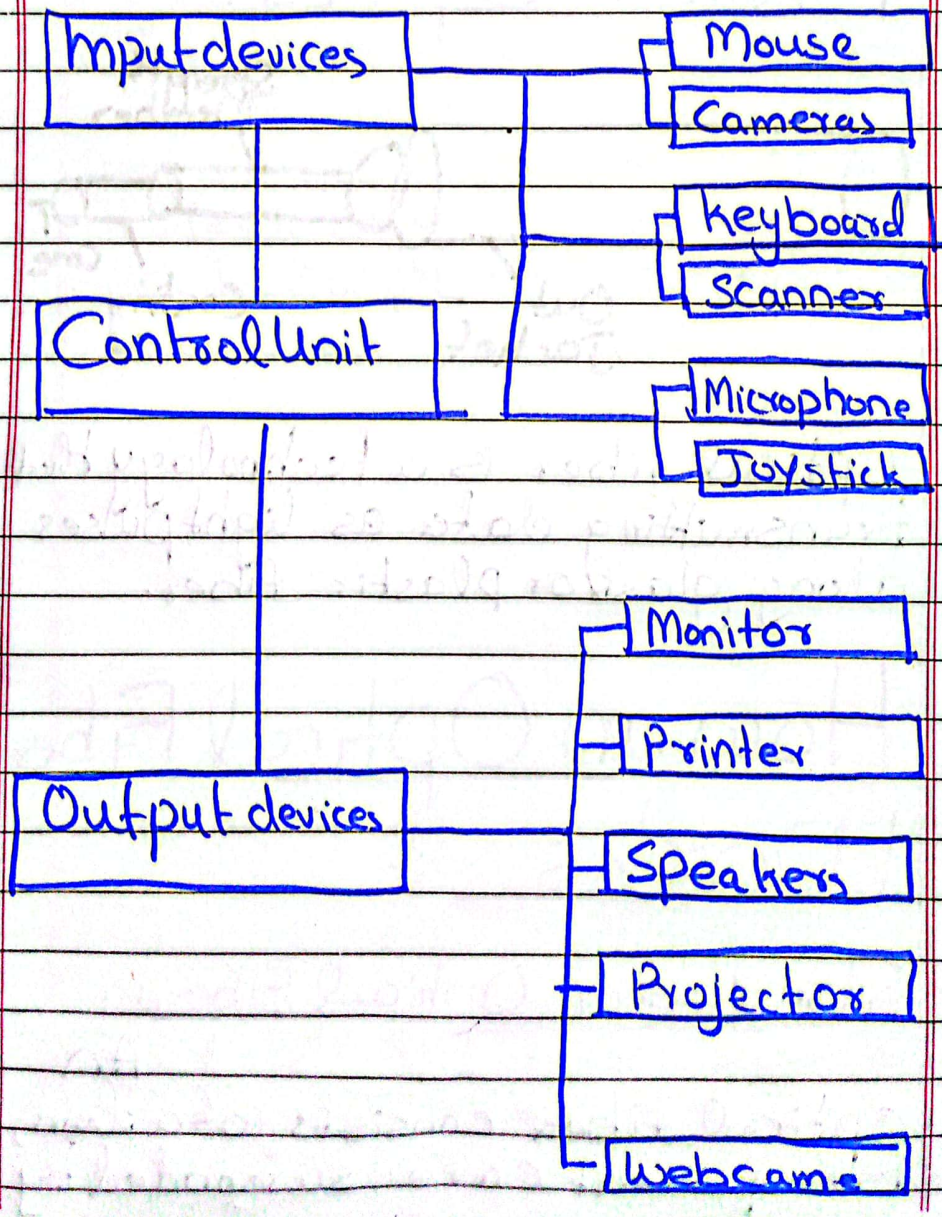
Date: Day:

Name :- Asad Ali
LMS ID :- 30306
Batch :- 54

Q5)
a)

Block Diagram of Input and Output devices



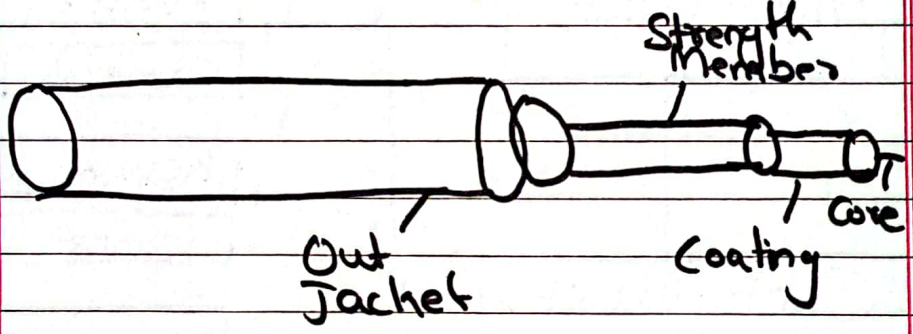
Date: Day:

b)

Optics :-

Optics is the branch of physics that deals with the behavior and properties of light including its interactions with matter and the construction of instruments that use to detect it.

Fiber Optics :-



Optical fiber is a technology that transmitting data as light pulses along glass or plastic fiber.

How an Optical Fiber Works :-

1) Structure of Optical Fiber.

An optical fiber consists of a thin, transparent core surrounded by

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cladding to both made of glass or plastic.

2) **Function of Core and cladding :-**

The refraction index of core must be greater than that of the cladding to confine the optical signal in the core through process of total internal reflection.

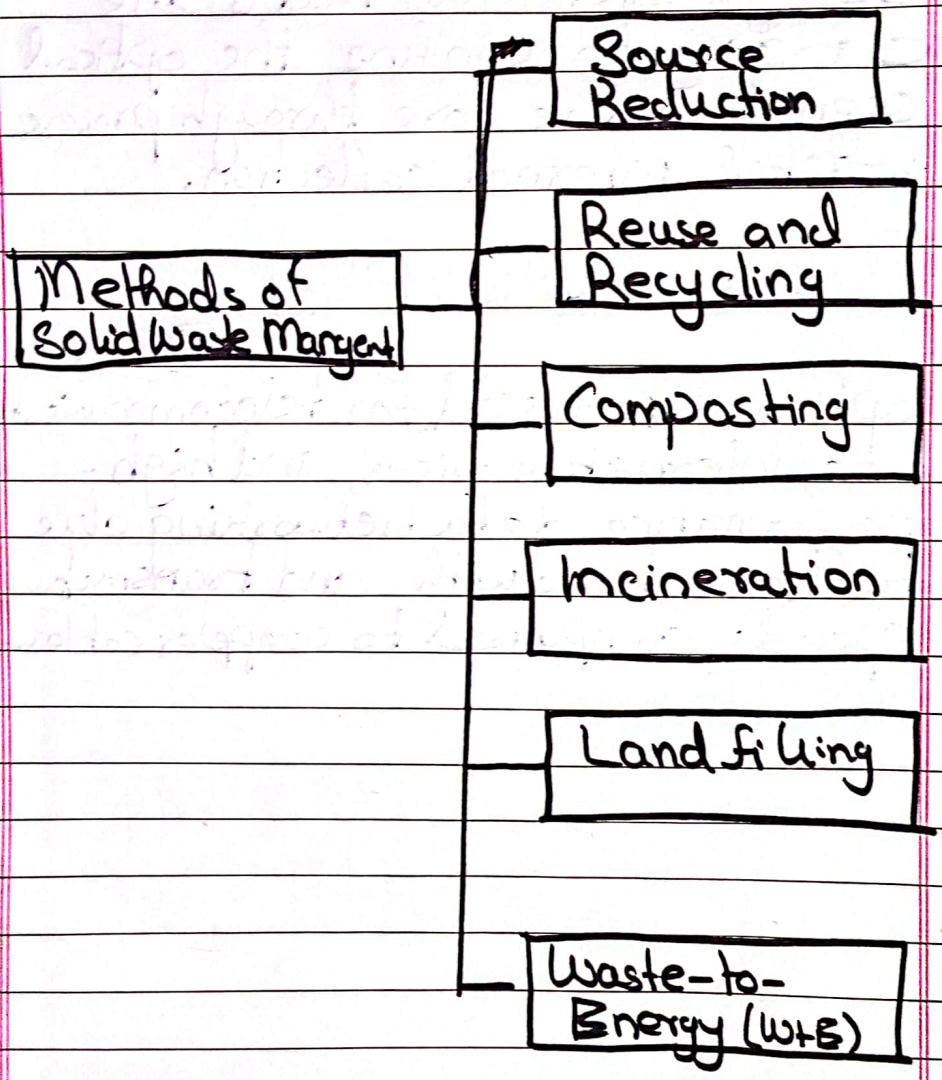
3) **Purpose of Optical Fiber :-**

Fiber optics are used for telecommunications, internet services, and high-performance data networking due to their bandwith and transmit speeds compared to copper cables.

Date: Day:

c)

Methods of Solid Waste Management:-



1) Source Reduction:-

This approach focuses on minimizing the generation of waste at the source. It involves strategies like product ~~dre~~ redesign, packing reduction

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2) ## Reuse and Recycling :-

Reuse and Recycling are important part. Reuse involving in the discard process of items again. Recycling is the process discard material into new products. This method divert waste from landfills.

3) ## Composting :-

Composting is a process that converts organic waste such as food scraps and yard triming into nutrient-rich compost. It used for soil amendent to improve soil quality.

4) ## Incineration :-

Incineration is the process of burning solid waste to reduce its volume and weight. It reduced waste volume

5) ## Landfilling :-

Landfilling is engineered disposal sites that solid waste is buried.

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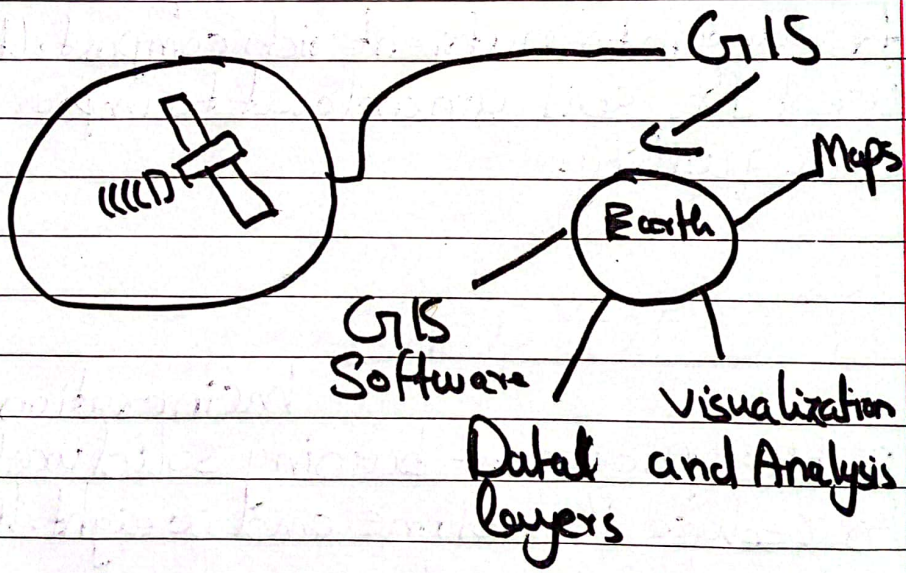
c) ~~Landfilling~~

b) Waste to Energy (WtE)

WtE facilities convert waste into energy. This process generate electricity or heat and reducing reliance on fossil fuel.

d) GPS and GIS :-



Global Positioning System (GPS) :-

GPS stands for Global positioning system that used in satellites orbiting

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the earth to send information to GPS receivers on the ground. It helps determine the location of objects or people. GPS is used for navigation.

Geographic Information System (GIS) :-

GIS stands for Geographic information System (GIS) and it is computer-based system used for capturing, storing, analyzing and visualizing geospatial data.

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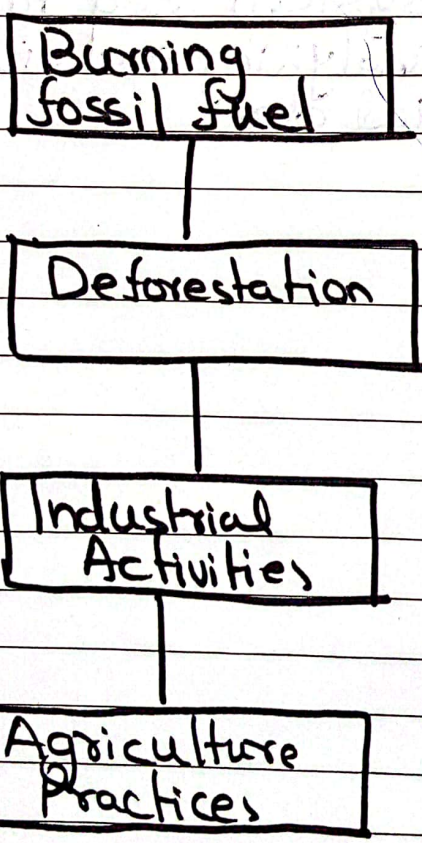
Q3)

a)

Global Warming:-

Global warming is a pressing issue that far-reaching consequences. It is often a "wild beast.

Our actions poking wild beast of Global Warming



1) Burning Fossil Fuel:-

The burning of fossil fuel

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release greenhouse gases such as carbon dioxide into atomsphere. These gases trap heat and causing warm planet.

2) Deforestation :-

Trees absorb carbon dioxide from the atomsphere to helping to regulate the climate. Deforestation released this stored carbon dioxide back into the atomsphere & causing global warming.

3) Industrial Activities :-

Industrail activities like manufacturing and power generation release greenhouse gases that cause global warming.

4) Agriculture Process :-

Certain agricylture process such as use of synthetic fertilizer etc releases greenhouse gases that contribute to global warming.

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b)

Origin of Universe :-

The origin of universe is one of the most profound and enduring mysteries in science. According to Big Bang theory, which believed that universe origin is about 13.8 billion.

Age of Universe can be Calculated :-

1) **Hubble's law and Expansion of Universe :-**

The age of universe can be estimated from Hubble's law that describe the relationship between distance to a galaxy and its recessional velocity.

2) **Semi-Conductors :-**

Semi conductors are the material that have electrical conductivity between conductors and insulators. They are used to electronic devices such as diodes, transistors

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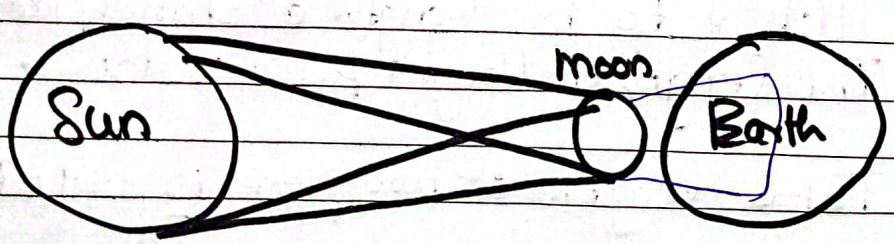
and integrated circuit. ~~They are~~ used. Semiconductor have properties that between conductors and insulators and their conductance can vary depending on the current or voltage applied to a control electrode or on intensity of irradation by infrared that visible to light and ultraviolet.

d) ## Eclipse :-

A eclipse is an astronomical event that occurs when one celestial body obscures from the view of an observer.

Solar Eclipse :-



The Solar eclipse occurs when the Moon passes between Earth and the Sun. This result is solar eclipse where moon completely covers the Sun.

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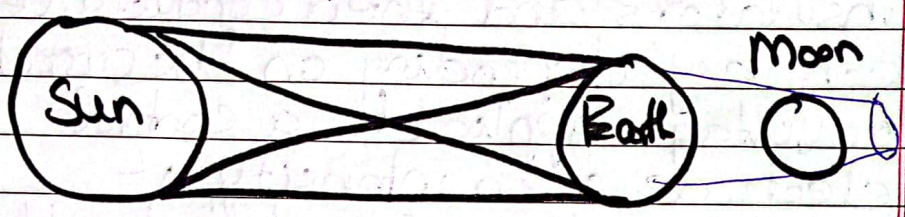
Lunar Eclipse :-



A lunar eclipse occurs when the Moon passes through Earth's shadow. This result is total lunar ~~ecl~~ eclipse where Moon is completely covered Earth's dark inner shadow.

Section-II

a)

Sol

Let x to be length of shorter piece

The length of longer piece = 4x

Total length of two pieces is x+4x

5x

$5x = 300\text{ ft}$

$x = \frac{300}{5}$

$x = 60$

Put x = 60 in

$4x = 240$

Therefore, length of two pieces are 60ft and 240ft

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c)

Sol

let x be total number of matches played during this year

Since team won 60% of matches and lost 24

$0.6x + 24 = x$

Subtract $0.6x$ both sides

$0.4x + 24 = 0$

$0.4x = -24$

Divide 0.4 both sides

$x = -60$

Therefore, the number of matches played during this year is 60.

d)

Sol

Solve through linear equations

$\frac{2x}{3} + 2 \cdot \frac{2x}{2} + 6 = 4.5$

Combine multiplied term in single fraction

$\frac{2x}{3} + \frac{2x}{2} + \frac{x}{2} + 6 = \frac{4}{5}$

Divide

$\frac{2x}{3} + 1 + \frac{x}{2} + 6 = \frac{4}{5}$

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Add numbers 7 and 1

$$\frac{2x}{3} + 7 + \frac{x}{2} = \frac{4}{5}$$

Find Common demominator

$$\frac{2}{2} \cdot \frac{2x}{3} + \frac{6}{6} + 7 + \frac{3}{3} \cdot \frac{x}{2} = \frac{4}{5}$$

Combine multiple term in single fraction

$$\frac{2^2x}{6} + \frac{6 \cdot 7}{6} + \frac{3x}{6} = \frac{4}{5}$$

All fractions in commondemonindor

$$\frac{2^2x + 6 \cdot 7 + 3x}{6} = \frac{4x}{5}$$

$$\frac{4x + 6 \cdot 7 + 3x}{6} = \frac{4}{5}$$

$$\frac{4x + 42 + 3x}{6} = \frac{4}{5}$$

$$\frac{7x + 42}{6} = \frac{30 \cdot 4}{5}$$

$$5(7x + 42) = 6 \cdot 4$$

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(Q7)

a)

Sol

$$\text{Attendence \%} = \frac{\text{No of Seat Occupied} \times 100}{\text{Total Capacity}}$$

$$\text{Attendence \%} = \left(\frac{325}{400}\right) \times 100$$

$$\text{Attendence \%} = 81.25\%$$

Therefore, the attendence at concert hall is 81.25% of total capacity.

b)

Sol

$$\frac{30 \text{ people}}{40 \text{kg sugar}} = \frac{80 \text{ people}}{x \text{ day}}$$

~~30 people × x days 40kg~~

$$30 \text{ people} \times x \text{ day} = 40 \text{kg sugar} \times 80 \text{ people}$$

$$x \text{ days} = \left(\frac{40 \text{kg sugar}}{80 \text{ people}}\right) 7$$

$$x \approx \text{days} = 10\,66.67$$

Therefore, it will take 1067 days for 80 people use 320 kg sugar