec{A}) \cdot d\vec{s}$ over the open surface bounded by the loop

b) $\iint (\vec{\nabla} \cdot \vec{A})\, dV$ over the open volume bounded by the loop.

c) $\oint_S (\vec{\nabla} \times \vec{A}) \cdot d\vec{s}$ over the closed surface bounded by the loop

Ans : A

5) The Gradient of $f(x,y,z) = x^2 - xy^2 - z$ at $P_0(1,1,0)$ is

a) $2\hat{i} + 2\hat{j} + k$

b) $2\hat{i} - 2\hat{j} - k$

c) $-2\hat{i} - 2\hat{j} + k$

Ans : B

6) Let $f(x,y) = e^{xy} \sin(x+y)$ be a scalar field. In what direction starting at $(0, \pi/2)$ is f changing the fastest?

a) $\hat{i}$

b) $\hat{j}$

c) $\hat{i} + \hat{j}/\sqrt{2}$

Ans : A

7) A force $\vec{F}$ is acting on a particle whose potential energy is $U(\vec{r})$ at a point $\vec{r}$ - if it is a conservative force then -

a) $\vec{\nabla} \cdot \vec{F} = 0$

b) $\vec{\nabla} \times \vec{F} = 0$

c) $\vec{\nabla} (\vec{F}) = 0$

Ans : B

8) divergence theorem is applicable for

a) both static and time varying fields

b) electric fields only

c) none of the above

Ans : A

9) In the region of free space that includes the cubical volume $0 < x, y, z < 1$, the electric flux density is given by $D = x^2 y a_x + y^2 x^2 a_y$ C/m^2 div D at center of the cube will be:

a) 1/2

b) 1/4

c) 3/4

Ans : c

10) Consider a closed surface S surrounding a volume V. If $\vec{r}$ is the position vector of a point inside S, with $\hat{n}$ the unit normal on S, the value of the integral $\oint_S \vec{r} \cdot \hat{n}\, ds$ is

a) 3V

b) 16V

c) 10V

Ans : B

11) stoke theorem is defined as

a) $\oint \vec{A} \cdot d\vec{l} = \iint (\vec{\nabla} \times \vec{A}) \cdot d\vec{s}$

b) none of the above and below

c) $\int l \cdot dl = \iiint (\nabla \cdot A\, dl$

Ans : A

12) What is the formula which gives viscous drag force as $F = -b\pi\eta av$ called?

a) Torricelli's Law

b) Bernoulli's Law

c) Stoke's Law

Ans : C

13) Evaluate $\oint_C \vec{F} \cdot d\vec{r}$ for $\vec{F} = (x^2+y^2)\hat{i} - 2xy\hat{j}$ taken around the rectangle bounded by the lines $x = \pm a, y = 0, y = b$

a) $2ab^2$

b) $-4ab^2$

c) $-2ab^2$

Ans : B

14) which of the following is correct

a) Green's theorem is a particular case of Stoke's theorem

b) Stoke's theorem is a particular case of Green's theorem

c) none of the above

Ans : A

15) Green theorem is used to

a) transform the line integral in xy-plane to the surface integral on the same xy-plane.

b) transform surface integral into line integral

c) none of these

Ans : A

16) the line integral of function $F = yz\hat{i}$, in the counter clockwise direction, along the circle $x^2+y^2=1$ at $z=1$ is

a) $-\pi$

b) 2π

c) π

Ans: A

17) If $\vec{F} = x\hat{i} + y\hat{j} + z\vec{k}$ and S is the closed surface of $x^2+y^2+z^2 = a^2$ then $\iint \vec{F} \cdot \hat{n}\, ds$ is

a) $1/3\pi a^3$

b) $4\pi a^3$

c) πa^2

Ans: b

18) By Gauss divergence theorem the value of $\iint \vec{F} \cdot \vec{N}\, ds$ where $\vec{F} = 4x\hat{i} - 2y^2\hat{j} + z^2k$ and S is $x^2+y^2=4, z=0; z=3$ is

a) 96π

b) 48π

c) 84π

Ans: C

19) The line integral of the vector function $u(x,y) = 2y\hat{i} + x\hat{j}$ along the straight line from (0,0) to (2,4) is

a) 12

b) 0

c) 11

Ans: A

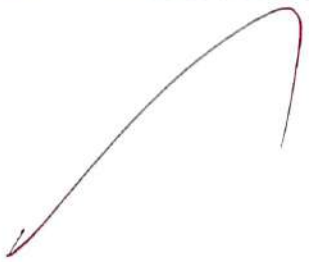
20) The value of $\oint dl$ along a circle of radius 2 unit is

a) 2π

b) zero

c) 8π

Ans: B



DEPARTMENT OF MECHANICAL ENGINEERING

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DEPARTMENT OF MECHANICAL ENGINEERING

ME8593

DESIGN OF MACHINE ELEMENTS

Assignment – II (PCE ACTIVITY)

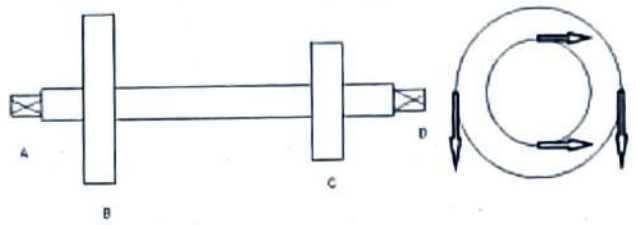
GATE QUESTIONS SOLVING

Name	: H.MOHAMED RILWAN.
Register Number	: 821120114033
Roll Number	: 04
Year / Sec	: IIIRD MECH - B
Semester	: 05
Academic Year	: 2022-23 (ODD)
Date	: 28/9/2022

20/20

28/9/22

1. The layout of a shaft supported on bearings at A & B is shown. Power is supplied by means of a vertical belt on pulley B which is then transmitted to pulley C carrying a horizontal belt. The angle of wrap is 180' and coefficient of friction is 0.3. Maximum permissible tension in the rope is 3kN. The radius of pulley at B & C is 300mm and 150mm. Calculate the torque supplied to the shaft.



(a) 453.5N-m
(b) 549.3N-m
(c) 657.3N-m
(d) None of the listed

2. If yielding strength=400N/mm^2, the find the permissible shear stress according to ASME standards.
(a) 72 N/mm^2
(b) 76 N/mm^2
(c) 268 N/mm^2
(d) 422 N/mm^2

3. Flexible shafts have _____ rigidity in bending moment.
(a) High
(b) Low
(c) Very high
(d) Extremely low

4. A force 2P is acting on the double transverse fillet weld. Leg of weld is h and length l. Determine the shear stress in a plane inclined at θ with horizontal.
(a) PSinθ(Sinθ+Cosθ)/hl
(b) P(Sinθ+Cosθ)/hl
(c) Pcosθ(Sinθ+Cosθ)/hl
(d) None of the listed

5. Maximum shear stress in transverse fillet weld of leg h and length l is_____
(a) P/hl
(b) 1.21P/hl
(c) P/1.21hl
(d) None of the listed

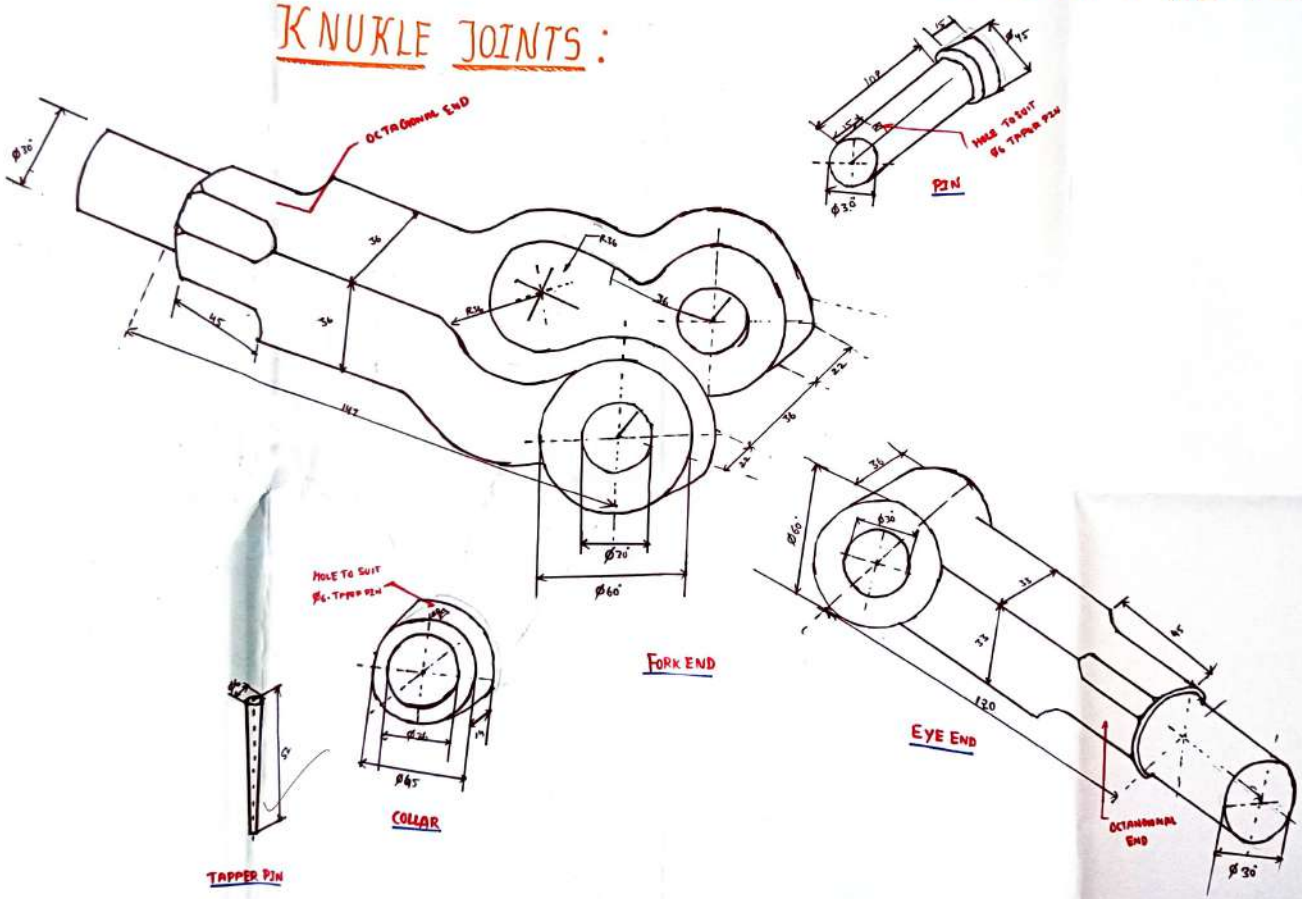
6. Determine the length of kennedy key required to transmit 1200N-m and allowable shear in the key is 40N/mm^2. The diameter of shaft and width of key can be taken as 40mm and 10mm respectively.
(a) 49mm
(b) 36mm
(c) 46mm
(d) 53mm

7. Involute splines have stub teeth with a pressure angle of __
   (a) 30
   (b) 45
   (c) 60
   (d) Can't be determined
8. In distortion energy theorem, if a unit cube is subjected to biaxial stress, then S(yt) is given by which of the following?
   (a) $\sqrt{(\sigma_1^2 - \sigma_1\sigma_2 + \sigma_2^2)}$
   (b) $\sigma_1^2 - \sigma_1\sigma_2 + \sigma_2^2$
   (c) $\sqrt{(\sigma_1^2 + \sigma_1\sigma_2 + \sigma_2^2)}$
   (d) $\sigma_1^2 + \sigma_1\sigma_2 + \sigma_2^2$
9. Among maximum shear stress theory and distortion energy theory, which gives the higher value shear yield strength?
   (a) Maximum shear stress theory
   (b) Distortion energy theory
   (c) Both give equal values
   (d) Vary from material to material
10. A muff coupling is connecting two shafts. The torque involved is 650N-m. The shaft diameter is 45mm with length and height of the key being 14mm and 80mm respectively. Find the compressive stress induced in the key.
   (a) 70.1 N/mm^2
   (b) 51.6N/mm^2
   (c) 45.5N/mm^2
   (d) None of the listed
11. If shaft diameter is 40mm, calculate the diameter of sleeves in clamp coupling.
   (a) 100mm
   (b) 80mm
   (c) 60mm
   (d) 40mm
12. If 8 bolts are emplaced in a clamp coupling with shaft diameter 80mm d, calculate the tensile force on each bolt if coefficient of friction is 0.3 and torque transmitted is 4000N-m.
   (a) 51234.4N
   (b) 45968.3N
   (c) 41666.7N
   (d) None of the listed
13. If shaft diameter is 60mm, how many bolts are recommended for rigid flange coupling?
   (a) 2
   (b) 3
   (c) 4
   (d) 5

14. Determine the diameter of the bolts used in rigid flange coupling if transmitted torque is 270N-m, pitch circle diameter=125mm and four bolts are emplace in the coupling. Permissible shear stress in the bolts is 70N/mm^2.
    (a) 3.8mm
    (b) 3.6mm
    (c) 4.4mm
    (d) 4mm
15. The hub is treated as a solid shaft while calculating torsional shear stress in the hub.
    (a) True
    (b) False
16. Find the shear stress in a flange at the junction of hub in rigid flanged coupling if torsional moment is 2980N-m and diameter of hub being 125mm. Also the thickness of flange is 25mm.
    (a) 6.77N/mm^2
    (b) 10.24N/mm^2
    (c) 4.84N/mm^2
    (d) 4.22N/mm^2
17. If shaft diameter is 30mm and number of pins emplaced are 6, then the diameter of the pin will be?
    (a) 6.4mm
    (b) 5.6mm
    (c) 6.1mm
    (d) 5.9mm
18. Find the mean coil diameter of a helical compression sprig if a load of 1200N is applied on the spring. Spring index is 6, and wire diameter 7mm.
    (a) 7/6mm
    (b) 42mm
    (c) 1200×6/7 mm
    (d) None of the listed
19. Find total number coils in a spring having square and ground ends. Deflection in the spring is 6mm when load of 1100N is applied. Modulus of rigidity is 81370N/mm^2. Wire diameter and pitch circle diameter are 10mm and 50mm respectively.
    (a) 7
    (b) 6
    (c) 5
    (d) 4
20. A railway wagon moving with a speed of 1.5m/s is brought to rest by bumper consisting of two springs. Mass of wagon is 100kg. The springs are compressed by 125mm. Calculate the maximum force acting on each spring.
    (a) 1200N
    (b) 1500N
    (c) 1800N
    (d) 2000N

POSTER PRESENTATION

KNUKLE JOINTS :



H. MOHAMED RILWAN
IInd MECH - B
20ME04
Design of machine elements

MIND MAP

TYPES :

APPLICATIONS:

COUPLING

- **GEAR COUPING** → Grear couplings are common employed on large industries machine as pump, blower, compressors etc. They can be used smaller motion control system of backlash other zero-backlash couplings design better.
- **FLANGE COUPLING** → Flange coupling are normally utilized in pressurized piping system where two pipe meet up to or tubing closed. The occasionally dangerous nature of materials went through numberous modern piping system.
- **JAW COUPLING** → Jaw coupling of general purpose power transmission coupling can be used motion control. it is transit torque while damping system of vibration and accommodating misalignment.
- **FLEXIBLE COUPLING** → Flexible coupling are used transmit torque from one shaft to another when two shafts are slightly misaligned. They can accommodate varying degree of misalignment up to 1.5 some parallel to misalignment.
- **OLDHAM COUPLING** → it can accomodate slightest misalignmenes. The driving shafts The driven Shaft generate speed to similar. it behavies as an elatrical insulator. it can transmit power and Torque. The three disc leads to oldham coupling.
- **DIAPHAGM COUPING** → The characterized capacity to flexibly absorb misaligment, this diaphragm coupling has been increasingly recognized to be essential turbine and compressors of even higher speed / larger capcity.
- **BUSH PIN TYPE FLEXIBLE COUPING** → The purpose of flexible coupling transmit torque from one piece rotating equip to another while misaligment accepting the same time. flexible coupling small misalignment expressed order of magnitude. Thousands of an inch.
- **MAGNETIC COUPLING** → The magnetic coupling to transfer torque from electric motor The group. magnetic gear explored in utility scale wind turbine as a means of enhancing reliability. some diver propulsion vechicle.

NAME: M MOHAMED RILWAN
CLASS: III BE-MECH-'B'
SUBJECT: ME Design of machine element
ROLLNO: 20ME04
DATE: 23/1/22

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DEPARTMENT OF MECHANICAL ENGINEERING

ME8593

DESIGN OF MACHINE ELEMENTS

Assignment – II (PCE ACTIVITY)

TECHNICAL QUIZ

Name	: P. Vimalraj
Register Number	: 821120114052
Roll Number	: 20ME23
Year / Sec	: III year 'B'
Semester	: 05
Academic Year	: 2022-23 (ODD)
Date	: 1/10/2022

1/10/22

20/20

1. Which of the following in power screws is the correct equation for torque if the load is lowered while designing a machine? (W: Weight in N, θ: Angle of inclination, ϕ: Friction angle)
   (a) W tan (θ / ϕ)
   (b) W tan (θ x ϕ)
   (c) W tan (θ + ϕ)
   (d) W tan (θ – ϕ)
2. Which of the following is a dominance of power screw?
   (a) Large load carrying capacity
   (b) High efficiency
   (c) Wear of screw is reduced
   (d) Mechanical advantage is lowered
3. What is the maximum shear stress for a material of ultimate tensile strength (S_{ut}) with keyway effect according to ASME code?
   (a) 0.18 S_{ut}
   (b) 0.135 S_{ut}
   (c) 0.30 S_{ut}
   (d) 0.225 S_{ut}
4. Which of the following elements transfers torque and is only subjected with the bending moment?
   (a) Brake
   (b) Clutch
   (c) Axle
   (d) Belt drive
5. Which of the following joins two rotating shafts to each other?
   (a) Key
   (b) Coupling
   (c) Gear
   (d) Belt drive
6. Which of the following line is the most economical?
   (a) Goodman line
   (b) Soderberg line
   (c) Gerber parabola
   (d) Lagrange line
7. Which of the following expression is not correct for designing a shaft according to rigidity?
   (a) T = GθJ / L
   (b) J = TL / Gθ
   (c) θ = TL / GJ
   (d) L = GθT / J

8. Which of the following is not a type of transmission shaft?
   (a) Crankshaft
   (b) Countershaft
   (c) Transmission shaft
   (d) Line shaft
9. In machine design, which of the following is not true for rigid and flexible couplings?
   (a) Rigid couplings are expensive than flexible couplings
   (b) Flexible couplings can tolerate any slight misalignment between axes of shafts
   (c) Flexible couplings can absorb shocks and vibrations
   (d) Rigid couplings cannot tolerate slight misalignment between axes of shafts
10. Which is not a possible type of failure in a riveted joint?
   (a) Crushing failure of the plate
   (b) Shear failure of rivet
   (c) Tensile failure of the plate between rivets
   (d) Shear failure of plate
11. Which of the following is true about the roller bearing in comparison with ball bearing?
   (a) Power lost in friction is more
   (b) Axial dimensions are less
   (c) Radial dimensions are more
   (d) They have point contact
12. Which of the following correctly symbolizes a fillet joint?
   (a) A right angled triangle
   (b) Two parallel lines with an arc above them
   (c) A triangle with an arc above it
   (d) A triangle
13. Which of the following is the function of rebound clips in a multi-leaf spring?
   (a) Helps to share the load from master leaf to graduated leaves
   (b) Hold all the leaves of the spring
   (c) Engage the bolts to clamp the leaves
   (d) Attach a member or component
14. In which of the following type of lever the effort is located between the load and fulcrum?
   (a) First type
   (b) Second type
   (c) Third type
   (d) Fourth type
15. Which of the following is not the cause of stress concentration?
   (a) Abrupt changes in cross-section
   (b) Discontinuity in the component
   (c) Machining scratches
   (d) Point load applied on the component

16. Which of the following straight-line joins endurance limit(S_e) on the stress amplitude axis and yield strength (Syt) on the mean stress axis?
    (a) Soderberg line
    (b) Modified goodman line
    (c) Gerber line
    (d) Goodman line
17. Which of the following shaft are the integrals or equally spaced lines made on a shaft?
    (a) Stepped shaft
    (b) Spline shaft
    (c) Cam shaft
    (d) Crankshaft
18. According to the ASME code, maximum allowable shear stress is taken as X% of yield strength or Y% of ultimate strength.
    (a) X=30 Y=18
    (b) X=30 Y=30
    (c) X=18 Y=18
    (d) X=18 Y=30
19. While designing shaft on the basis of torsional rigidity, angle of twist is given by?
    (a) Ml/Gd^4
    (b) $584Ml/Gd^4$
    (c) $292\ Ml/Gd^4$
    (d) None of the mentioned
20. Calculate the shaft diameter on rigidity basis if torsional moment is 196000N-mm, length of shaft is 1000mm. Permissible angle of twist per meter is 0.5' and take $G=79300N/mm^2$.
    (a) None of the listed
    (b) 41.2mm
    (c) 35.8mm
    (d) 38.8mm

R. SULTHAN ABDUL KADHER
BE. MECH
5TH SEM
KINGS COLLEGE OF ENGEERING

COUPLING.

GEARCOUPLING

GEAR COUPLING ARE COMMONLY EMPLOYED ON LARGE INDUSTRIAL MACHINES SUCH AS PUMPS, BLOWERS COMPRESSORS, MIXERS ETC. THEY CAN BE USED IN SMALLER MOTION CONTROL SYSTEMS, MOSTLY WITH A POLYMER SLEEVE AS A MEANS OF REDUCING BACKLASH BUT OTHE ZERO-BACKLASH COUPLING DESIGNS ARE UGUALLY BETTER SUITED TO THESE APPLICATIONS

FLANGE COUPLING

FLANGE COUPLINGS ARE NORMALLY UTILIZED IN PRESSURIZED PIPING SYSTEMS WHERE TWO PIPES OR TUBING CLOSES NEED TO MEET UP.

THE ASSOCIATING METHODS FOR FLANGE COUPLINGS ARE GENERALLY SOLID DUE TO EITHER THE WEIGHT OF THE MATERIALS OR THE OCCASIONALLY DANGEROUS NATURE OF MATERIALS OR THE OCCASIONALLY DANGEROUS WENT THROU NUMEROUS MODERN PIPING SYSTEMS.

JAW COUPLING

A JAW COUPLING IS A TYPE OF GENERAL PURPOSE POWER TRANSMISSION COUPLING THAT ALSO CAN BE USED IN MOTION CONTROL APPLICATIONS. IT IS DESIGNED TO TRANSMIT TORQUE WHILE DAMPING SYSTEM VIBRATIONS AND ACCOMMODATING MISALIGNMENT, WHILE PROTECTS OTHER COMPONENTS FROM DAMAGE.

FLEXIBLE COUPLING

FLEXIBLE COUPLING ARE USUALLY USED TO TRANSMIT TORQUE FROM ONE SHAFT TO ANOTHE WHEN THE TWO SHAFTS ARE SLIGHTLY MISALIGNED THEY CAN ACCOMMODATE VARYING DEGREES OF MISALIGNMENT UP TO 1.5° AND SOME PARALLEL MISALIGNMENT. THEY CAN ALSO BE USED FOR VIBRATION DAMPING OR NOISE REDUCTION.

OLDHAM COUPLING

IT CAN ACCOMODATE SLIGHTEST MISALIGNMENTS. THE DRIVING SHAFTS AND THE DRIVEN SHAFTS GENERATE AT A SIMILAR SPEED. IT BEHAVE AS AN ELECTRICAL INSULATOR. IT CAN TRANSMIT POWER AND TORQUE. THE MATERIAL USED IN THE THREE DISC LEADS TO THE USE OF OLDHAM OF COUPLING IN MANY DEVICE APPLICATIONS.

DIAPHRAGM COUPLING

CHARACTERIZED BY THE CAPACITY TO FLEXIBLY ABSORB MISALIGNMENTS THIS DIAPHRAM COUPLING HAS BEEN INCREASINGLY RECONGNIZED TO BE ESSENTIAL FOR TURBINES AND COMPRESSORS OF EVER HIGHER SPEED | LARGE CAPACITY, AS WELL AS OTHER ROTATING EQUIPMENTS FOR COMMERICAL POWER GENERATOR, STEELMAKING MACHINES.

BUD PIN TYPE FLEXIBLE COUPLING

THE PURPOSE OF A FLEXIBLE COUPLING IS TO TRANSMIT TORQUE FROM ONE PIECE OF ROTATING EQUIPMENT TO ANOTHER, WHILE ACCEPTING AT THE SAME TIME A SMALL AMOUNT OF MISALIGNMENT. FLEXIBLE COUPLING MISALIGNMENT IS EXPRESSED AS AN ORDER OF MAGNITU IN THOUSANDTHS OF AN INCH.

MAGNETIC COUPLING

APPLICATIONS SOME DIVER PROPULSION VEHICLES AND REMOTELY OPERATED UNDERWATER VEHICLES USE MAGNETIC COUPLING TO TRANSFER TORQUE FROM THE ELECTRIC MOTOR TO THE PROP. MAGNETIC GEARING IS ALSO BEING EXPLORED FOR USE IN UTILITY SCALE WIND TURBINES AS A MEANS OF ENHANCING RELIABILITY.

KEYS

SUNK KEY

It is used in General industrial machinery. It is more suitable for machine tool applications.

SPINDLE KEYS

Spindle key (cylinder key) is designed for the easy opening & closure of cylinder valves. To open a cylinder valve, simply rotates the spinder (-ve) turn clockwise to securely close the cylinder

ROUND KEYS

These keys are generally considered to be most suitable for low power drives.

SADDLE KEYS

It is used for very light loads To fit the Saddle key, the groove is made in the pulley only. The grip of the Saddle key is due to friction on the shaft

TANGENT KEYS

Tangent keys are fitted in pair at right angles. Each key is to withstand torsion in one direction only. It is used in large heavy duty shafts.

FLAT SADDLE KEY

It is used to transmit light loads. In a flat saddle key, the key remains flat, and the part of the shaft on which the key fits is made flat.

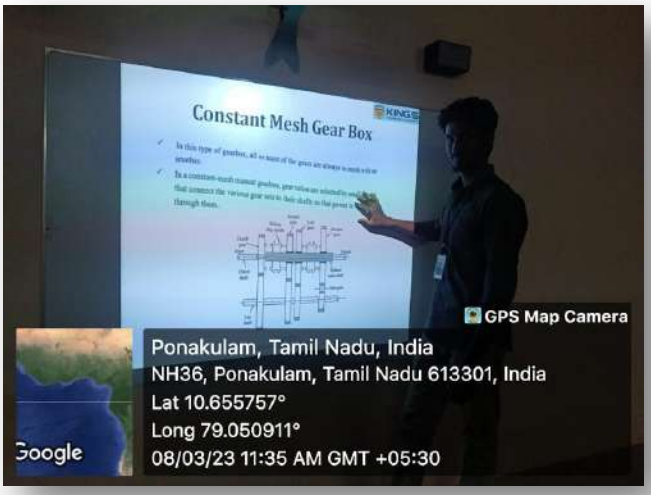
HOLLOW SADDLE KEYS

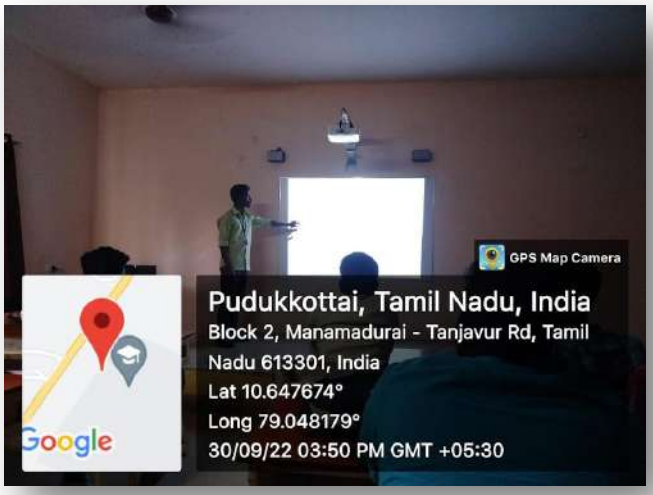
It is used for Compartively light loads
b) Hollow Saddle key is a taper key which fits in a keyway in the hub & the bottom of the key is shaped to fit the curved surface of the shape. Since Hollow saddle key hold on by friction, therefore these are suitable for light loads

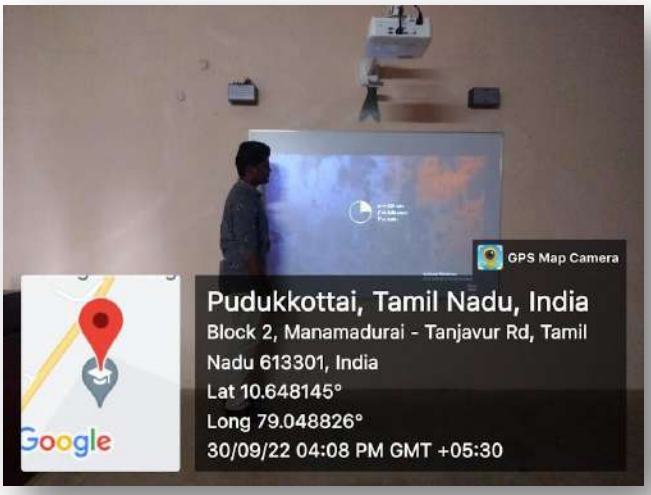
ASSIGNMENT - II (PCE ACTIVITY)

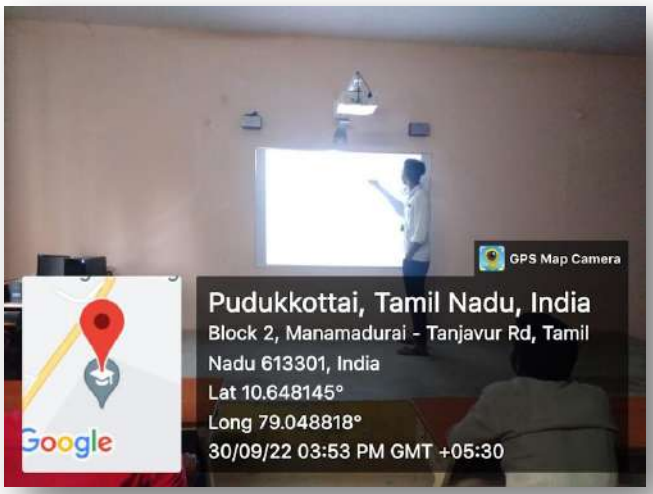
Name	S. Balaji
Class	III year B sec
Branch	Mechanical Engineering
Regno	821120114305
Rollno	29
Subcode	ME8593
SubName	Design of Machine Element
Topic	KEYS, types and use
Date	29.09.22

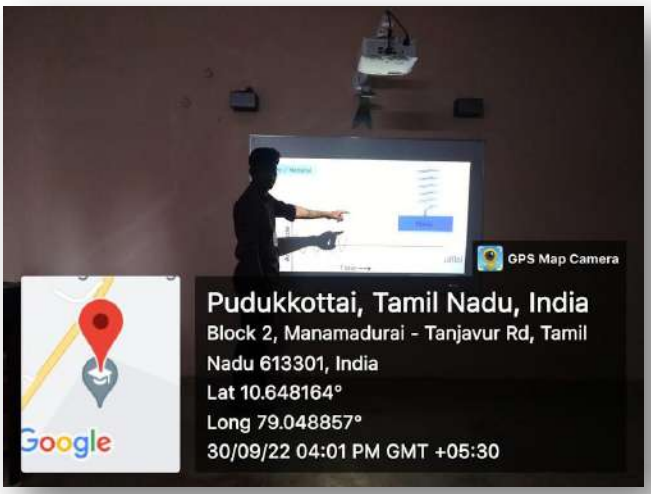
Sample Presentation Snapshots











KINGS COLLEGE OF ENGINEERING
Recognised under 2(f) & 12(B) of UGC
Approved by AICTE, New Delhi.
Affiliated to Anna University, Chennai.

ACADEMIC YEAR 2022-2023

DEPARTMENT OF SCIENCE AND HUMANITIES

PROFESSIONAL CAREER ENHANCEMENT SKILLS

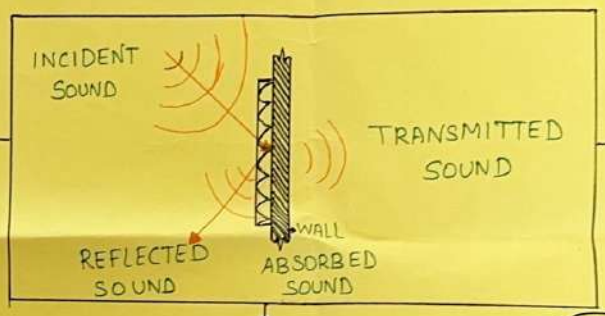
METHODS OF SOUND ABSORPTIONS

PHYSICS

Sound absorption is the ability that a Material can absorb sound in the air

Average absorption coefficient: $\bar{\alpha} = \frac{A}{S} = \frac{\Sigma \alpha s}{\Sigma s}$

Absorption coefficient (α) = Sound energy absorbed by the surface / Total sound energy incident on the surface



POROUS ABSORBENTS

A porous absorber is any kind of porous (or) fibrous material

Eg: Textiles, carpets, cotton wool and foams.

RESONANCE ABSORBENTS

Resonance absorbents consist of a mechanical (or) acoustic oscillation system

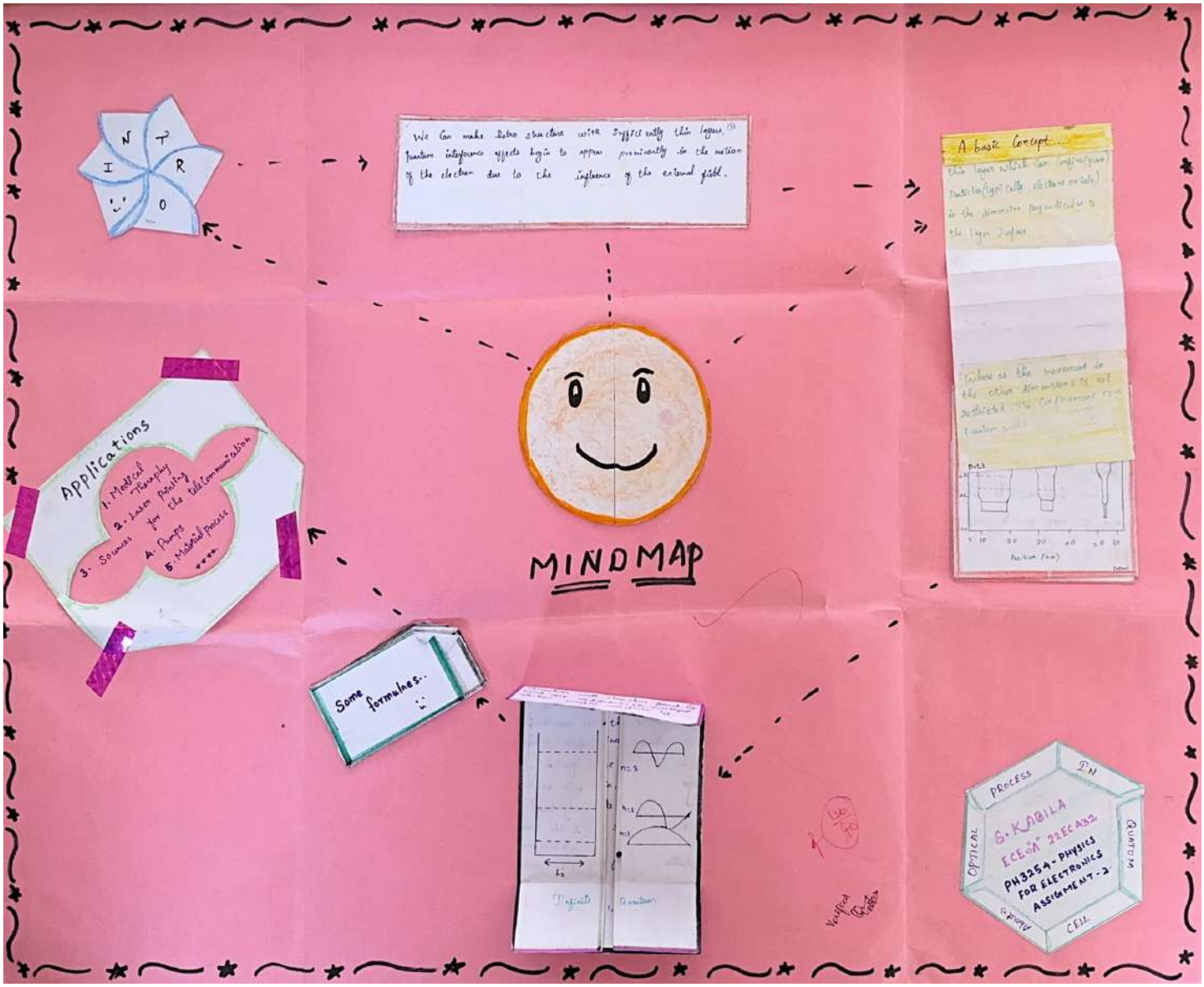
Eg: Salisbury screen, circuit analog absorbers.

SINGLE ABSORBENTS

The sound absorbing characteristics of acoustial materials varies significantly with frequency

Eg: Tables, chairs and other objects.

PHYSICS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O
We can make Nano structure with Sufficiently thin layers, Quantum interference effects begin to appear prominently in the motion of the electron due to the influence of the external field.
A basic concept
Applications
1. Medical Therapy
2. Laser Printing
3. Sensors for the telecommunication
4. Pumps
5. Manufacturing process
MINDMAP
Some formulaes..
PROCESS
DN
OPTICAL
QUANTUM
CELL
G. KABILA
ECE'A' 22ECA32
PH3254 - PHYSICS FOR ELECTRONICS
ASSIGNMENT - 2

CENTRE OF THE MASS

A point at which the whole of the mass of the body or all the masses of a particle system is supposed to be concentrated

* The centre of mass is a position defined relative to an object. It is the average position of all the parts of the system, weighted to their masses.

The equation of circle with (h,k) centre and radius

The centre of mass (COM) is an imaginary physical concept. It is the point about which objects rotate.

Centroid (geometric centre of a plane, area or volume. Mass of mass, gravitational centre of a line, area or volume

In the anatomical position, the COM lies approximately anterior to the second sacral vertebra

CENTRE OF MASS

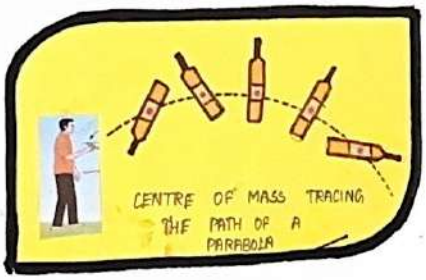
A circle is a closed curve that is drawn from the fixed point is called the centre in which all the points on the curve are having the same distance from the point of the centre

The COM of an object by taking the masses you are trying to find the centre of masses between and multiplying them by their positions.

The centre of mass is a point of the centre of the distribution of mass in space where in the weighted relative position of the distributed mass has a sum of zero

* The centre of mass plays an important role in astronomy and astrophysics.
* Where it is commonly referred to as the barycentre

DIAGRAM



The entire mass concentrated at the point

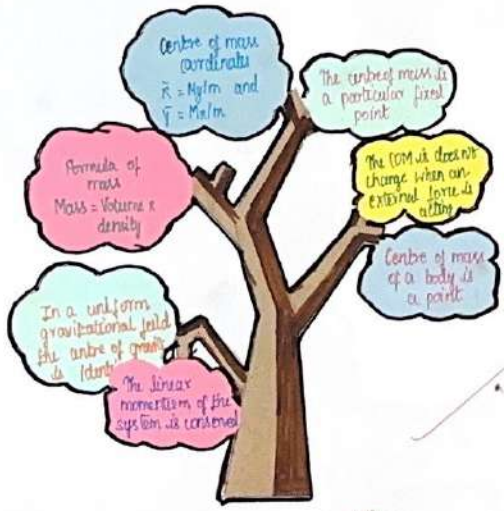
The centre of mass of an object is a position vector

Property of Centre of mass

* Centre of mass moves as if the external force act on it

For bodies of normal dimensions, centre of mass and centre of gravity

In the absence of any external force, the centre of mass moves with a constant velocity



CENTRE OF MASS

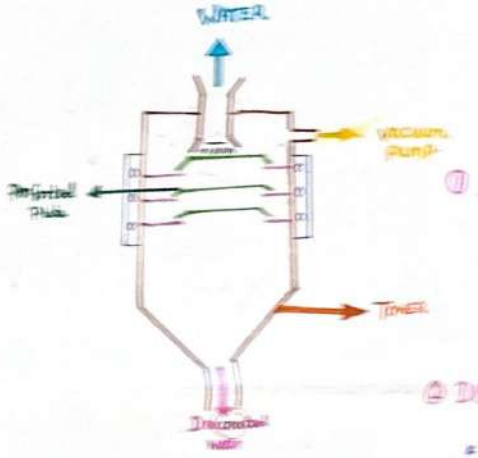
* A point inside a body at which the whole mass is supposed to be concentrated. A force applied at this point produces translatory motion
* It pertains to mass of the body.
* Algebraic sum of moments of masses about centre of mass is zero
* In case of small bodies centre of masses and centre of gravity coincide

CENTRE OF GRAVITY

* A point inside a body through which the weight of the body acts
* It refers to weights acts on all particles of the body
* Algebraic sum of moments of weights about centre of gravity is zero
* In case of huge body centre of mass and centre of gravity may not coincide

A+

BOILER CORROSION BY O_2, CO_2 and SALTS



BOILER CORROSION

Boiler corrosion due to presence of

1) dissolved oxygen
2) dissolved carbon dioxide
3) dissolved salts

1) DISSOLVED OXYGEN

* Dissolved Oxygen in water is mainly responsible for boiler

* $4Fe + 6H_2O + 3O_2 \rightarrow 4Fe(OH)_3$

A) Chemical Method : $2Na_2SO_3 + O_2 \rightarrow 2Na_2SO_4$

B) Mechanical de-aeration.

2) DISSOLVED CARBON DIOXIDE

* DISSOLVED Carbon dioxide - Corrosive acids

$CO_2 + H_2O \rightarrow H_2CO_3$

* Carbon dioxide liberated decomposition of carbonate salts present water

$Ca(HCO_3)_2 \xrightarrow{\Delta} CaCO_3 \downarrow + H_2O + CO_2 \uparrow$

3) DISSOLVED $MgCl_2$

* The salts like $MgCl_2$, $CaCl_2$ hydrolysis Higher temperature give HCl the boiler.

$MgCl_2 + 2H_2O \longrightarrow Mg(OH)_2 \downarrow + 2HCl$

$Fe + 2HCl \longrightarrow FeCl_2 + H_2 \uparrow$

$FeCl_2 + 2H_2O \longrightarrow Fe(OH)_2 + 2HCl$

1) dissolved oxygen (O_2)

Removal of O_2 : dissolved oxygen can be removed by chemical (or) mechanical methods.

2) Dissolved carbon dioxide

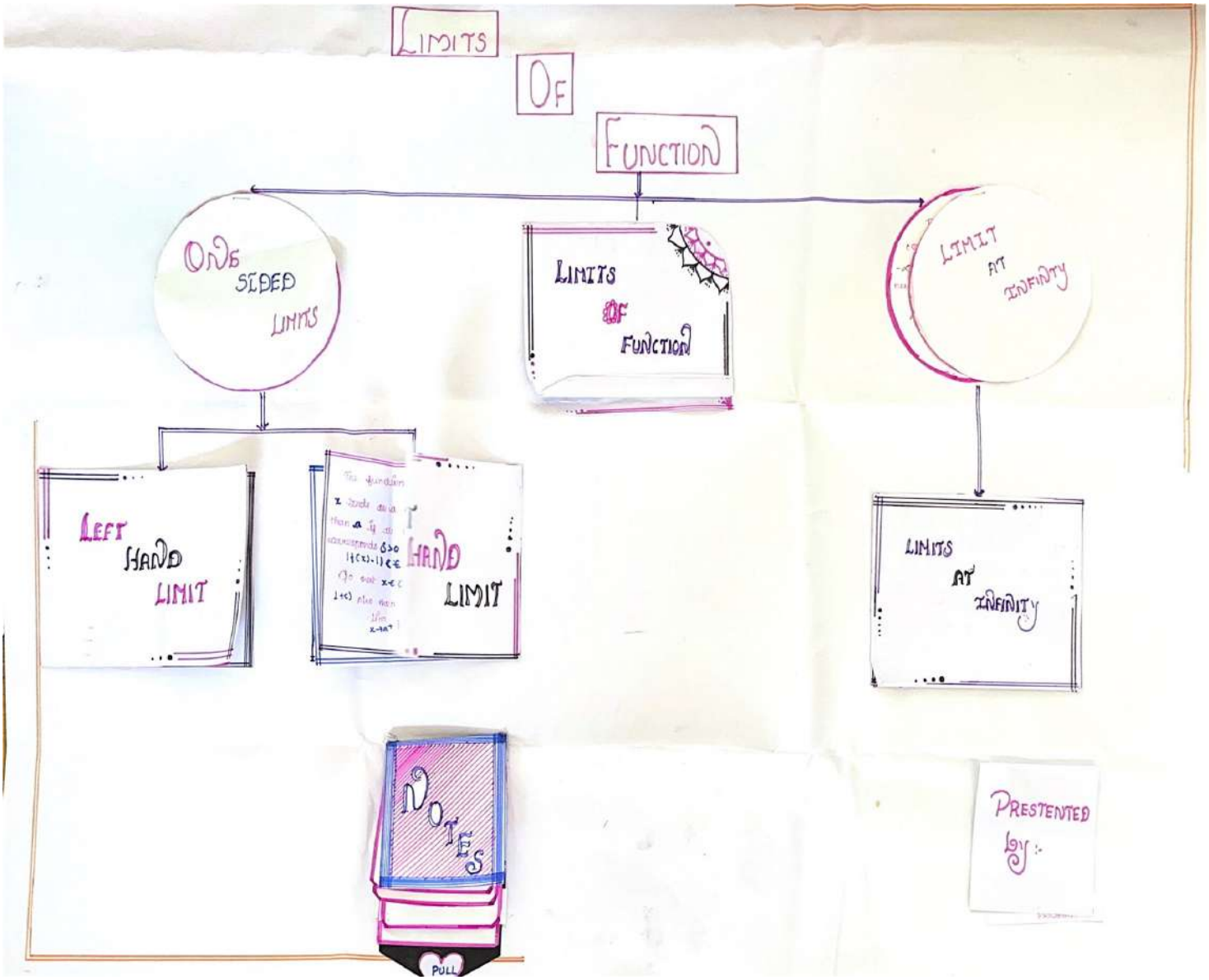
Removal of CO_2 : carbon dioxide can be removed from water by adding calculated amount NH_4OH water

$2NH_4OH + CO_2 \rightarrow (NH_4)_2CO_3 + H_2O$

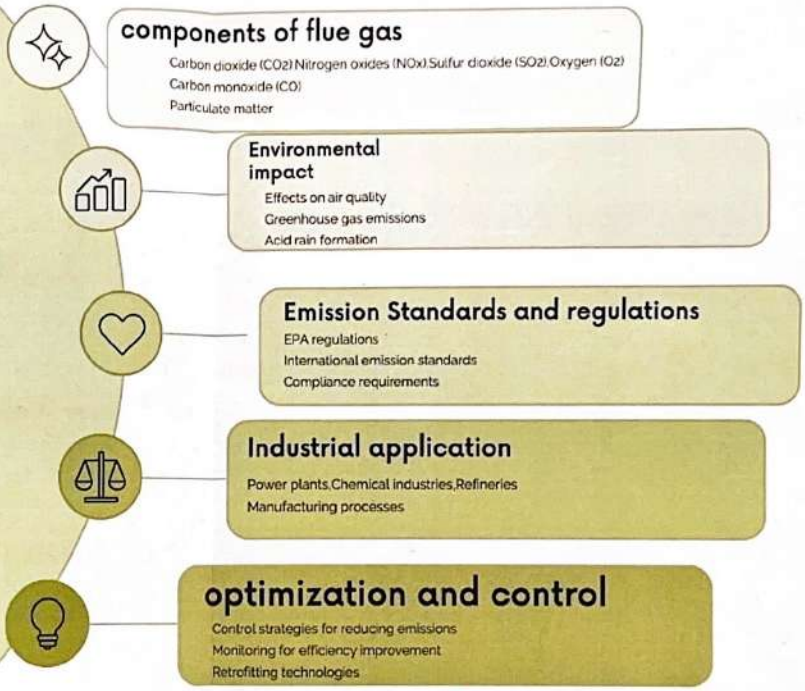
3) Dissolved $MgCl_2$

Removal of it is : corrosion by HCl avoided by addition alkali the boiler water.

$HCl + NaOH \rightarrow NaCl + H_2O$


LIMITS
OF
FUNCTION
ONE SIDED LIMITS
LIMITS OF FUNCTION
LIMIT AT INFINITY
LEFT HAND LIMIT
HAND LIMIT
LIMITS AT INFINITY
NOTES
PULL
PRESENTED BY :-

FLUE GAS ANALYSIS



30/40

8

NAME : S. SIVASURYA
SUB : CY3151.
: ASSIGNMENT-II.

POSTER

Name : Esthar nagamy

Roll no : 22ECA20

Sub Code : HS3252

Tille : COMPAR AND CONTRAST ESSAY WRITING

10/10

Verified

COMPARE AND CONTRAST ESSAY WRITING

INTRODUCTION:-

A comparison and contrast essay compares two similar objects. or contrasts dissimilar objects. In a way that readers are then able to weigh informed about the advantages and disadvantages of both the object. Readers are then able to weigh pros and cons of the object compared and contrasted to select a better product. It however, does not mean that it is only a comparison or contrast of products. It could be a situation after which readers are to make a decision weighing pros and cons. Although a comparision and contrast essay is set to demontrate both similarities as well as differences. Sometimes it only shows similarities and at other times, only differences.

IPHONE 5S VS. IPHONE 6

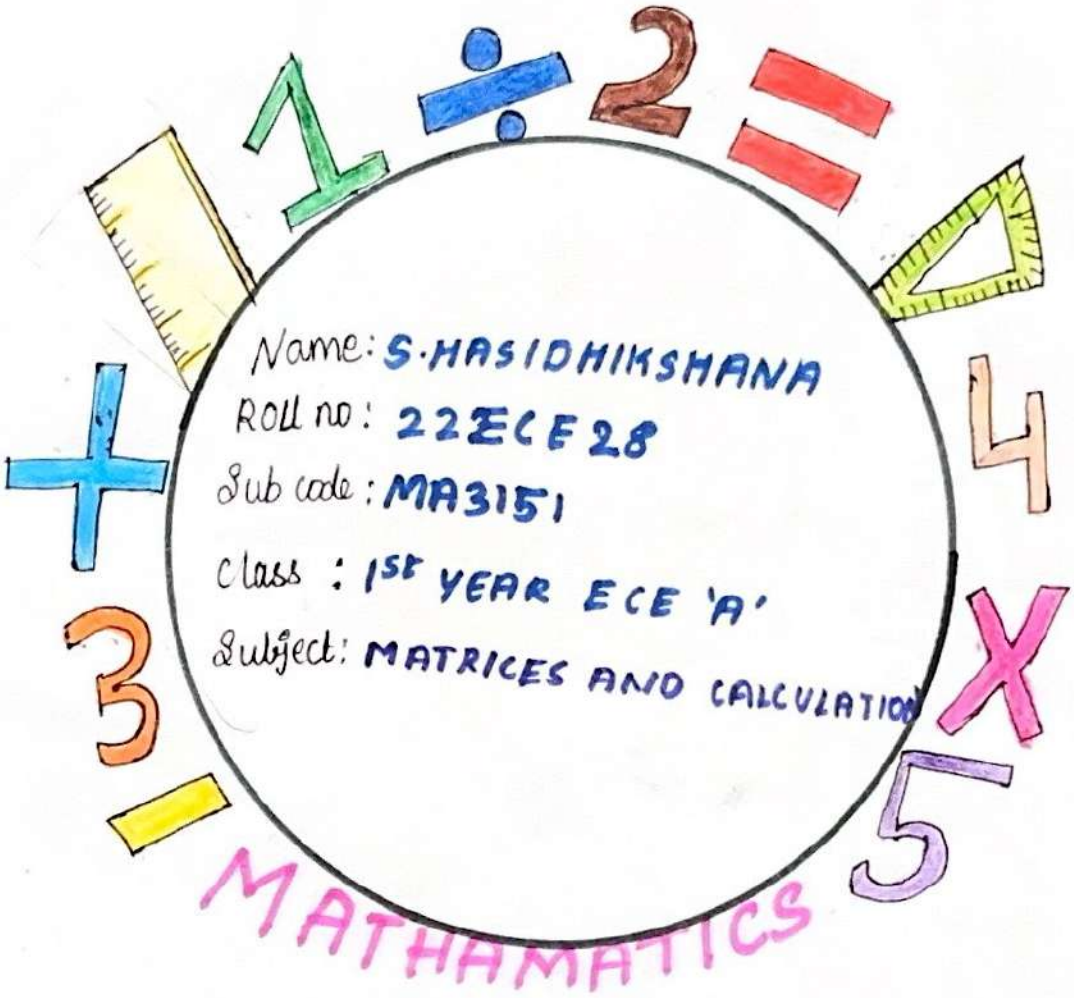
The hype around Apple products seems never ending. The Company's announcement of a new product collects millions of views. People stand lines in front of Apple stores to get a new gadget — just to come out the same place twelve months later, longing for a new product. Among the company's recent novelties is the iPhone 6 – a newer and more advanced version of the most popular phone in the the world. However, the previous model — iPhone 5s — seemed to have been satisfying people's needs fine as well. So, what is different? Is the iPhone 6 worth spending extra money on it?

The most obvious difference is that the new iPhone has got a bigger and wider display – it is now 4.7 inches in diagonal, compared to the 4 inches that its predecessor possessed. the new model has a larger resolution, which is 1334 x 750. The technology used in the screen is called "Retina HD" and is known to be one of the best screen technologies, allowing to transfer deep saturated, and realistic colours. iPhone 5s had nothing like that in its arsenal, both phones have strengthened glass covering the display but the 6th model also possesses an improved polarizer.

The overall design has not changed much, putting aside the fact that the iPhone 6 is bigger. It is thinner (6.8 mm thick, compared to 7.9 mm of the previous model), and slightly lighter: the differences are so subtle, however that they are not worth mentioning. Both models are made of aluminium. And have the distinct distinctive round button at the bottom. Currently, hundreds of tech obsessives bend over themselves trying to prove that iPhone 6 is much more comfortable to use, that it fits a hand of an average person perfectly, and so on. However, all these obsessives are probably male. iPhone 5s, although having a smaller screen, fits hands of women and teenagers. Whereas the new model reminds of a shovel, or of an average Samsung phone: okay to use if you are a man with a large hand, but not comfortable for women. The hardware difference between iPhone 5s and iPhone 6 are also not obvious to a normal user.

iPhone 6 uses a 64-bit APPLE A8 dual-core. whereas the older model has the A7 one. Both models have 1 GB RAM on board. iPhone 6 also has an M8 co-Processor (M7 co-P Processor in the iPhone 5S) Both models work fine with iOS 7. both cameras are traditionly perfect for semi Professional use. iPhone 6 work about about 10 hours. In talk mode.

Both Phones are high-quality products. able to satisfy the needs of anyone who use them. If you are not a geek who about Processor frequencies or a designer who have the eye to distinguish all the cmyk color range. There is no need for you to update from your iPhone 5S.


Name: S.HASIDHIKSHANA
Roll no: 22ECE28
Sub code: MA3151
Class : 1st YEAR ECE 'A'
Subject: MATRICES AND CALCULATION
MATHAMATICS

CAYLEY HAMILTON THEOREM.

① Cayley hamilton theorem states that the

ANS: Every square matrix statisfies own characteristic equation

② If the characteristic eqn of matrix of A order 2×2 is $\lambda^2 - 2\lambda - 1 = 0$, then by cayley hamilton theorem.

ANS: $A^2 - 2A - I = 0$

③ If the characteristic equation of matrix A of order 3×3 is $\lambda^3 - 3\lambda^2 + 3\lambda + 1 = 0$, then by cayley hamilton theorem.

ANS: $5A^2 + 9A - I = 0$

④ If the characteristic equation of matrix A order 2×2 is $\lambda^2 - 9\lambda - 1 = 0$ then cayley hamilton theorem A^{-1} is equal to

⑤ If the characteristic equation of matrix A of order 3×3 is $\lambda^3 - 3\lambda^2 - 3\lambda - 1 = 0$ then cayley hamilton theorem, A^{-1} is equal to

ANS: $A^2 - 3A + 3I$

⑥ cayley hamilton theorem is Verified for the matrix $A = \begin{bmatrix} 1 & 1 & 0 \\ 0 & 0 & 1 \\ 2 & 1 & - \end{bmatrix}$ using

ANS: $A^3 - 2A - I = 0$

① Cayley hamilton theorem states that the

ANS: Every square matrix statisfies own characteristic equation

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ANS: $5A^2 + 9A - I = 0$

④ If the characteristic equation of matrix A order 2×2 is $\lambda^2 - 9\lambda - 1 = 0$ then Cayley hamilton theorem A^{-1} is equal to

ANS: $A^{-1} = A - 9I$

⑤ If the characteristic equation of matrix A of order 3×3 is $\lambda^3 - 3\lambda^2 - 3\lambda - 1 = 0$ then cayley hamilton theorem, A^{-1} is equal to

ANS: $A^2 - 3A + 3I$

⑥ Cayley hamilton theorem is Verified for the matrix $A = \begin{bmatrix} 1 & 1 & 0 \\ 0 & 0 & 1 \\ 2 & 1 & - \end{bmatrix}$ using

ANS: $A^3 - 2A - I = 0$

⑦ Using Cayley Hamilton theorem A^{-1} for the matrix $A = \begin{bmatrix} 1 & 4 \\ 2 & 3 \end{bmatrix}$ is calculated from

ANS: $\frac{1}{5}(A - 4I)$

⑧ Using Cayley Hamilton theorem A^{-1} for the matrix $A = \begin{bmatrix} 1 & 4 \\ 2 & 3 \end{bmatrix}$ is calculated from.

ANS: $4A^2 + 5A$.

⑨ The given characteristic equation of matrix of order 3×3 is $\lambda^3 - 6\lambda^2 + 9\lambda - 4 = 0$, using Cayley Hamilton theorem simplified expression of $A^2 - 6A^4 + 9A^3 - 4A^2 + 5A - 3I$ is

ANS: $5A - 3I$

⑩ Characteristic for the equation the matrix $A = \begin{bmatrix} 1 & 3 & 0 \\ 2 & 2 & 0 \\ 0 & 0 & -1 \end{bmatrix}$ is given by

ANS: $\lambda^3 - 2\lambda^2 - 7\lambda - 4 = 0$.

⑪ If $A = \begin{bmatrix} 1 & 3 & 0 \\ 2 & 2 & 0 \\ 0 & 0 & -1 \end{bmatrix}$ then matrix is represented by $A^4 - 2A^3 - 9A - 5I$ is

ANS: $7A^2 + 5A + 5I = 0$

⑫ If $A = \begin{bmatrix} 1 & 1 & 1 \\ 0 & 2 & 1 \\ -4 & 4 & 3 \end{bmatrix}$ then matrix represented by $A^3 - 6A^2 + 8A - 2I$ is

ANS: $-8A + 4I = 0$

(13) Characteristic equation for the matrix $A = \begin{bmatrix} 2 & 1 & 1 \\ 0 & 1 & 0 \\ 1 & 1 & 2 \end{bmatrix}$ is given by

(14) The characteristic eqn of the matrix $A = \begin{bmatrix} 2 & 1 & 1 \\ 0 & 1 & 0 \\ 1 & 1 & 2 \end{bmatrix}$ and $\lambda^3 - 5\lambda^2 - 7\lambda - 3 = 0$ hence find the matrix represented by the $A^8 - 5A^7 + 7A^6 - 3A^5 + A^4 - 5A^3 + 8A^2 - 2A + I$

ANS: $A^2 + A + I$.

(15) If $A = \begin{bmatrix} 1 & 0 & 1 \\ 0 & 0 & 1 \\ 0 & 1 & 0 \end{bmatrix}$; then what is the value of $A^3 - A^2$

ANS: $(A - I)$

(16) If $A = \begin{bmatrix} 1 & 2 \\ -1 & 3 \end{bmatrix}$ find A^{-1}.

ANS: $\frac{1}{5}[4A + 5I]$

(17) If $A = \begin{bmatrix} 1 & 2 \\ 2 & -1 \end{bmatrix}$ then, $A^2 - 5I$ is

ANS: 0

(18) Using Cayley hamilton theorem if $A = \begin{bmatrix} 1 & 2 \\ 2 & -1 \end{bmatrix}$, find A^8.

ANS: $-4A+5I$

(19) If $A = \begin{bmatrix} 1 & 4 \\ 2 & 3 \end{bmatrix}$ then $A^5 - 4A^4 - 7A^3 + 11A^2 - A - 10I$ can be expressed as linear polynomial of A as.

ANS: $A+5I$

(20) The characteristic equation of matrix $A = \begin{bmatrix} 3 & 1 & 1 \\ -1 & 5 & -1 \\ 1 & -1 & 3 \end{bmatrix}$ is $\lambda^3 - 11\lambda^2 + 38\lambda - 40 = 0$ hence, A^{-1} is

ANS: $\frac{1}{40}[A^2 - 11A + 38I]$

Thank You.....