

BOTANY ASSIGNMENT

Topic:- Rauwolfia serpentina.
Withania somnifera.

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Class:- III BSc - CBZ.

Roll no:- 943

Ht No:- Y173022084

Submitted to:-

Mrs. Nirmala Kumari Mary.

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RAUWOLFIA SERPENTINA (L.) BENTH. ex KURZ

- Botanical Name : Rauwolfia serpentina
Family : Apocynaceae
Common Name : Indian snake root, Serpentine root
Vernacular Name : Sarpagandha, Pathalagandhi, Pathala garuda
Biological Source : Root
Botanical Description: Rauwolfia serpentina is a shrubby plant with leaves in whorls. Flowers white in axillary corymbs. Fruit is ~~purplish~~ - black drupe with single ovoid seed.



Twig of Rauwolfia serpentina

Roots (Organoleptic)

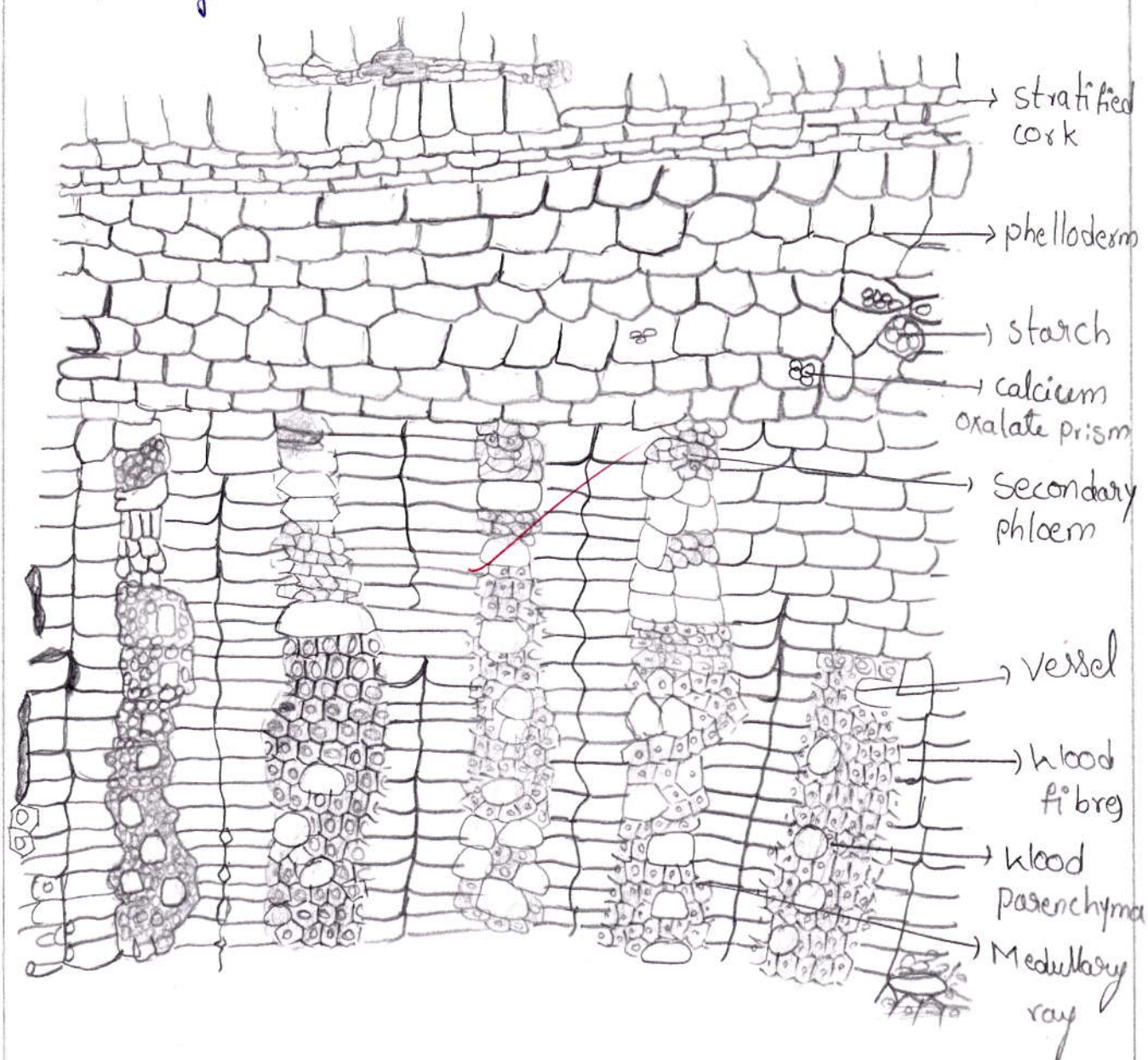
Dried roots are cylindrical to subcylindrical, tortuous, stout, yellowish brown. The outer surface is greyish-yellow, light-brown or brown. Young pieces contain slight wrinkles while old pieces have longitudinal ridges. Older pieces show attached fragments of exfoliated cork. Fracture is short, ~~fractured~~ surface smooth, yellowish buff in colour. Odour indistinct and taste bitter.

Root (Microscopy)

Transverse section of root is circular to oval in outline, shows a stratified cork, which is divided into two to eight alternating zones. It consists one to seven layers of smaller and radially narrower, suberized, non lignified cells alternating with one to three layers of larger radially broader, lignified cells. The phelloderm is composed of about ~~ten to twelve~~ layers of tangentially elongated to isodiametric, cellulosic Parenchymatous cells and with small sized twin prismatic crystals of calcium oxalate. Cells of Secondary cortex are Parenchymatous and contain starch grains. Simple and compound, spherical with a distinct hilum in the form of a split. phloem is narrow and consists of parenchyma with scattered sieve tissue;

Parenchyma alternate with broader medullary rays composed of large cells and usually two to four cells wide.

Xylem lignified, composed of few, small sized isolated or radially arranged xylem vessels, tracheids and fibres alternating with uni- or multi-seriate medullary rays. Parenchymatous cells are pitted and embedded with starch grains.



Powder Microscopy:

The powder is pale brownish-yellow in colour with bitter taste. Plenty of small sized prismatic crystals of calcium oxalate and starch grains are scattered as such throughout or embedded in the parenchymatous cells. Fibres are lignified, slightly pitted, found with or without attached vessels and tracheidal vessels. Vessels are lignified, fairly narrow with border pits, usually found in groups. Cork cells are polygonal in surface view.

Chemical Constituents (Active principle)

Rauwolfia contains resinous matter and more than 80 alkaloids. Alkaloids are mostly concentrated in the bark of roots. The rhizome also contain small amounts of phytosterol, fatty acids, unsaturated alcohols etc. The main chemical constituents are Reserpine, Rescinnamine, serpentine, Ajmaline, Ajmalicine, Deserpidine, Syrosingopine etc.

Pharmacology:-

Rauwolfia is used as hypnotic, sedative and antihypertensive drug. It is specific for insanity and reduces blood pressure. It is given in labours to increase uterine contractions and in certain neuropsychiatric disorders. Ajmaline, which has pharmacological properties similar to those of quinidine, is marketed in Japan for the

treatment of cardiac arrhythmias. Amlacine is used in the treatment of circulatory diseases and in relief of obstruction of normal cerebral blood flow. Reserpine is a white or pale buff to slightly yellow, odourless, crystalline powder that darkens slowly when exposed to light and rapidly when in solution. Reserpine is antihypertensive and tranquilizer drug. Reserpine is used as antihypertensive and tranquilliser. Reserpamine is also used as antihypertensive, but it causes mental depression at higher doses. Syrosingopine shows peripheral effects similar to reserpine. But it has less sedative actions and is used for the treatment of mild or moderate hypertension.

Adulterants:-

Commercial material is often adulterated with the stems of the drug and roots of other Rauwolfia species mainly *R. tetraphylla*, *R. beddomei*, *R. micrantha* and *R. densiflora*.

Marketed Products:-

It is one of the ingredient in preparations of Confido, Lukol, Serspina (Himalaya Drug company) and Sarpagandhan bati (Baidyanath).

Significance in modern medicine:-

The various alkaloids identified in Rauwolfia include ajmaline, ajmalimine, ajmalicine, deserpidine, indobine, indobinine, reserpine, reserpiline, rescinnamine, rescinnamidine, serpentine, serpentinine and Yohimbine etc.

Reserpine:- Reserpine is a relatively weak tertiary base occurring in the Oleoresin fraction of the roots and is useful in the treatment of hypertension, Cardiovascular diseases and neurological diseases. The antihypertensive actions and of (peripheral) reserpine are due to its depressant action on central nervous system (CNS) and peripheral nervous system by binding to Catecholamine storage vesicles present in the nerve cell.

Serpentine: Serpentine, a type II topoisomerase inhibitor, exhibits antipsychotic properties.

Ajmalicine:- The ajmalicine is derived from tryptophan which is converted to tryptamine via secologanin, strictosidine and cathenamine. It has large number of applications in the treatment of circulatory diseases, especially in providing relief to normal cerebral blood flow.

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Rescinnamine! - It is used for the treatment of hypertension as an antihypertensive agent and inhibits angiotensin converting enzyme, peptidyl dipeptidase that catalyzes the conversion of angiotensin I to the vasoconstrictor substance, angiotensin II which stimulates aldosterone by the adrenal cortex

Deserpidine :- It is used mainly for its antipsychotic and antihypertensive properties. It is capable of reducing high blood pressure by controlling nerve impulses along various nerve pathways

WITHANIA SOMNIFERA (L.)

Classification:-

Kingdom : Plantae
 Division : Mangoliophyta
 Class : Mangnoliopsida
 Order : solanales
 Family : solanaceae
 Genus : Withania
 Species : Somnifera (L.) Dunal.

Distribution and Habitat: Withania possesses a natural occurrence, most probably in the drier and humid areas. It spread from the Mediterranean region to throughout tropical region of Africa to South Africa and also from the Cape Verde Islands and Canary region to the Arabia and Middle East region like India, Southern China and Sri Lanka. It is propagated and cultivated in gardens in the warmer and drier regions of Europe and became a natural herb in New South Wales and South Australia. Generally it is cultivated in India and in many other places as a medicinal crop most probably for its fleshy roots.

Morphological characteristics: Withania is a small or medium undershrub, 30-150cm height, erect, grayish, branching perennial, with strong disagreeable odour like horse's urine. Almost the complete plant is covered and

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Surrounded with very short, small, fine, branched hairs and silver grey in colour. The stems of withania are brownish dark colour and erect, sometimes leaves are absent or less on lower part of stem. The leaves are slightly waved, inflorescence solitary, axillary. Flowers are ebracteate, pedicellate, complete, hermaphrodite, pentamerous, actinomorphic and hypogynous, gamosepalous, 4-6 mm in diameter, ~~lucid-yellow~~ or greenish. Sepals are five, fused, tubular, persistent, green, hairy. Petals are five, united, tubular, gamopetalous, lobes spreading or recurved, acute, pubescent and greenish yellow. aestivation is valvate or imbricate. stamens are five, attached near the base of the corolla, epipetalous, anthers oblong, dehiscing longitudinally, introrse, dithecal, filament deeply inserted in corolla tube, linear slender Gynoecium bicarpellary, syncarpous, composed of minute swollen ovary, ovary superior placed obliquely, placentation axile, with many ovules in each locule, style simple, stigma shortly bifid. Ashwagandha fruit is usually a round hairless berry, orange-red to red in ripe condition and is enveloped by the enlarged calyx. Most of the seeds are very pale brown sometimes kidney-shaped and squeezed with a rough surface and netted surface. In withania

flowering time is generally from October to June, whereas the fruiting time is usually from October to July. *Withania somnifera* can be identified by the red fruit enclosed by the brownish, papery, turgid calyx.



Twig of *Withania somnifera*

Ethnobotanical significance:- leaf extract, one cup three times a day is used to stop blood flow from uterus after delivery. Its root powder is used to give power to body and lumber; over dose may be abortifacient. Sometimes, whole plant decoction mixed with *Aspergus officinalis* root, *phaeoleus* mungo seeds and silybet stone is given to treat hydrocoele, leucorrhoea and menorrhagia. It also increases sexual potency and fertility.

Parts used	Folklore	Chemical Constituents	Biological activity for withanolides
Roots	Abortifacient, cold, asthma, Tuberculosis, fever	Steroidosides VII (Aylsteryl-glucoside), Steroidosides X (Glycowithanolides) withanone (Alkaloid), Ashwagandhanolide	Antibacterial, Antifungal, Antibiotic, Antimitotic, Antitumor, radiosensitizer, cytotoxic, Anti-inflammatory
Leaves	Cure eyesores, boils, diuretic, Narcotic, treatment of suppurative and hemorrhoids	Withaferin (steroidal lactone), withanolide D, withanolide Z, 7-hydroxy withan, Trienolide (steroidal lactone)	Antiarthritic, Alzheimers, Immunosuppressant
Seeds	To coagulate milk, Applied on open wounds, Relieving the poison of a serpent rubbed on skin for ringworm in human beings and animals.	withanolide - WSR (aliphatic ester), withanolide - WSI (aliphatic ketone)	Sedative & hypnotic with anone

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Botany Assignment-01

Name of the student : Raj Keerthana Alli

Name of the subject : Botany

Roll number & class : B.S.C Ist year (C.B.Z)-913

Name of the topic : Nutrition in bacteria &
Sexual reproduction in bacteria

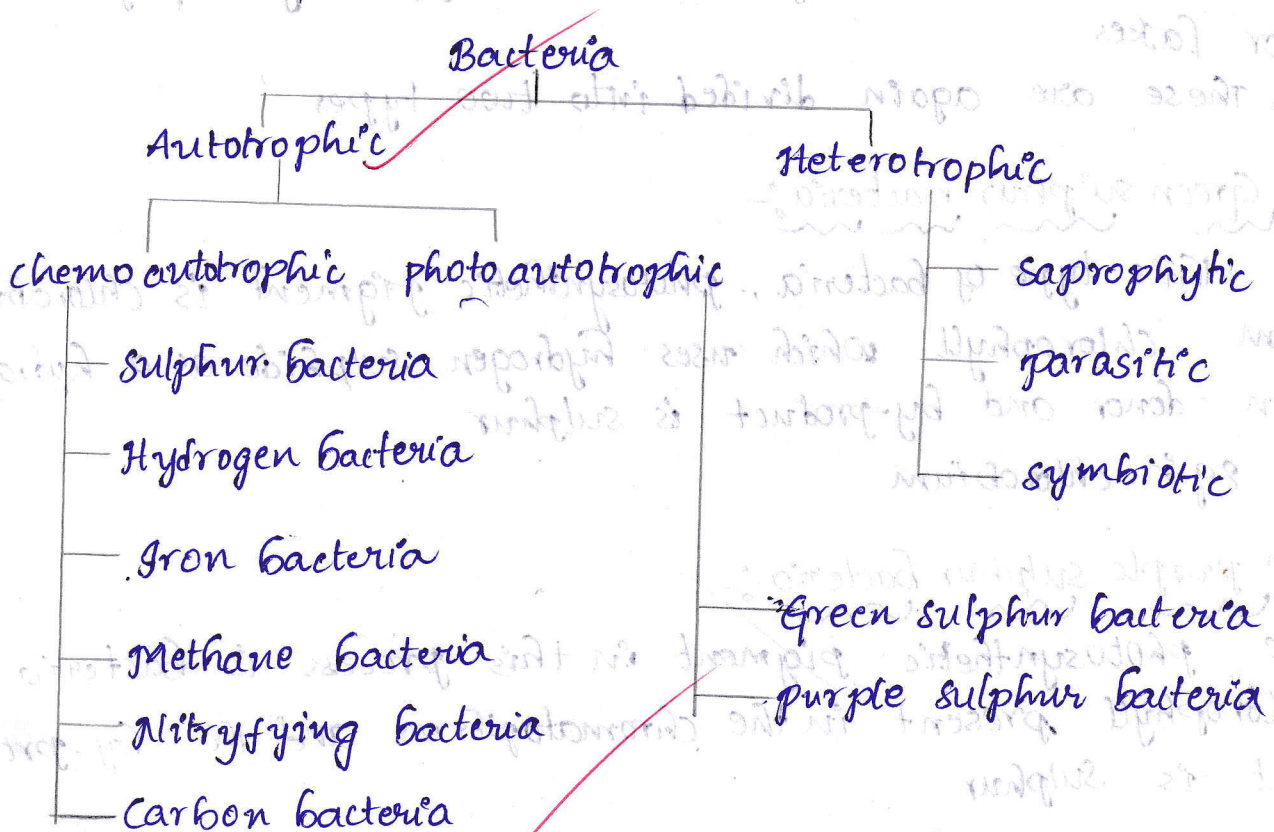
Submitted by : Raj Keerthana Alli

Submitted to : Nirmala Kumari. G

Nutrition in Bacteria

The nutrition in bacteria is mainly autotrophic and heterotrophic. phototrophic bacteria contains various pigments to synthesize their own food, while heterotrophic bacteria are dependent on other organisms for food. parasitic bacteria fulfill their nutrition needs or requirements from the host cell.

Types of mode of Nutrition:-



1. Autotrophic Bacteria:-

- Autotrophic bacteria synthesize their own food from simple inorganic compounds.
- In this process, energy is obtained from either sunlight or chemically by the oxidation of some inorganic substances like iron, sulphur, nitrogen compounds, etc.

c) Autotrophic bacteria synthesise their own food from simple inorganic compounds

d) In this process, energy is obtained from either sunlight or chemically by the oxidation of some inorganic substances like: Autotrophic bacteria are further divided into two types depending upon the energy utilization

A. photoautotrophic bacteria:-

a) these bacteria have a green sunlight trapping pigment called bacteriochlorophyll, which captures sunlight.

b) These bacteria are found in the upper layer of ponds or lakes

c) These are again divided into two types

(i) Green sulphur bacteria:-

In this type of bacteria, photosynthetic pigment is chlorobium chlorophyll which uses hydrogen sulphide as a hydrogen donor and by-product is sulphur

eg:- chlorobium

(ii) purple sulphur bacteria:-

The photosynthetic pigment in this process is bacteriochlorophyll present in the chromatophores and the by-product is sulphur

eg:- Chromatium

B) chemoautotrophic bacteria:-

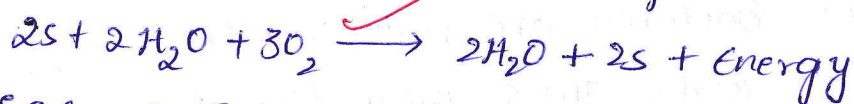
a) chemo autotrophic bacteria prepare their food by using inorganic raw material in the absence of photosynthetic pigment.

b) In this process, chemical energy is obtained from the oxidation of certain inorganic substances such as ammonia, nitrates, ferrous iron, hydrogen sulphide and some metallic and non-metallic substances

c) These are again divided into the following types.

(i) Sulphur bacteria :- [Sulphomonas]

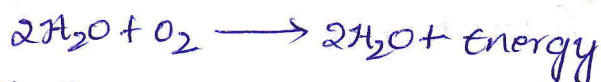
These types of bacteria oxidise elemental Sulphur or H_2S and release sulphuric acid or sulphur



Eg:- Thiobacillus denitrificans

(ii) Hydrogen bacteria :- [Hydromonas]

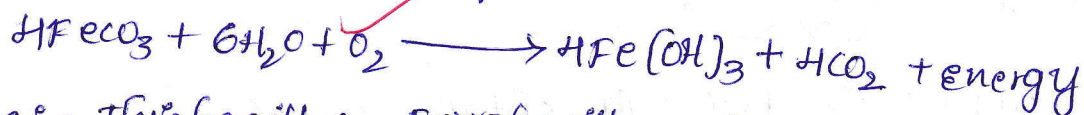
In this process molecular hydrogen is oxidised into water



Eg:- Hydrogenomonas, Pseudomonas

(iii) Iron bacteria :- [Ferromonas]

They use chemical energy by oxidation of ferrous compounds into the ferric compounds



Eg:- Thiobacillus, Ferrobacillus, etc.

(iv) Methane bacteria :- [Methanomonas]

These types of bacteria get their energy from oxidation of methane. By-products are water and carbon dioxide

(v) Nitrifying bacteria :-

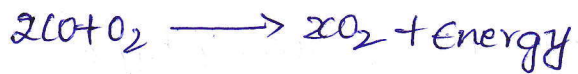
Bacteria get their energy by oxidation of Nitrogen compounds into Nitrates



Eg:- Nitrobacter, Nitrosomonas

vi) Carbon Bacteria:-

These types of bacteria oxidize CO into CO_2



Eg:- Bacillus oligocarbophilous.

2. Heterotrophic Bacteria:-

- These types of bacteria are not capable of synthesizing their own food. Thus, they live where organic food is readily available either from living organisms or from organic substances.
- Most of the pathogenic bacteria of humans, other plants and animals are heterotrophs.
- Heterotrophic bacteria don't have pigment, so they cannot capture solar energy.
- Heterotrophic bacteria are of three types

A. Saprophytic Bacteria:-

- These types of bacteria obtain food by decomposing dead bodies, excreta of animals, dead plants and their parts.
- They secrete enzymes that break down complex organic compounds into simple products.
- Breakdown of carbohydrates is called fermentation and breakdown of protein is called putrefaction.

d) Examples of these types of bacteria are *Bacillus-mycoides*, *Acetobacter* etc

B. parasitic bacteria :-

- a) parasitic bacteria live on and within other organisms and they obtain nutrition from their host
- b) some parasitic bacteria cause diseases and they are called pathogenic bacteria, while others do not cause diseases but harm the host
- c) example :- *Vibrio cholerae*, *Streptococcus pneumoniae* etc.

C. symbiotic bacteria :-

- a) symbiotic bacteria live in close association with other living organisms so that they both benefit from each other. Neither of them is harmed
- b) Nitrogen-fixing bacteria like *Rhizobium* that live in the root nodules of leguminous plants are examples of symbiotic bacteria

Sexual Reproduction in Bacteria

Method: 01 conjugation :-

It was first discovered in *Escherichia coli* by Lederberg and Tatum (1946). They found that two different types of auxotroph (nutritional mutants) grown together on minimal medium produced an occasional prototroph wild type.

cell contact was required for this change. Anderson (1951) observed conjugation between two such bacteria under electron microscope. Conjugation was later reported in a number of other bacteria. Bacteria have two types of cells, male (F^+) or donor and female (F^-) or recipient.

The male or donor cell possesses 1-4 sex pili on the surface and fertility factor in its plasmid. Fertility factor contains genes for producing sex pili and other characters needed for gene transfer. Sex pili are 1-4 narrow protoplasmic outgrowths. Both sex pili and fertility factor are absent in female or recipient cells.

If these two types of cells happen to come nearer, a pile of male cell establishes a protoplasmic bridge or conjugation tube with the female cell. It takes 6-8 minutes. Gene exchange can occur by two methods.

(a) Sterile Male Method [$F^+ \times F^- \rightarrow F^-$ becomes F^+]

The plasmid having fertility factor replicates. A copy of it gets transferred to the recipient cell through the conjugation tube. The recipient cell also becomes donor. The phenomenon of reversibility of sex is called sexduction.

(b) Fertile Male Method [$Hfr \times F^- \rightarrow F^-$ remains F^-]:-

The F^+ plasmid or fertility factor of donor cell gets integrated to bacterial chromosome or DNA. The attachable plasmid is known as episome. The point at which plasmid gets integrated to bacterial chromosome differs in different strains. Integration is possible because certain nucleotide sequence present in bacterial chromosome are compatible with sequence in plasmid DNA.

Method: 2 Transformation:-

It is the absorption of DNA segment from the surrounding medium by a living bacterium. The phenomenon was discovered by Griffith in 1928. Its mechanism was worked out by Avery (1944).

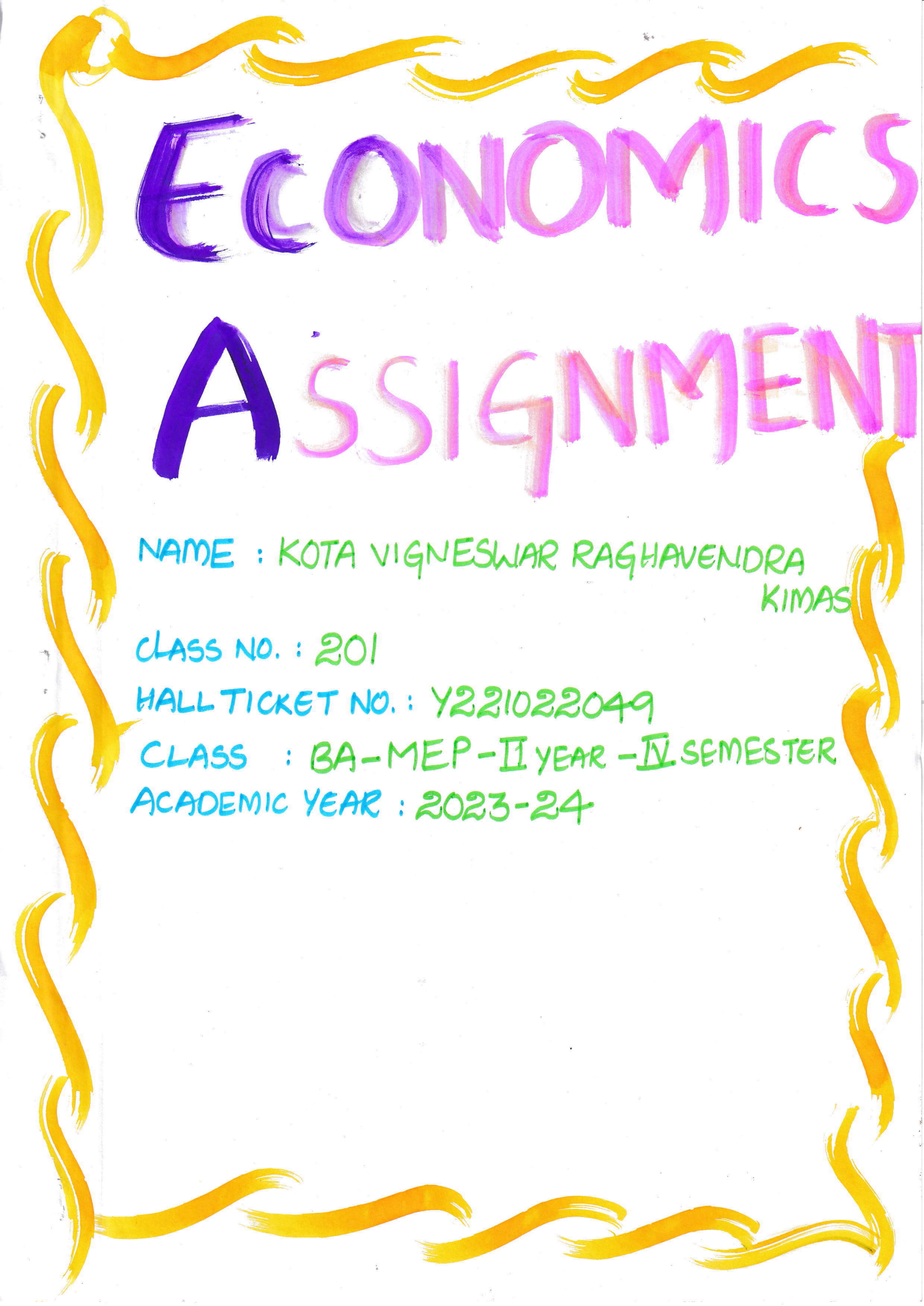
Receptivity for transformation is present for a brief period when the cells have reached the end period of active growth. At this time they develop specific receptor sites in the wall. Normally *E. coli* does not

pick up foreign DNA but it can do so in the presence of calcium chloride

Method - 3 - Transduction :-

It is the transfer of foreign genes by means of viruses. Transduction was first discovered by Zinder and his teacher Lederberg (1952) in *Salmonella typhimurium*. The process also occurs in *E. coli* and a number of other hosts. A virus may pick up gene of the host in place of its own gene during its multiplication in the host cell.

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ECONOMICS ASSIGNMENT

NAME : KOTA VIGNESWAR RAGHAVENDRA
KIMAS

CLASS NO. : 201

HALL TICKET NO. : Y221022049

CLASS : BA-MEP-II YEAR -IV SEMESTER
ACADEMIC YEAR : 2023-24

Q. What is Primary data? Discuss different methods in collecting primary data and its merits and demerits.

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When the data is being collected in the first instance for the study of a problem, is called Primary data. If an individual, a business firm, a research association or a government collects the data for the first time for the study of problem, the data are called Primary data. Thus, if it is desired to conduct an enquiry into the cost of living of the workers in a certain mill, if the facts pertaining to this enquiry are collected by the investigator or his representatives from the workers themselves such data would be termed as Primary data.

The following methods of the collection of Primary data is in common use:

- (1) Direct Personal Investigation
- (2) Indirect Personal Investigation
- (3) Information through local correspondents
- (4) Mailed questionnaires
- (5) Schedules to be filled by the enumerators
- (6) Telephone enquiries.

01. Direct Personal investigation

Under this method of collecting data, the investigators personally come in contact with the persons from whom the information is to be obtained (informants). He asks them questions pertaining to the enquiry and collects the desired information. Thus, if a person wants to collect data about wages, he would go to mill, contact workers and obtain required information.

02. Indirect Personal Investigation

When direct personal investigation cannot be used either on account of complexity of field of enquiry or the reluctance of informants to supply needed information an indirect oral investigation is conducted. Under this method, the investigators interview several third persons.

03. Information through local correspondents

There is no collection of data formally, but local agents are appointed in the different parts of the area under investigation.

These are correspondents who ask to collect information and transmit it to investigator. They are advised to use their own judgement as the best way of obtaining it.

04. Mailed questionnaires

A list of questions pertaining to the enquiry is prepared and sent to the various informants by post. The questionnaire contains questions and provides spaces for answers.

05. Schedules to be filled by the enumerators

A team of enumerators are selected and trained. Each enumerator will be in charge of a block of the total population. They are provided with standardised questionnaires and specific instructions are given to them regarding the manner in which subjects to be filled.

Economics Assignment - ~~FC~~ FC

Name: M. Madhumitha

Class NO: 165

Group: BA - III H.E.P

Section : B

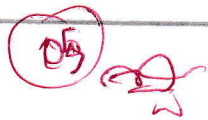
Adm. No: 14362

Subject : Banking and financial Services
(Economics - FC)

Hall ticket No: Y201022029

Topic About Banking.

Banking:



- A bank is a financial institution licensed to receive deposits and make loans. Two of the most common types of banks are commercial/retail and investment banks. Depending on type, a bank may also provide various financial services ranging from providing safe deposit boxes and currency exchange to retirement and wealth management.

Meaning of Banking:

- Banking is defined as "Accepting of deposits of money from public for the purpose of lending or investment, repayable on demand or otherwise and withdrawable by cheque, draft, or otherwise".

Functions of Banking:

There are 2 types of functions of banks.

- I. Primary functions: being primary are also called banking.

II. Secondary Functions.

I. Primary functions:-

1. Accepting Deposits:-

One of the primary functions of Commercial bank is to accept deposits from their customers, which can be both individuals and business entities. The deposits may be in the form of time deposits, Savings deposits;

(a) Saving Deposits:-

Encourages Savings habits among the public. It is suitable for salary and wage earners. The rate of interest is low. There is no restriction on the number and amount of withdrawals. The account for Saving deposits can be opened in a single name or in joint names. The depositor just need to maintain minimum balance which varies across different banks. Also, Bank provides ATM cum debit card, cheque book, and Internet banking facility.

b) Fixed Deposits:-

Also known as Term Deposits. Money is deposited for a fixed tenure. No withdrawal money during this period allowed. In case depositors withdraw before maturity, banks levy a penalty for premature withdrawal. A lump-sum amount is paid at one time for a specific period, the rate of interest is high but varies with the period of deposit.

c) Current Deposits:-

They are opened by businessmen.

The account holders get an overdraft facility on this account. These deposits act as a short term loan to meet urgent needs. Bank charges a high-interest rate along with the charges for overdraft facility in order to maintain a reserve for unknown demands for the overdraft.

1) Recurring Deposits:-

A certain sum of money is deposited in the bank at a regular interval. Money can be withdrawn only after the expiry of a certain period. A higher rate of interest is paid on recurring deposits as it provides a benefit of compounded rate of interest and enables depositors to collect a big sum of money. This type of account is operated by salaried persons and petty traders.

2. Granting Loans & Advances:-

The deposits that are taken by the commercial banks are further invested by way of granting loans to their customers. Banks derive profits in this manner. However, the lending of funds may take different forms such as cash credit, advances, discounting bills, overdraft, etc.

Bank offers the following types of loans and Advances:-

a) Bank Overdraft:-

This facility is for current account holders. It allows holders to withdraw money anytime more than available in bank balance but up to the provided limit. An overdraft is paid only on the borrowed amount for the period for which the loan is taken.

b) Cash Credits:-

A short term loan facility up to a specific limited fixed in advance. Bankers allow the customer to take a loan against a mortgage of certain property. Cash credit is given to any type of account holders and also to those who do not have an account with a bank. Interest is charged on the amount withdrawn in excess of the limit. Through cash credit, a larger amount of loan is sanctioned than that of overdraft for a longer period.

c) Loans:-

Banks lend money to the customer for short term or medium periods of say 1 to 5 years against tangible assets. Nowadays, banks do lend money for the long term. The borrower repays the money either in a lump-sum amount, or in the form of instalments spread over a pre-decided time period.

d) Discounting the bill of exchange:-

It is a type of short term loan, when the seller discounts the bill from the bank for some fees. The bank advances money by discounting or purchasing the bills of exchange. It pays the bill amount to the drawer (seller) on behalf of the drawee (buyer) by deducting usual discount charges. On maturity, the bank presents the bill to the drawee or acceptor to collect the bill amount.

II. Secondary functions of the Bank:-

The Secondary functions of the Bank are either selling gold coins to the public or selling insurance products and selling mutual fund products etc.. let us make a more formal study, following are the important Secondary functions of the Banks:

1. Agency Functions:-

The bank is an agent for its customers in a way that it invests on behalf of its customers. Acting as the agent of the customer the bank may transfer funds, the collections of cheques, periodic payments, portfolio management, periodic collections, and several other agency functions. All of these functions are the Secondary functions of the bank.

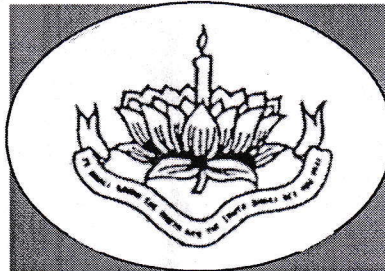
2. General Utility Functions:-

The bank also performs several utility functions. Some of the most important utility

functions of the bank may include the issue of drafts, letters of credits, etc., locker facility, underwriting of shares, dealing in foreign exchange, project reports, social welfare programs, other utility functions. The bank also provides several services like the safe deposit locker facilities, safe custody facilities, and Demat accounts. The opening of Demat account allows the account holder to trade in the stock exchange ~~or~~ the money market directly.

The customer that holds a Demat account can directly buy or sell shares from the capital market.

ANDHRACHRISTIANCOLLEGE,GUNTUR.



SEMISTER: VI

SUBJECT: Society of Health

ASSIGNMENTSUBMITTEDBY

NAME OF THE STUDENT: A. Nageswara Rao

CLASS: III B.A. (P.P.S.)

ROLL NUMBER: _____

EXAMINATION NUMBER: 4211022079

DATE: 14/12/2023

SIGNATURE OF THE LECTURER 

VI Semister II mid Examination

Amir A. Raza Swaidan

Hall No:- 4211022079

1. What are the theories of environmental sociology?
2. Write a short note on the relations of man and environment?
3. What is pollution?
4. How many types of pollutions we are observing in the environment?
5. What is the impact of organisation of environment?
6. Definition or define the health and illness?
7. Write the four dimensions of health?
8. What is the social medicine write the meaning and scope of social medicine?
9. Write the meaning of hospital and type of hospital?
10. Write the major functions of hospitals?

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A. Raza Swaidan

Ans) The association between societal well-being and environmental quality is increasingly becoming a topic of sociological interest. Environmental sociology is a sub discipline within the field of sociology that studies of the interactions between the physical environment, social organization, and social behaviour. Environmental sociologists typically place special emphasis on studying the social factors that cause environmental problems, the societal impacts of those problems, and efforts to solve the problems. They also look at the social processes by which certain environmental conditions become socially defined as problems.

For instance, environmental sociologists aim to understand environmentalism as a social movement, the ways in which members of society perceive environmental problems, and the origins of human-induced environmental decline. Another area of environmental sociological research is the unequal distribution of environmental hazards. These researchers examine the process by which socially disadvantaged populations come to experience greater exposures to various environmental hazards, including natural disasters.

Sociology of the environment is a new field of sociology that has developed in relation to people's growing concern about environmental issues. It has a dual focus. On the one hand it deals with the ways in which people in society relate to the natural world.

The technical definition of environmental sociology is the sociological study of how humans interact with the various aspects of the environment such as pollution, conservation and recycling. This type of study is one that is vital when it helps to find better ways for both nature and mankind to interact, propagate and thrive.

There are two schools of thought when it comes to environmental quality is an important topic of sociological inquiry. Environmental sociology as a sub discipline within sociology explores the various forms of interaction between human society and environment. Catton and Dunlap a new ecological paradigm made them present environmental sociology as the study of interaction between society & its biophysical environment.

2.
Ans)

Environment can be defined as the sum total of materials and forces surrounding the living organism. Gishbert defined environment as "anything immediately surrounding an object and exerting a direct influence on it." It is the sum total of conditions that surrounds us at a given point at space and time. Thus, environment is comprised of the interacting systems of physical biological and cultural elements and these are interlinked individually and collectively in various ways.

The word environment is derived from the french

Verb 'environer' which means to 'encircle or surround.' Thus our environment can be defined as the physical, chemical and biological world that surround as well as the complex of social and cultural affecting an individual or community. This broad defination includes the natural world and the technological environment as well as the cultural and social context that affect an individual organism or population at any point in the life cycle. Set of circumstances surrounding a particular occurence and all the things that surround us.

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② Ans Environmental science came alive as a substantive, active field of scientific investigation in the 1960s and 1970s driven by (a) the need for a multi disciplinary approach to analyze complex enviromental problems, (b) the arrival of substantive environmental laws requiring specific environmental protocols of investigation and (c) the growing public awareness of a need for action in addressing environmental concepts which may be scientific, social and ecological systems thereby providing a platform for solution to various environmental problems.

Environment regulates the life of the organisms including human beings. Man being the most intelligent creature interacts with the environment more vigorously than does any other organism. There is no end to human needs. With the growth of human civilization, there has been an exponential

increase in the demands for materials. As a result, man has started exploiting nature mercilessly to meet the demands of his comfort and to feed the mouths of increased population. Though deterioration of environmental condition is brought about by extreme events like natural catastrophes and calamities, man-made hazards, physical pollution and social pollution, man has a major role in it.

Q4

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Ans) pollution :-

pollution is the introduction of contaminants into the natural environment that cause adverse change. pollution can take the form of any substance (solid, liquid, or gas) or energy (such as radioactivity, heat, sound, or light). pollutants, the components of pollution, can be either foreign substances/energies or naturally occurring contaminants.

Although environmental pollution can be caused by natural events, the word pollution generally implies that the contaminants have an anthropogenic source - that is, a source created by human activities, such as manufacturing, extractive industries, poor waste management, transportation or agriculture. pollution is often classed as point source (coming from a highly concentrated specific site, such as a factory or mine) or nonpoint source pollution (coming from a widespread

distributed sources, such as microplastics or agricultural runoff).

Many sources of pollution were unregulated parts of industrialization during the 19th and 20th centuries until the emergence of environmental regulation and pollution policy in the later half of the 20th century. Sites where historically polluting policy in the later half of 20th century. industries released persistent pollutants may have legacy pollution long after the source of the pollution is stopped. Major forms of pollution include air pollution, light pollution, litter, noise pollution, plastic pollution, soil contamination, radioactive contamination, thermal pollution, visual pollution and water pollution.

pollution has widespread consequences on human and environmental health, having systematic impact on social and economic systems. In 2019, pollution killed nine million people worldwide (one in six deaths), a number unchanged since 2015. Air pollution accounted for $\frac{3}{4}$ of these earlier deaths. A 2022 literature review found that levels of anthropogenic chemical pollution have exceeded planetary boundaries and now threaten entire ecosystems around the world. pollutants frequently have outsized impacts on vulnerable populations, such as children and the elderly, and marginalized communities.



(5)
Ans)

8

Water pollution:-

Water pollution means contamination of streams, lakes, seas, underground waters or oceans by substances which are harmful to living things. Water is necessary for life on earth. Some organisms need water to live in; others to drink, but all contain water.

For example in our body there is about 80% of water. Plants and animals require water that is moderately pure, and they cannot survive if their water is loaded with toxic chemicals or harmful micro-organisms. Water pollution can kill large number of fish, birds and other animals.

Petroleum products:-

Oil and chemicals derived from oil are used for fuel, lubrication, plastics manufacturing, and many other purposes. These petroleum products get into water mainly by means of accidental spills from ship, tanker trucks, pipelines, and leaky underground storage tanks. Many petroleum products are poisonous if ingested by animals, often causing death.

Hazardous wastes:-

Hazardous wastes are chemical wastes that are either (poisonous), reactive (capable of explosive or toxic gases), Corrosive (capable of corroding steel), or ignitable (flammable).

If improperly treated or stored, hazardous wastes can pollute water supplies. PCBs, a class of chemicals once widely used in electrical equipment such as transformers, can get into the environment through oil spills.

Sediment:-

Sediment, soil particles carried to a streambed, lake or ocean. Can also be a pollutant if it is present in large enough amount.

Soil erosion produced by the removal of soil trapping trees near waterways, or carried by rainwater and flood water from croplands, strip mines and road can damage a stream or lake by introducing too much nutrient matter. This leads to eutrophication.

Health effects of chemicals commonly found in drinking water are

1. Damage of liver,
2. Sterility in males
3. Genetic mutations
4. Cancer
5. Fetal damage
6. Infant deaths

Ans)

The human population has been increasing at an extremely high rate in the last century and unfortunately, not much has been done to slow down this process. undoubtedly, over population is global issue. It is ~~global~~ because it pertains to all of humanity, but ~~global~~ also means that it effects the whole world, i.e. the environment multiply. There are some of the most imminent environmental problems that results from human population growth.

The contemporary to gap to sociology is embedded historically and introduces the environmental issues and vast discussion led the field of ~~environmental~~ sociology about the ~~significance~~ of the environment for classical sociologists Dunlop and catton (1978) claim that