

TARGETING TNPSC



**GROUP-II / IIA
MAINS - 2023**

SCERT

QUESTION WITH
SIMPLIFIED
ANSWER



- 1. Science & Technology**
- 2. Administration Of Union and States**
- 3. Socio & Economic Issues in India**



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English Medium

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SCERT - SCIENCE & TECHNOLOGY

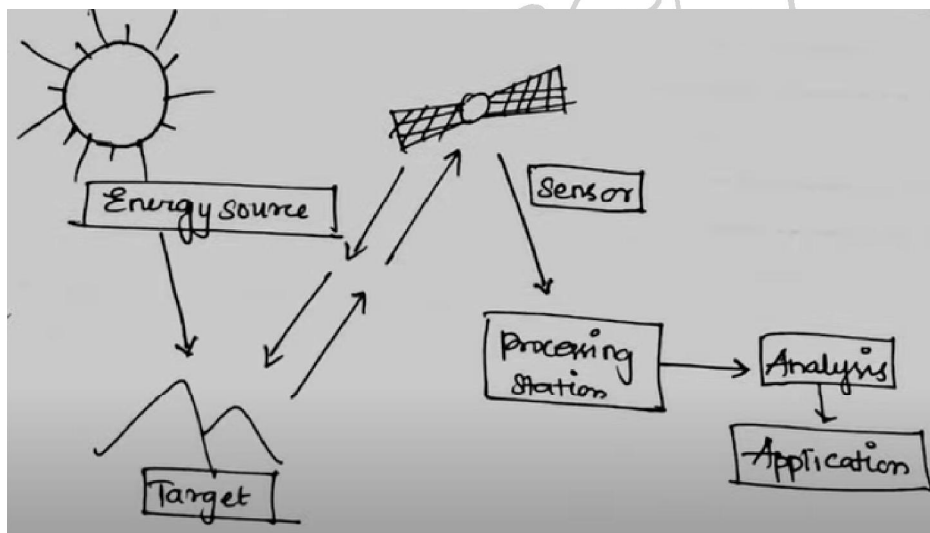
QUESTION WITH ANSWER

61. Geoinformatics:

1. Remote Sensing
2. Global Navigation satellite system GNSS
3. Geographic Information system

Remote Sensing:

Integrated discipline encompassing some branches of arts, science and technology of collecting information about the terrestrial object using camera and sensor system.



Elements of Remote sensing:

1. Energy source (Electromagnetic energy)
2. Radiation and the atmosphere
3. Interaction with the target.
4. Recording of energy by the sensor - Active / passive
5. Transmission, Reception and processing
 - Image Restoration
 - Image Enhancement
 - Information extraction

6. Interpretation and Analysis

Classification of remote sensing:

1. Source of electromagnetic energy
2. Passive remote sensing
3. Active remote sensing

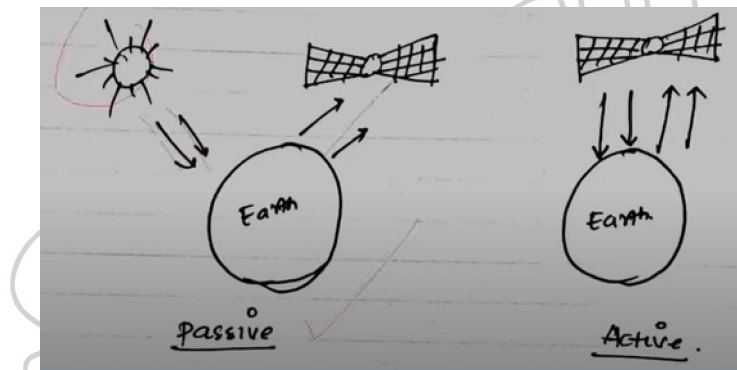
Passive Remote sensing:

- Depend on solar radiation to illuminate the target.
- Operate in visible and infrared region of electromagnetic spectrum
- Wavelength : 0.4 mm to 1.0 mm.

Active Remote Sensing:

- Generates and uses its own energy to illuminate the target.
- Microwave region
- Wavelength: Longer than 1 mm.

Examples: Synthetic, Aporture Radar, Laser beam remote sensing.



Remote sensing platform:

- To mount the camera / sensor to require information about a target under investigation.
1. Ground borne platform
 - Ladder, crane
 2. Airborne platform
 - Low altitude aerial
 - Balloon - 30 km (1859)
 - Drone, Aricraft
 - High altitude
 3. Space borne paltform
 - Satellites
 - Large area coverage.

Types of Satellite:

1. Geostationary satellite:

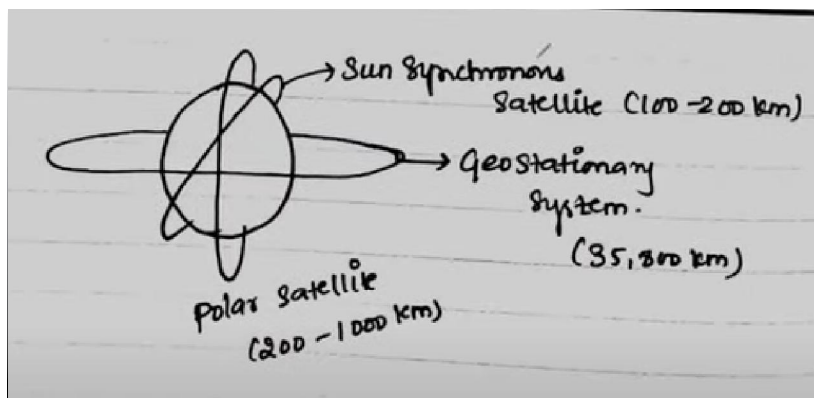
1. Equatorial west to east satellite orbiting the earth at an altitude of 35,000km
2. Revolution in 24 hours.
3. Coverage: Same place, same area day and night limited to 70°N to 70°S latitudes one satellite can view 1/3rd globe.
4. Application:
 - Communication and meteorological applications
 - METEOSAT, INTELSAT, INSAT Satellite
5. Apple: 1st Geostationary satellite launched by ISRO.

2. Polar orbiting / Sun synchronous satellite:

1. Orbit the Earth from pole to pole
2. Remote sensing satellites.
3. Example:
 - LANDSAT series
 - SPOT series
 - IRS series
 - SEASAT

3. Spy Satellites:

1. Observational platforms: Military and political purposes.
2. Used to verify arms control treaties such as SALT I, SALT II etc.
3. Four types:
 1. Photo reconnaissance systems - visible & infrared light
 2. Infrared telescope - detect missile launches.
 3. Radars - image sea / land through cloud cover and in darkness.
 4. Signal Intelligence (SIGINT) satellites - Formet



4. US and soviet Union - Greatest spy satellites.
5. Eg: Corona, Gaofen 4.

Applications of remote sensing:

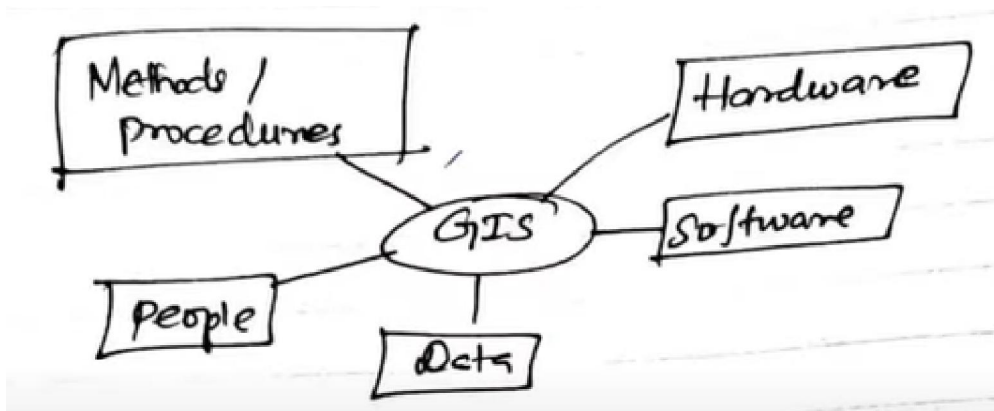
1. Agriculture
2. Forest management
3. Geology
4. Oceanography
5. Cartography
6. Meteorology
7. Topography
8. Urban Planning

Geographis Information system (GIS):

"Deals with entire geography of earth - land, ocean and atmosphere, the art, science and technology dealing with acquisition storage, processing, production, presentation and dissemination of earth's information".

Applications:

1. Geography
2. Environmental studies
3. Town planning
4. Rural development studies
5. Defence
6. Agricultural promotion.



Functions of GIS:

1. Data capture:

1. Aerial photography
2. Scanning, Digitizing
2. Data storage:
 1. Digital data - Hardcopy, CD
 2. Data models: Raster and Vector
3. Data Manipulation:
 1. Edited
 2. Available in the form of 'Toolkits'.
 3. Manipulation tools.
4. Query and Analysis

Global Navigation Satellite System (GNSS):

1. Collection of World's global satellite based positioning systems.
2. 1st satellite Navigation system - 'Transit' - deployed by US military - 1960's
3. Operations were based on the Doppler effect.
4. GNSS satellites orbit situated above 20,000km above earth's surface.

1. GPS (United states):

1. 1st GNSS system
2. Launched: Late 1970's by US dept of defence
3. Constellation of 24 satellites
4. Provides Global Coverage.

2. GLONASS (Russia)

1. Abbreviation of Global Navigation satellite system
2. By Russian Aerospace Defence forces
3. Comprised of Uran satellite: 5 to 7 years
4. New satellites launched to fill the gap due to ageing satellite.

3. GALILEO (European Union)

1. Under Civilian Control
2. Galileo interoperable with GPS and Glonass.
3. 30 satellites - 24 operational + 6 spare satellite
4. Circulate in medium Earth orbit on 3 orbital planes.

4. BEIDOU (China):

1. 2 separate satellite constellations.
 - Beidu
 - Beidou 3.
2. Medium Earth orbit, Geosynchronous orbit
3. Also known as compass navigation satellite system

5. Japan Aerospace Exploration Agency (QNSS Japan)

1. Service to Japan and Asia - Oceania region.
2. Satellite in quasi - zenith orbits (QZO)
3. Called as Japanese GPS

6. IRNSS - Indian Regional Navigation Satellite System:

1. Developed by ISRO
2. Provide Geospatial positioning information within Indian sub continent.
3. To cut down India's dependency on foreign navigation satellite systems.
4. Service to users in India and the region extending upto 1,500 km from Indian boundary.
5. 7 satellites - 3: Geostationary orbit
 - 4 : Inclined Geosynchronous orbit.
5. Came into usage - 2016
7. Two Services:
 - Standard position service (sps) - civilian, research & commercial use.
 - 2. Restricted Service (RS) - Authorized users.

Applications of GNSS:

1. Consumer
2. Transportation
3. Port Automation
4. Machine control
5. Precision Agriculture
6. Surface Mining
7. Survey

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QUESTION WITH ANSWER

62.

- Photosynthetically Active Radiation
- Ecosystem management
- Biogeochemical cycle

a) Photosynthetically Active Radiation

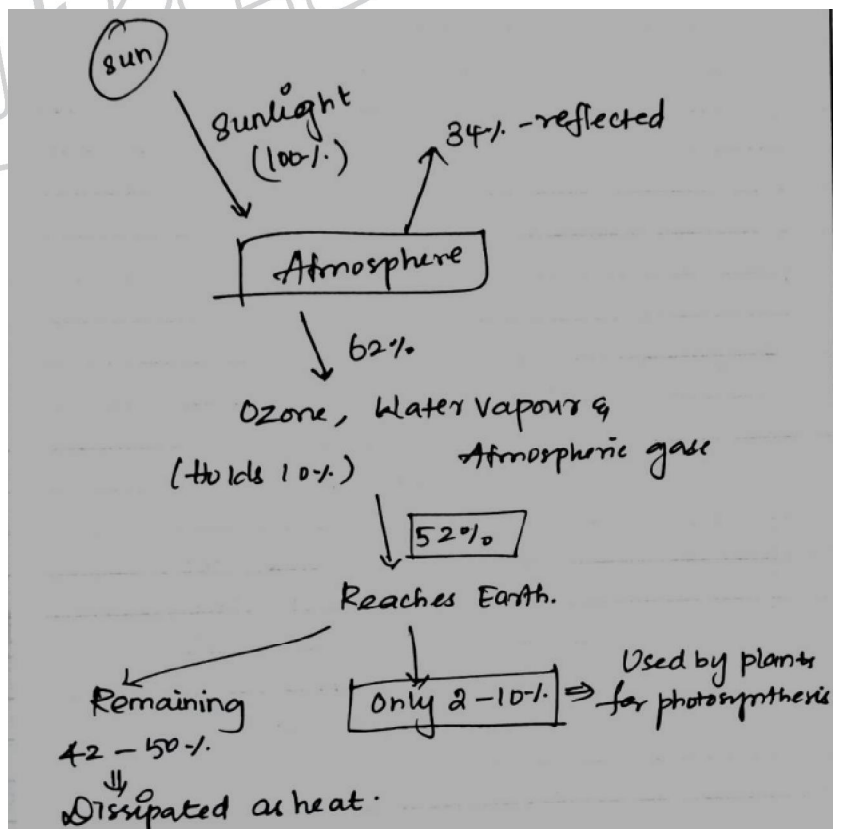
"The amount of light available for photosynthesis of plants - PAR" (400-700nm)

Need:

- Photosynthesis
- Plant growth

PAR:

- Not always constant
 - due to clouds, dust particles, air, seasons, latitude, length of day light
- Generally plant absorb blue and red light of effective photosynthesis.
- Generally expressed : Milli-moles / Squaremeter / Second
- Silicon photovotic detectors - detect only 400 - 700nm light
- Value ranges from 0 to 3000 millimoles / square meter / second



Night - 0 PAR

Midday in summer - 2000 - 3000 millimoes / Square meter / second.

b) Ecosystem management

Integrating ecological, socio economic and institutional factors into a comprehensive strategy to sustain and enhance the quality of ecosystem to meet current and future needs.

Emphasis

1. Judicious use of ecosystem
2. Obtain sustained benefits through minimal human impacts on ecosystem.

IUCN : By 2025 - 3.5 Bn people (~50% of world's population) - Face water scarcity.

Forest - 50% of global biodiversity

- 300 Mn ppl dependent on livelihood

Strategy of ecosystem management :

1. Helpful in identifying ecosystems in need of rehabilitation.
2. Helps to indicate damaged ecosystem (flagship species)
3. Used to maintain Ecosystem biodiversity
4. Recognize inevitability of ecosystem change and plan accordingly.
5. Tool to achieve sustainable ecosystem through sustainable development programme
6. Involves collaboration management
 - Govt. agencies, local population, NGO's, communities.
7. Build capacity of local community for longterm ecosystem management.

c) Biogeochemical cycle / Nutrient cycles

Circulation of Nutrients within the ecosystem or biosphere - Biogeochemical cycles / cycling of materials

2 types

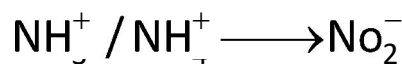
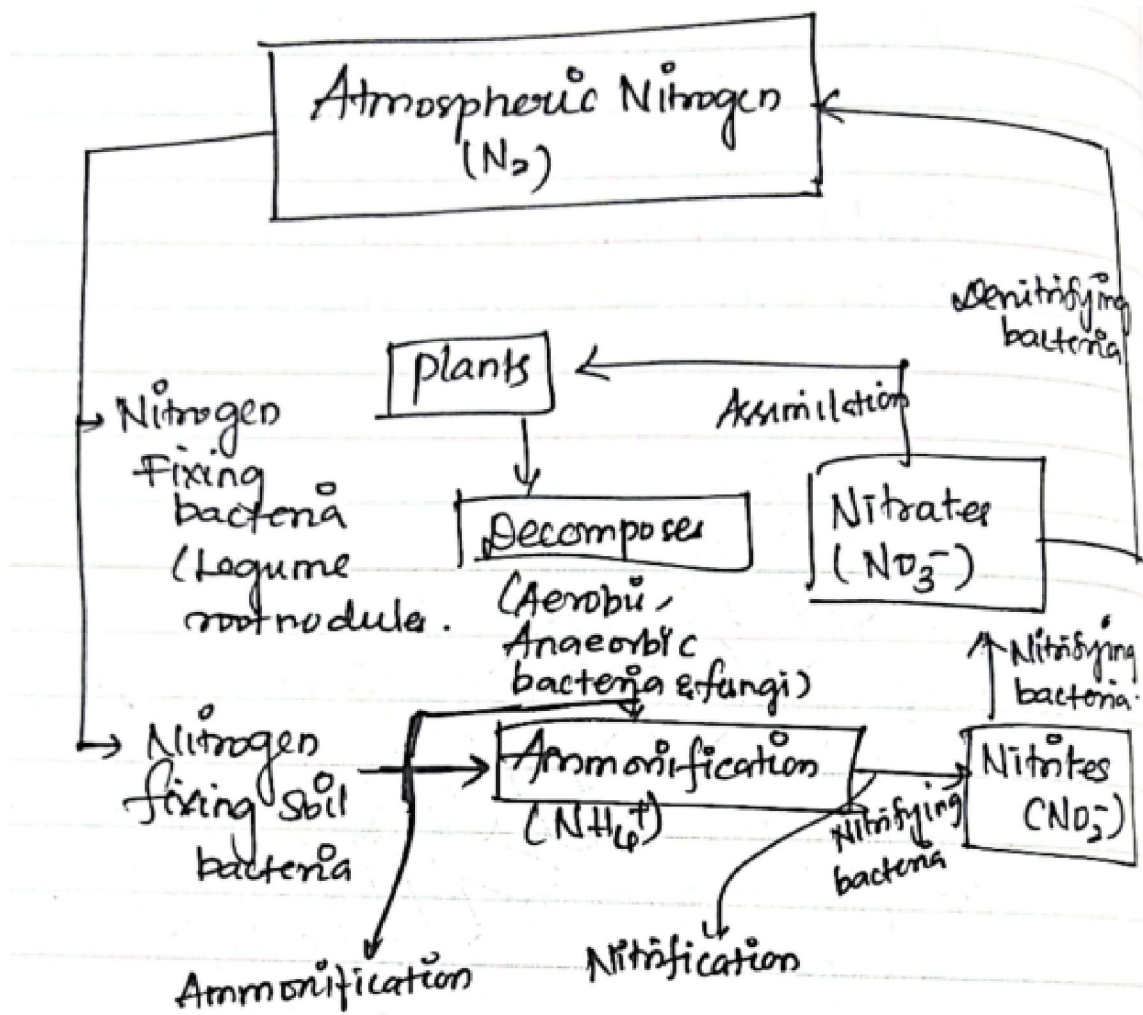
1. Gaseous cycle

1. Includes Atmosphere
2. Oxygen cycle, Carbon cycle, Nitrogen cycle

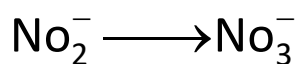
2. Sedimentary cycle

1. Phosphorus - Sulphur, Calcium
2. Source : Sediments of earth

1. Nitrogen Cycle

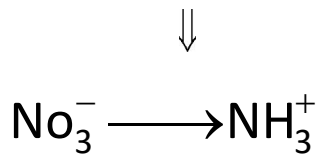


Nitrosomonas bactorium



Nitrobacter bacterium

Assimilation



Ammonification



Organic Nitrogen decomposed → Ammonia

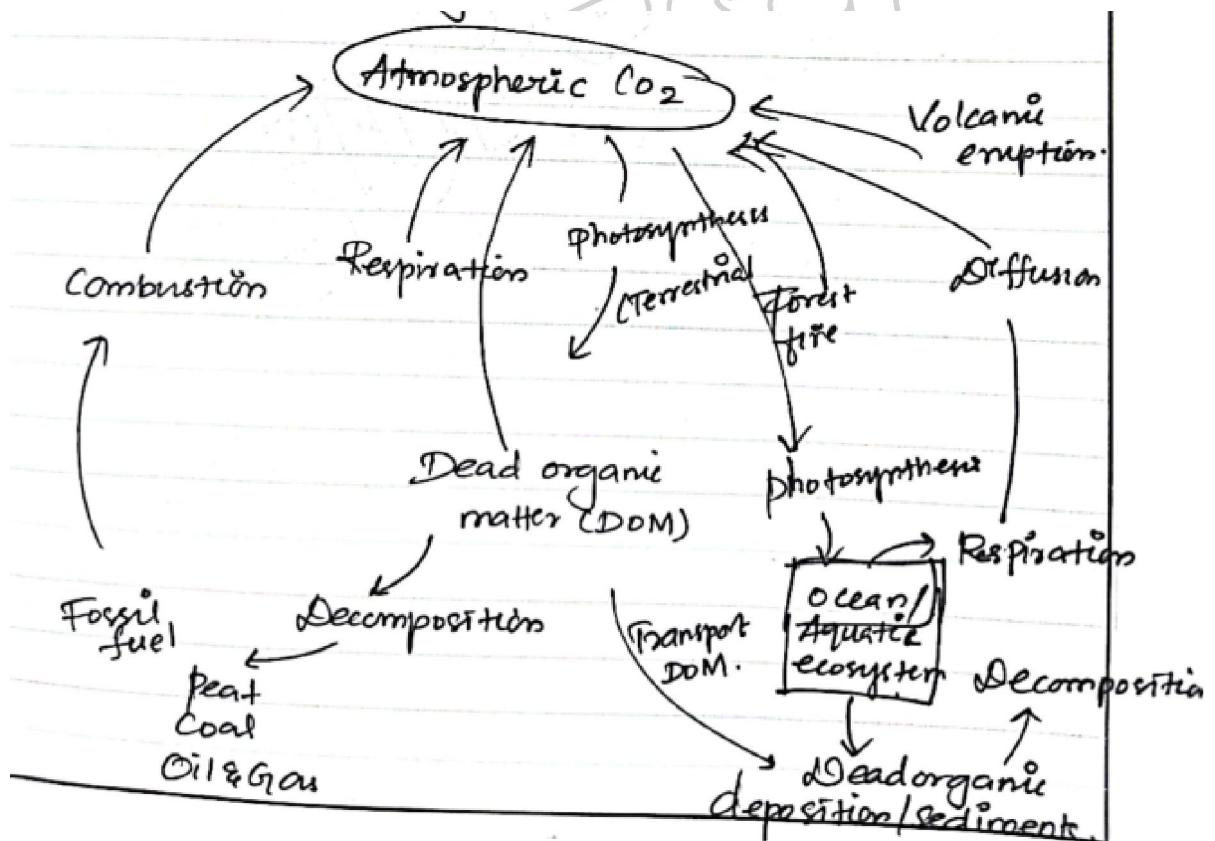
Nitrates → Atmospheric N₂



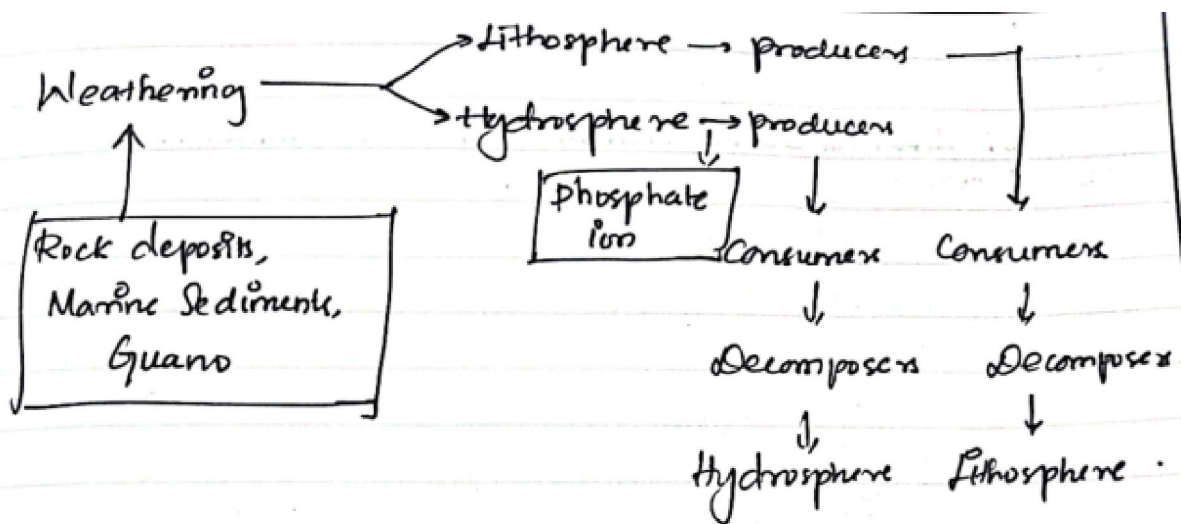
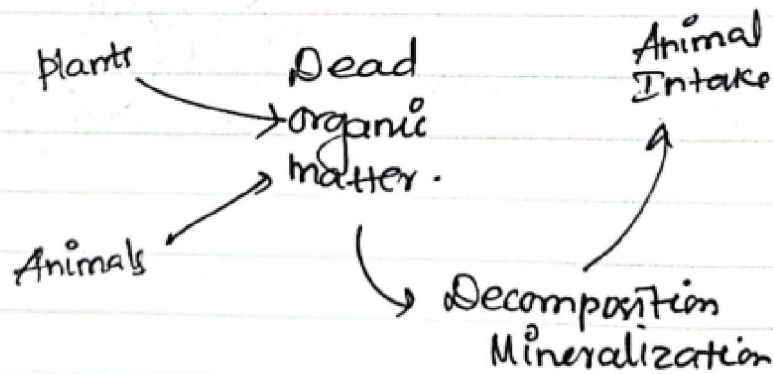
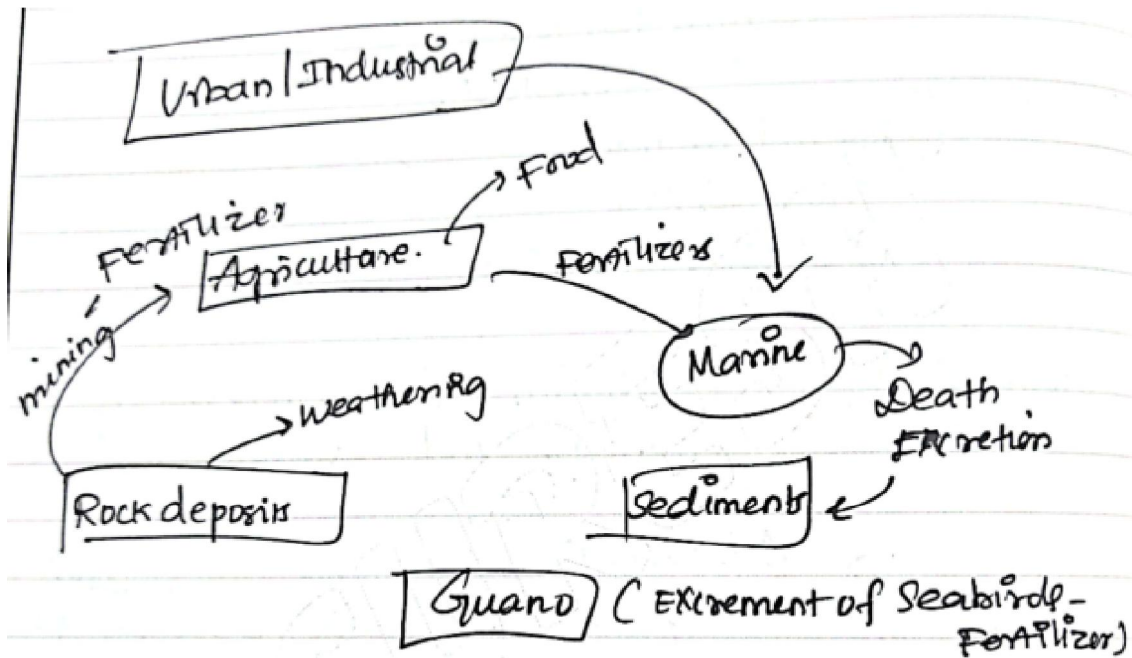
Pseudomonas
Thiobacillus
Bacillus subtilis

2. Carbon Cycle :

"Circulation of carbon between organisms and environment"



3. Phosphorous Cycle



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QUESTION WITH ANSWER

Write notes on

63.

- a) Ozone depletion
- b) Agro & Social Forestry
- c) Bio Fertilizers

a) Ozone depletion

Ozone Layer: (Ozone shield)

- Region of earth's stratosphere that absorbs most of the Sun's ultraviolet radiation (α & β)

Good ozone

- Ozone layer of stratosphere

Bad ozone

- Ozone layer of Troposphere

Ozone

1. Colourless gas
2. Reacts readily with air pollutants.

Ozone hole:

1. Chemicals like CFC's damages ozone shield - CFC's released from refrigeration, aerorols, chemicals used by cleaner.
2. Decline in thickness of ozone layer over restricted area is called ozone hole.

Dobson Units - Thickness of ozone column of air from ground to top of the atmosphere is measured in terms of DU.

Results of ozone depletion: (in stratospheres)

1. Results in more UV radiations - UVB (shortwaves)
 - destroys biomoleculus causing skin ageing.
 - Damage living tissues.
2. UV - C: Most damaging type

- completely filtered by atmosphere (ozone layers)
3. UV - A: contribute 95% of UV radiation.
- Causes tanning, burning of skin enhance skin cancer.

International agreements:

1. Vienna convention:

- Agreed at vienna conference, 1985
- Entered into force: 1988
- Provide framework to create regulative measures in the form of montreal protocol

2. Montreal protocol (1987):

- Held in Canada.
- Substances that deplete ozone layer.

Goal:

1. Gradually eliminating production and consumption of ozone depleting substances
2. Limit their damage on the Earth's ozone layer.

3. Clean Development Mechanism (CDM):

1. Defined in kyoto protocol (2007)
2. Two objectives:
 1. Prevent dangerous climate change.
 2. Reduce Green house gas emissions.
3. Helps countries to reduce / limit emission.
4. Stimulates sustainable development.
5. Projects can earn Certified Emission Reduction (CER) with credits / scores
 1. Each equivalent to one tonne of CO₂
 2. Counted towards meeting kyoto targets.

Effects of Ozone depletion:

1. Increases the incidence of
 - Cataract
 - Throat & Lung irritation
 - Aggravation of asthma / emphysema
 - Skin cancer
 - Reduce functioning of immune system in humans.

2. Juvenile mortality of animals.
3. Increased incidence of mutations.
4. Photosynthesis inhibited
 - Increased atmospheric CO₂
 - Global warming
 - Shortage of Food
5. Increase in temperature changes climates and rainfall pattern.

b) Agro Forestry:

1. Integration of trees, crops and livestock on the same plot of land.
2. Intercropping of two or more crops - different species of trees and shrubs
 - Results in higher yielding
 - Reduce operating costs
 - Increased bio diversity
3. Major species cultivated in commercial agroforestry
 - Eucalyptus, Malai vembu, Tea's, Kadambu trees.
 - Importance to wood based industries.

Benefits:

1. Soil & water conservation, stabilise the soil, reduce landslide & water run off
2. Nutrient cycling between species improves and organic matter is maintained.
3. Trees provide micro climate for crops and maintain O₂ - CO₂ balanced, atmospheric temperature & relative humidity.
4. Alternate land use pattern
5. Multipurpose tree varieties - Acacia
 - Used for wood pulp, tanning, paper & firewood industries.
6. Used as farm forestry for extension of forests, mixed forestry, shelterbelts & inear strip plantation.

'Silvopasture system' - Production of woody plants combined with pastrure

Categories

1. Protein bank
 - Multipurpose trees planted in & around farm lands
 - Used for Fodder production

2. Livefence - Fodder trees & hedges

- to protect property from stay animals / other biotic influences.

Social Forestry

Management of forests and afforestation on barren lands - social forestry

1. Sustainable management of forests by local communities.
2. Purpose:
 1. Climate carbon sequestration
 2. Change mitigation
 3. Depollution
 4. Deforestation
 5. Forest Resteration
 6. Indirect employment for youth.
 7. Environment, social & rural development and benefits.
3. Trees grown outside forests by government and public organization reduce pressure on forests.
4. In Tamilnadu - 32 Forestry extension centres, provide technical support for tree growing in rural areas.
5. Tree cultivation inprivats lands: 2008 to 2011 - 12

Major activities

1. Training on tree growing methods.
2. Publicity & propaganda, awareness creation.
3. Supply of seedlings on subsidy

c) Bio Fertilizers:

"Preparations containig living cells / latent cells of efficient strains of microorganisms"

1. Applied through seed / soil
2. Also called
 - Microbial cultures.
 - Bioinoculants
 - Bacterial inoculants.
 - Bacterial fertilizers.
3. Uses:
 1. Fixing Nitrogen

2. Solubilising phosphate
3. Decomposing cellulose
4. Improve soil fertility, plant growth
5. Increase number and biological activity of beneficial micro organisms in soil.

Rhizobium

1. Symbiotic bacteria - reside inside root nodules
2. Convert atmospheric nitrogen into bio available form to plants.
3. Best sustable for paddy fields
4. Increase yield by 15 - 40%

Azolla:

1. Free floating water form
2. Fixes atmospheric nitrogen in association with nitrogen fixing blue green alga - Anabaena azolla.
3. For wetland rices cultivation
4. Contribute 40 - 60 kg / ha/ crop

Arousular myconhizas:

1. Symbiotic association between phycomycetons fungi and angiosperm roots.
2. Dissolve phosphates found in soil
3. Other benefits:
 - Resist disease, germs, unfavourable weather conditions
 - Water availability

Seaweed liquid Fertilizer:

1. Contains cytokinin, gibberellins & aurin, micro & macro nutrients
2. Made from kelp (boron algae) grows to 150 metre
3. Organic & ecofriendly, vigorous growth
4. Retain moisture for long time, provide carbohydrates for plants.
5. Improve resistance to frost & disease.

Bio Pesticides:

Biological agents used for control of plant pests.

1. Non toxic, cheaper, ecofriendly.

Trichoderma:

1. Free living fungi common in soil & root ecosystem.
2. Benefits:
 1. Control plant disease.
 2. Enhance root growth development
 3. Crop productivity
 4. Resistance to abiotic stresses.
 5. Uptake & use of nutrients.

Beauveria:

1. Entomopathogenic fungus
2. Acts as parasite on various arthropod species
3. Controls damping off of tomato by *Rhizoctonia solani*.

Green Manuring:

Growing of green manure crops and use of these crops directly in field by ploughing

Objective:

1. Increase content of nitrogen in soil
2. Improves structure and physical properties of soil.

Eg:

- *Crotalaria juncea*.
 - *Tephrosia purpurea*
 - *Indigofera tinctoria*
3. Green insites manuring / green leaf manuring.

Green insites manuring:

- Application of green manuring crops in border rows / as intercrops along with main crops.

Eg:

- Sun hemp, cowpea, Green gram

Green leaf manuring:

- Application of green leaves and twigs of trees, shrubs, plants growing in wastelands & field bunds.

Eg: *Pongamia pinnata* *cassia fistula*.

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QUESTION WITH ANSWER

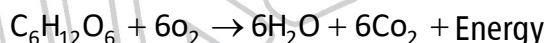
64. Respiration

Respiration:

1. It is a biological process
2. Carbohydrates, proteins and fats undergo oxidation and release energy
3. O₂ is taken in and CO₂ is liberated.

Respiratory substrates:

1. Organic substances which are oxidized during respiration.
2. Glucose - Commonest respiratory substrate.
3. Energy released during respiration is stored in the form of ATP.
4. Heat is liberated.



types

1. Aerobic Respiration
2. Anaerobic Respiration

1. Aerobic Respiration

1. Occurs in presence of oxygen.
 - Carbohydrates fats proteins → Complete Oxidation → C₂, H₂O released energy

States:

- Glycolysis → Pyruvate oxidation → Krebs cycle → Electron Transport chain

↓

- 6 Carbon Glucose
- 2 molecules - 2 carbon pyruvic acid
- Link reaction
- TCA cycle
- Terminal oxidation.

2. Anaerobic Respiration

1. In absence of molecular oxygen glucose is incompletely degraded.
2. Glucose : Ethyl Alcohol (or) Lactic acid

Steps:

- Glycolysis
- Fermentation
 - Alcoholic → Lactic acid → Mixed acid

	Aerobic respiration	Anaerobic respiration
1.	Occurs in all living cells of higher organisms	Occurs in Yeast and some Bacteria.
2.	Requires Oxygen for breaking the respiratory substrate	Oxygen is not required.
3.	End products: CO ₂ & H ₂ O	End products: Alcohol & CO ₂ / Lactic acid
4.	1 molecule of Glucose → 36 ATP molecules	2 ATP molecules produced
5.	4 stages	2 stages
6.	Occurs in cytoplasm and mitochondria	Occurs only in cytoplasm

Climacteric:

- Abnormal rise in respiratory rate of ripening in fruits.

Eg:

- Apple, Banana, Mango

Respiratory Quotient (RQ)

- Respiratory = $\frac{\text{Volume of CO}_2 \text{ Liberated}}{\text{Volume of O}_2 \text{ consumed}}$
- $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 \uparrow + 6H_2O + \text{Energy}$
- RQ of glucose = $\frac{6CO_2}{6O_2} = 1$

During anaerobic respiration:

- $C_6H_{12}O_6 \rightarrow 6O_2 + 2CO_2 + H_5OH + \text{Energy}$
- RQ of glucose anaerobically $\frac{2}{0} = \infty$
- RQ of protein = 0.8 - 0.9
- Apparatus used for determining respiration - Ganong's Respiration.

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QUESTION WITH ANSWER

65. Doppler Effect and its applications

1. Observed & Explained : Christain Doppler
- The frequency of the sound as received by a listener is different from the original frequency produced by the source whenever there is a relative motion between the source and the listener.

Relative motion due to various possibilities

1. Listener move towards or away from a stationary source.
2. Source moves towards or away from a stationary listener.
3. Both source and listener move towards / away from one another
4. The medium moves when both source and listener are at rest.

Condition for no doppler effect

- The apparent frequency as heard by the listener will be same as the source frequency.
 1. When source and listener are at rest.
 2. S and L move in such a way that distance between them remains constant.
 3. S and L are moving i mutually perpendicular directions.
 4. Souce is situated at centre of the circle along which the listener is moving.

Applications:

1. To measure the speed of an automobile;
 - Electromagnetic wave emitted by source attached to police car.
 - Moving vehicle reflects the wave - moving source.
 - Shift is frequency of reflected wave
 - Helps to track over speeding vehicles.
2. Tracking a satellite.
 - Satellite passes away from Earth
 - Frequency of radiowave emitted decreases.
3. RADAR - Radio detection and ranging:
 - Radio waves sent
 - Reflected waves detected - frequency change
 - Speed & Location of aeroplanes and aircrafts tracked.
4. SONAR
 - Change in frequency between sent signal and received signal
 - Speed of marine animals and submarines are determined.

66

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66. Atomic Radius, Ionic Radius and Electron Affinity

1. Atomic Radius:

1. Distance between the centre of its nucleus and the outermost shell containing the valence electron
2. Direct measurement of radius of an isolated atom is not possible.

Atomic radius

1. Covalent radius

- Non metallic elements
- Half the distance between the adjacent nucleus of 2 covalently bonded atoms of same elements in a molecule.

2. Metallic radius

- In metal atoms
- Half the distance between nuclei of adjacent metal atoms.

Along periodic table:

1. From left to Right

- Atomic radius of elements decreases.
- Shell number remains the same.
- Number of protons (Atomic number) increases
- More positive charge, more attraction over the electrons.

2. From top to Bottom

- Atomic radius increases.

- Increase in valence shell number down the group
- Distance between valence shell and nucleus increases

2. Ionic radii

- Distance from the centre of nucleus of ion upto the point where it exerts its influence on the electron cloud of the ion.
- Neutral atom - Electron \rightarrow cation (+ve)
- Neutral atom + electron \rightarrow Anion (-ve)
- Size of cation always smaller than its corresponding neutral atom.
- Anion is larger than its neutral atom
- Ionic radii along the period
 - Decreases along left to Right
 - Increases down the group.

3. Electron Affinity

- Amount of energy released when an isolated gaseous atom gains an electron to form its anion.
 - Increases from left to right in period.
 - Decreases from top to bottom in a group
 - Noble gases electron affinity is zero.

4. Ionization energy / Enthalpy:

- Minimum energy required to remove an electron from an isolated gaseous atom to form a cation
 - Increases from left to right
 - Decreases from top to bottom.

5. Electronegativity:

- Measure of tendency of its atoms to attract the shared pair of electrons towards itself in a covalent bond.

Example:

1. HCl molecule

- H - Cl (Covalent bond) → Each share one electron.
- Cl → Higher electronegativity



- Based on Bond energy, Ionization potential, Electron affinity etc.
- F = 4.0, Cl = 3.0, Br = 2.8, I = 2.5, H = 2.1, Na = 1
- Difference in electronegativity
- 1.7 - 50% Ionic, 50% covalent
- < 1.7 - More covalent
- > 1.7 - More Ionic.
- Left to right - Increases (Increase in nuclear charge)
- Top to Bottom - Decreases (Increases in valence shells)

	In periods	In Groups
Atomic radius	Decrease	↑
Ionic radius	↓	↑
Ionization energy	↑	↓
Electron Affinity	↑	↓
Electro negativity	↑	↓

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QUESTION WITH ANSWER

67. Carbon and its compounds:

a) Ethanol (C₂H₅OH)

1. Manufacture:

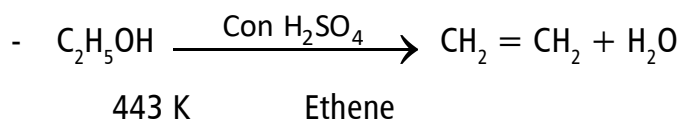
- Dilution of molasses
 - diluted with 8 to 10% water
- Addition of Nitrogen source
 - If N₂ is poor, fortified by adding ammonium sulphate / ammonium phosphate.
- Addition of yeast
 - 303K for few days sucrose → ethanol
 - ↑ Invertase & zymase enzymes
- Distillation of wash
 - Fermented liquid wash (15 to 18% alcohol)
 - Rectified spirit (95.5% Ethanol, 4.5% Water)
 - Reflected over quick lime - 50 to 6 hrs + Allowed to stand - 10 hrs.
 - Pure alcohol (100%) - Absolute alcohol.

Physical properties:

1. Colourless liquid.
2. Pleasant smell, burning taste.
3. Volatile liquid.
4. Boiling point much higher than its corresponding alkane (78°C)
5. Completely miscible with water in all proportions.

3. Chemical properties:

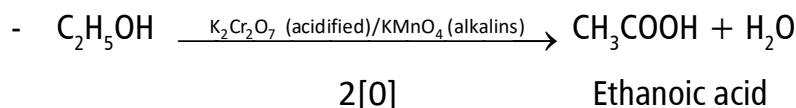
1. Dehydration:



2. Reaction with sodium.

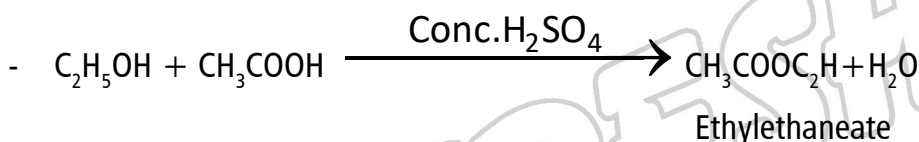
- Form sodium ethoxide and hydrogen gas.

3. Oxidation:



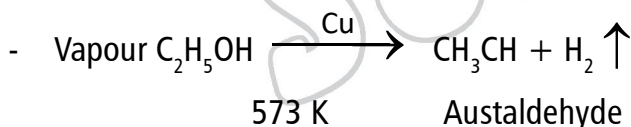
- Orange colour of $\text{K}_2\text{Cr}_2\text{O}_7$ changes to green
- Identification of alcohols.

4. Esterification:



- Ester - Fruity odour.

5. Dehydrogenation:



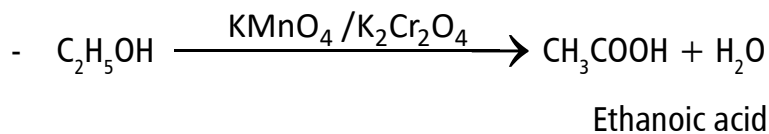
6. Combustion:

- Highly Inflammable liquid.
- $\text{C}_2\text{H}_5\text{OH} + 3\text{O}_2 \xrightarrow{\Delta} 2\text{CO}_2 + 3\text{H}_2\text{O}$

Uses:

1. Antiseptic - Medical wipes, sterilize wounds.
 2. Antifreeze in automobile radiators.
 3. Hand sanitizers - killing micro organisms
 4. Solvent for drugs, oils, fats, perfumes, dyes etc.
 5. Methylated spirit : 95% Ethanol + 5% Methanol
- Rectified spirit : 95.5% Ethanol + 4.5% water.

- Power Alcohol : Petrol + Ethanol
 - Denatured spirit : Ethanol + Pyridins
6. Enhance flavour of food extracts.

b) Ethanoic acid (CH₃COOH):**1. Manufacture:****2. Physical Properties:**

1. Colourless liquid, unpleasant odour
2. Sour taste
3. Miscible with water in all proportions
4. Boiling point: higher than corresponding alcohols, aldehydes and ketones.
5. Cooling: Frozen to form ice like flakes glacial acetic acid.

3. Chemical Properties:

- Reacts with metals to liberate Hydrogen.
- 2. Reacts with sodium carbonate and bicarbonate to produce CO₂ & H₂O (with brisk effervescence)
- 3. Acetic Acid + Sodium hydroxide gives Sodium acetate + Water
- 4. Sodium Salt gives Methane and Sodium carbonate in the presence of Sodium hydroxide / Calcium oxide

4. Uses:

1. Lower concentration - Vinegar.
 - Food additive, Flavoring agent & preservative.
2. Manufacture of plastic.
3. Making dyes, pigments and paint
4. Printing on fabrics
5. As laboratory reagent
6. Coagulating rubber from latex
7. Production of pharmaceuticals.

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TNPSC GROUP II / IIA MAINS

SCERT - ADMINISTRATION OF UNION AND STATES

QUESTION WITH ANSWER

68.

- a) Powers and privileges of houses of parliament members and committees
b) Lok Sabha vs Rajya Sabha

a) Powers and privileges:

Categories

1. Under Art 105
 1. Freedom of speech in each house of parliament
 2. Immunity from proceedings in any court
 - Anything said / voted by a member
 3. Immunity from Liability
 - Publication of any report, paper, votes / proceeding
 - By / under authority of either house.
2. Other Sources.
 1. Constitutional provision
 2. Various parliament laws
 3. Rules of LS & RS
 4. Parliamentary conventions
 5. Judicial Interpretations.
 - Collective privilege
 - Individual privileges

Collective privileges:

1. Right to publish: Reports, debates & proceedings prohibit others from publishing the same.

2. 44th CAA 1978 restored: Freedom of press to publish true reports of parliamentary proceedings without prior permission.
3. Exclude strangers: proceedings & hold secret sittings.
4. Make Rules: Regulate its own procedure.
5. Breach of privileges: Punish members & Outsiders
6. Right to receive: Immediate information of arrest, detention, conviction of member
7. Institute inquiries and order attendance of witnesses, send for relevant papers and records.
8. Courts prohibited to inquire into proceedings of a house or its committees (Art 122)
9. No person can be arrested & no legal process served within precincts of house without presiding officer permission.

Individual Privileges:

1. Members cannot be arrested: during session, 40 days before and after session.
2. Only in civil cases, not in criminal / preventive detention case.
3. Article 105 under Part V
4. Members can refuse to give evidence and appear as witness in case pending in court when parliament is in session.

(Art 194 - State legislative assembly & council members)

b) Lok Sabha Vs Rajya Sabha

Rajya Sabha

1. Equal status
2. Unequal status
3. Special powers

1. Equal Status with Lok Sabha

- Ordinary Bill - Introduction & Passage
- 2. Constitutional Amendment bills - Introduction & Passage.
- 3. Financial bills - expenditure from consolidated fund of India introduction & passage.
- 4. Election & Impeachment - president
- 5. Election & Removal - Vice president

- Rajya Sabha alone can initiate the removal of vice president.
6. Recommendation to president for removal of
 - Chief Justice and Judges of SC & HC
 - Chief Election Commissioner
 - Comptroller & Auditor General
 7. Approval of ordinances issued by president
 8. Approval of proclamation of all 3 types of emergencies by president.
 9. Selection of ministers including the prime minister.
 10. Enlargement of Jurisdiction of SC & UPSC.

2. Unequal Status:

1. Money bill - Introduced only in Loksabha
2. Rajya Sabha cannot amend / reject a money bill
 - Should return the bill to loksabha within 14 days.
 - Either with or without recommendations
3. Financial Bill: Not containing solely matters of Art 110 - Introduced only in Lok Sabha
4. Final power to decide a bill is money bill or not - Speaker of Loksabha.
5. Speaker of Loksabha - Presides over joint sifting of both the houses.
6. Rajya Sabha can only discuss the budget.
 - Cannot vote on demands for grants.
7. Resolution for discontinuance of National emergency can be passed only by Loksabha.
8. Rajya Sabha cannot remove the council of ministers by passing a No confidence motion.

3. Special powers:

1. Authorize the parliament to legislate with respect to matters in state list in national internet (Art 249)
 - Rs resolution by 2/3 rd of members present & voting.
2. Art 312: Authorize parliament to create new All India Service Common to both centre & states.

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TNPSC GROUP II / IIA MAINS

SCERT - ADMINISTRATION OF UNION AND STATES

QUESTION WITH ANSWER

69. Parliamentary Committee:

- Assist parliament in discharge of its duties.

Two types

1. Standing / permanent

6 Categories

1. Financial Committees
 - a. Public Accounts committee
 - b. Estimates Committee
 - c. Committee on public undertakings.
2. Dept standing committees
3. Committees to Inquire
4. Committee to Scrutinize & control
5. Day to Day Business Committee
6. House Keeping/ service committee

2. Adhoc / temporary

- Setup by PM based on requirement.
 - Inquiry
 - Advisory

a. Public accounts committees:

1. Setup: 1921 under Gol Act, 1919
2. 22 members - 15 Loksabha, 7 Rajya Sabha
3. Election: Principle of proportional representation by means of single transferrable vote
4. Term : 1 year
5. Minister cannot be elected as member
6. Chairman: From opposition.

Functions:

1. Examine annual audit reports of CAG
2. Examine Appropriation accounts & finance accounts of Union Govt.
3. Examine accounts of state corporations, trading concerns, manufacturing projects and their CAG audit report.
4. Examine accounts of autonomous and semi-autonomous bodies.
5. Examine money spent on any service in excess of amount granted by LS.

Limitations:

1. Post mortem examination of accounts.
2. Cannot intervene in day to day administration.
3. Recommendations: Advisory, not binding on ministers.
4. No power of disallowance of expenditure by departments.
5. Not an executive body - cannot issue order.

b. Estimates Committees:

1. 30 members - all from LS.
2. Chairman - Appointed speaker from Ruling party
3. Proportional representation by means of single transferrable vote
 - Term : 1 year
 - Ministers cannot be members

Functions:

1. Continuous Economy committee
 - Examine estimates included in budget.
 - Suggest "economics" in public expenditure.
2. Suggest alternative policies
 - To bring efficiency & economy in administration
3. Examine whether the money is well laid out within limits of policy implied in estimates.

Limitations:

1. Cannot question policy laid down by the parliament.
2. Recommendations, Advisory, not binding
3. Examines every year only certain selected ministries and department.
4. Post - mortem work nature.

c. Committees of Public Undertaking:

1. Created: 1964
2. Recommendation : Krishna Menon Committees
3. Members 22
 - 15 - LS
 - 7 - RS
4. PR by means of STV
 - Term : 1 year
 - Minister cannot be member
5. Chairman: appointed by speaker from LS only

Functions

1. Examine reports and accounts of public undertakings.
2. Examine reports of CAG on public undertakings
3. Other functions allotted to it by speaker.

1. Limitations:

1. Cannot take up examination of more than 10/12 public undertakings a year.
2. Post Mortem
3. Doesnot 100k into technical matters.
4. Recommendations: Advisory and not binding.

2. Dept Standing Committees:

1. Recommendation : Rules committee of LS
2. 1993 : 17 DRSC's
 - 2007 : +7 - 24 DRSC's
3. Obejective:
 - Secure more account ability of executive to parliament.
4. Members: 31
 - Term: 1 year
 - 21 - LS
 - Ministers - Not members.
 - 10 - RS

Functions:

1. Consider demands for grants of concerned ministries / department
 - before discussed and voted in LS
2. Report should not suggest anything of nature of cut motions.
3. Examine bills pertaining to concerned ministries departments.
4. Consider annual reports of ministers / department
5. Consider national basic longterm policy documents presented to houses.
6. Should not consider day to day administration of concerned ministries / department.
7. Recommendations: Advisory, not binding

3. Committees to Inquire:

1. Petition
2. Privileges
3. Ethics Committees

4. Committees to scrutinize and control.

- Committee on
 1. Govt Assurances
 2. Subordinate Legislation
 3. Papers laid on Table
 4. Welfare of SC & ST
 5. Emp. of women
 6. Joint committees on OOP

5. Committees Relating to Day to Day Business of House

1. Business Advisory Committee
2. Private member bills and resolution
3. Rules Committees
4. Absence of members.

6. House Keeping Committees

1. General purposes committee
2. House Committee
3. Library committee
4. Joint committee salaries & allowances of members.

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TNPSC GROUP II / IIA MAINS

SCERT - SOCIO ECONOMIC ISSUE

IN INDIA

QUESTION WITH ANSWER

70. Unemployment and its types

When there are people who are willing to work and able to work but cannot find suitable jobs.

Rural economy :

- Unemployment : 1. Disguised, 2. Seasonal
- Underemployment
- Urban Economy : 1. Frictional, 2. Structural, 3. Open
- Developed Countries : 1. Temporary, 2. Cyclical, 3. Frictional
- Developing countries : Structural

Types of Unemployment

1. Cyclical Unemployment

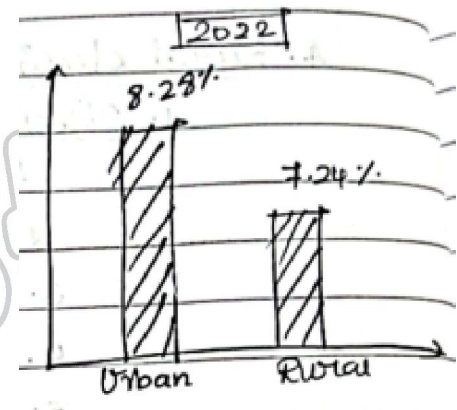
1. Exists during downturn phase of trade cycle in economy.
2. Income and output fall leading to widespread unemployment.
3. Cause : Deficiency of effective demand
4. Cure : Public investment / Expansionary monetary policy.

2. Seasonal Unemployment

1. Unemployment during certain seasons of the year
2. Agriculture and agrobased industries
 - Sugar, production activities
3. Demand side
 - Holiday resorts, Ice cream industry

3. Frictional Unemployment

1. Temporary Unemployment
2. Imbalance between supply of labour and demand for labour.
3. Persons who lose jobs and in search of jobs also included.
4. Reasons



1. Immobility of labour
2. Lack of necessary skills
3. Breakdown of machinery
4. Shortage of raw materials

4. Educated Unemployment

1. When qualification doesnot match the job.
2. Reasons
 1. Faculty education system
 2. Lack of employable skills
 3. Mass student turnover
 4. Preference for white collar jobs.

5. Technical Unemployment

1. Labour saving devices responsible for technological unemployment.
2. Modern technology - Capital Intensive
 - Less Labourers needed

6. Structural Unemployment

1. Due to drastic change in structure of the society
2. Reason
 1. Lack of demand for product.
 2. Shift in demand to other products
 3. Massive and deeprooted changes in economic structure

7. Disguised Unemployment

1. When more people are there than what is required
2. Found mainly in Agriculture
3. Marginal productivity of labour is zero / less / negative

Full Employment

When every able bodied person who is willing to work at prevailing wage rate is employed.

- **Keynes** : Full employment as the absence of involuntary unemployment
- **Lerner** : Level of employment at which any further increase in spending would result in an inflationary spiral of wages and prices.
- **Features**
 - All the available resources are fully and efficiently employed.
 - Achieve maximum level of output.