Padasalai's Telegram Groups!

(தலைப்பிற்கு கீழே உள்ள லிங்கை கிளிக் செய்து குழுவில் இணையவும்!)

- Padasalai's NEWS - Group
https://t.me/joinchat/NIfCqVRBNj9hhV4wu6_NqA

- Padasalai's Channel - Group
https://t.me/padasalaichannel

- Lesson Plan - Group
https://t.me/joinchat/NIfCqVWwo5iL-21gpzrXLw

- 12th Standard - Group
https://t.me/Padasalai_12th

- 11th Standard - Group
https://t.me/Padasalai_11th

- 10th Standard - Group
https://t.me/Padasalai_10th

- 9th Standard - Group
https://t.me/Padasalai_9th

- 6th to 8th Standard - Group
https://t.me/Padasalai_6to8

- 1st to 5th Standard - Group
https://t.me/Padasalai_1to5

- TET - Group
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- PGTRB - Group
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- TNPSC - Group
https://t.me/Padasalai_TNPSC

12 - BIOLOGY – ZOOLOGY

TABLE TO REVISE

STD AND THEIR SYMPTOMS

Name of the Disease	Causative agent	Symptom	Incubation period
Bacterial STI			
Gonorrhoea	*Neisseria gonorrhoeae*	Affects the urethra, rectum and throat and in females the cervix also get affected. Pain and pus discharge in the genital tract and burning sensation during urination.	2 to 5 days
Syphilis	*Treponema palladium*	**Primary stage** Formation of painless ulcer on the external genitalia. **Secondary stage** Skin lesions, rashes, swollen joints and fever and hair loss. **Tertiary stage** Appearance of chronic ulcers on nose, lower legs and palate. Loss of movement, mental disorder, visual impairment, heart problems, gummas (soft non-cancerous growths) etc	10 to 90 days
Chlamydiasis	*Chlamydia trachomatis*	Trachoma , affects the cells of the columnar epithelium in the urinogenital tract, respiratory tract and conjunctiva.	2 to 3 weeks or upto 6 weeks
Lymphogranuloma venereum	*Chlamydia trachomatis*	Cutaneous or mucosal genital damage, urithritis and endocervicitis. Locally harmful ulcerations and genital elephantiasis.	

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Name of the Disease	Causative agent	Symptom	Incubation period
Viral STI			
Genital herpes	Herpes simplex virus	Sores in and around the vulva, vagina, urethra in female or sores on or around the penis in male. Pain during urination, bleeding between periods. Swelling in the groin nodes.	2- 21 days (average 6 days)
Genital warts	Human papilloma virus (HPV)	Hard outgrowths (Tumour) on the external genitalia, cervix and perianal region.	1-8 months
Hepatitis-B	Hepatitis B virus (HBV)	Fatigue, jaundice, fever, rash and stomach pain. Liver cirrhosis and liver failure occur in the later stage.	30-80 days
AIDS	Human immunodeficiency virus (HIV)	Enlarged lymph nodes, prolonged fever, prolonged diarrhoea, weight reduction, night sweating.	2 to 6 weeks even more than 10 years.

Name of the Disease	Causative agent	Symptom	Incubation period
Fungal STI			
Candidiasis	*Candida albicans*	Attacks mouth, throat, intestinal tract and vagina. Vaginal itching or soreness, abnormal vaginal discharge and pain during urination.	–
Protozoan STI			
Trichomoniasis	*Trichomonas vaginalis*	Vaginitis , greenish yellow vaginal discharge, itching and burning sensation, urethritis, epididymitis and prostatitis	4-28 days

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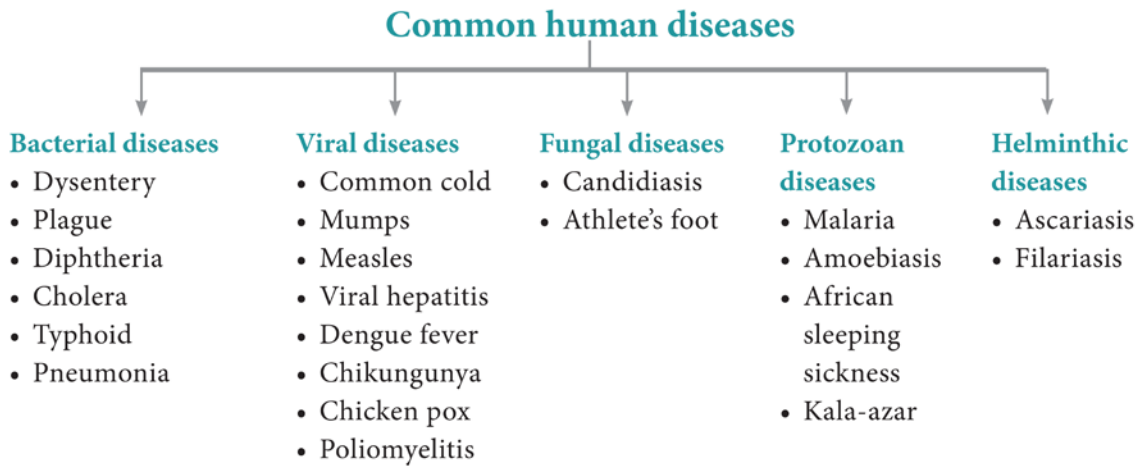
GENETIC BASIS OF THE HUMAN ABP BLOOD GROUP

GENOTYPE	ABO BLOOD GROUP PHENOTYPE	ANTIGENS PRESENT ON RED BLOOD CELL	ANTIBODIES PRESENT IN BLOOD PLASMA
I^AI^A	Type A	A	Anti -B
I^Ai	Type A	A	Anti -B
I^BI^B	Type B	B	Anti -A
I^Bi	Type B	B	Anti -A
I^AI^B	Type AB	A and B	Neither Anti -A nor Anti-B
ii	Type O	Neither A nor B	Anti -A and anti - B

COMMON HUMAN DISEASE



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BACTERIAL DISEASE IN HUMAN BEINGS

S. NO	DISEASES	CAUSATIVE AGENT	SITE OF INFECTION	MODE OF TRANSMISSION	SYMPTOMS
1	Shigelloss (Bacillary dysenter)	*Shigella sp.*	Intestine	Food and water contamina ted by	Abdominal pain, dehydration, blood and mucus in the stools
2	Bubonc plague (Black death)	*Yersinia pestis*	Lymph nodes	Rat flea vector- *Xenopsylla*	Fever, headache, and swollen lymph nodes
3	Diphtheria	*Corynebacteri um diphtheriae*	Larynx, skin, nasal and genital passage	Droplet infection	Fever, sore throat, hoarseness and difficulty in breathing
4	Cholera	*Vibrio cholerae*	Intestine	Contaminat ed food and water/	Severe diarrhoea and dehydration
5	Tetanus (Lock jaw)	*Clostridi m tetani*	Spasm of muscles	Through wound infection	Rigidity of jaw muscle, increased heart beat rate and spasm of the muscles of the jaw and face
6	Typhoid (Enteric fever)	*Salmonella typhi*	Intestine	Through contamina ted food and water	Headace, abdominl discomfort, fever and diarrhoea
7	Pneumonia	*Streptococ cs pneumoni*	Lungs	Droplet infection	Fever, cough, painful breathing and brown sputum
8	Tuberculosis	*Mycobacteri um tuberculosis*	Lungs	Droplet infection	Thick mucopurulant nasal discharge

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VIRAL DISEASE IN HUMAN BEINGS

S. NO	DISEASES	CAUSATIVE AGENT	SITE OF INFECTION	MODE OF TRANSMISSION	SYMPTOMS
1	Common cold	*Rhino viruses*	Respiratory tract	Droplet infection	Nasal congestion and discharge, sore throat, cough and headache
2	Mumps	*Mumps virus (RNA virus) Paramyxo virus*	Salivary glands	Saliva and droplet infection	Enlargement of the parotid glands
3	Measles	*Rubella virus (RNA virus), Paramyxo virus*	Skin and respiratory tract	Droplet infection	Sore throat, running nose, cough and fever. reddish rashes on the skin, neck and ears
4	Viral hepatitis	*Hepatitis - B virus*	Liver	Parenteral route, blood transfusion	Liver damage, jaundice, nausea, yellowish eyes, fever and pain in the abdomen
5	Chicken pox	*Varicella - Zoster virus (DNA Virus)*	Respiratory tract, skin and nervous system	Droplet infection and direct contact	Mild fever with itchy skin, rash and blisters
6	Poliomyelitis	*Polio virus (RNA virus)*	Intestine, brain, spinal cord	Droplet infection through faecal oral route	Fever, muscular stiffness and weakness, paralysis and respiratory failure
7	Dengue fever (Break bone fever)	*Dengue virus or Flavi virus (DENV 1-4 virus)*	Skin and blood	Mosquito vector *Aedes aegypti*	Severe flu like illness with a sudden onset of fever and painful headache, muscle and joint pain
8	Chikungunya	*Alpha virus (Toga virus)*	Nervous system	Mosquito vector *Aedes aegypti*	Fever and joint pain, headache and joint swelling

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TYPES OF MALARIA

SL NO	TYPES OF MALARIA	CAUSATIVE AGENT	DURATION OF ERYTHROCYTIC CYCLE
1	Tertian, benign tertian or vivax malaria	*P. vivax*	48 hours
2	Quartan malaria	*P. malariae*	72 hours
3	Mild tertian malaria	*P. ovale*	48 hours
4	Malignant tertian or quotidian malaria	*P. falciparum*	36 – 48 hours

INNATE IMMUNITY – TYPES AND MECHANISM

TYPE OF INNATE IMMUNITY	MECHANISM
1. Anatomical barriers	
Skin	Prevents the entry of microbes. Its acidic environment (pH 3-5) retards the growth of microbes.
Mucus membrane	Mucus entraps foreign microorganisms and competes with microbes for attachment.
2. Physiological barriers	
Temperature	Normal body temperature inhibits the growth of pathogens. Fever also inhibits the growth of
Low pH	Acidity of gastric secretions (HCl) kills most ingested
Chemical mediators	Lysozyme acts as antibacterial agent and cleaves the bacterial cell wall. Interferons induce antiviral state in the uninfected cells. Complementary substances produced from leucocytes lyse the pathogenic microbes or facilitate
3. Phagocytic barriers	Specialized cells (Monocytes, neutrophils, tissue macrophages) phagocytose, and digest whole microorganisms.
4. Inflammatory barriers	Tissue damage and infection induce leakage of vascular fluid, containing chemotactic signals like serotonin, histamine and prostaglandins. They influx the phagocytic cells into the affected area. This phenomenon is called diapedesis.

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DIFFERENCES BETWEEN ACTIVE AND PASSIVE IMMUNITY

SL.NO	ACTIVE IMMUNITY	PASSIVE IMMUNITY
1	Active immunity is produced actively by host's immune system.	Passive immunity is received passively and there is no active host participation.
2	It is produced due to contact with pathogen or by its antigen.	It is produced due to antibodies obtained from outside.
3	It is durable and effective in protection.	It is transient and less effective.
4	Immunological memory is present.	No memory.
5	Booster effect on subsequent dose is possible.	Subsequent dose is less effective.
6	Immunity is effective only after a short period.	Immunity develops immediately.

DIFFERNCES BETWEEN PRIMARY AND SECONDARY IMMUNE RESPONSES

SL.NO	PRIMARY IMMUNE RESPONSE	SECONDARY IMMUNE RESPONSE
1	It occurs as a result of primary contact with an antigen.	It occurs as a result of second and subsequent contacts with the same antigen.
2	Antibody level reaches peak in 7 to 10 days.	Antibody level reaches peak in 3 to 5 days.
3	Prolonged period is required to establish immunity.	It establishes immunity in a short time.
4	There is rapid decline in antibody level.	Antibody level remains high for longer period.
5	It appears mainly in the lymph nodes and spleen.	It appears mainly in the bone marrow, followed by the spleen and lymph nodes.

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DIFFERENCES BETWEEN NORMAL AND CANCER CELL

Normal Cells	Cancer cells
Small, uniformly shaped nuclei Relatively large cytoplasmic volume	Large, variable shaped nuclei Relatively small cytoplasmic volume
Conformity in cell size and shape Cells arranged into discrete tissues	Variation in cell size and shape Disorganised arrangement of cells
May possess differentiated cell structures Normal presentation of cell surface markers	Loss of normal specialised features Elevated expression of certain cell markers
Lower levels of dividing cells Cell tissues clearly demarcated	Large number of dividing cells Poorly defined tumor boundaries

CLASSIFICATION OF DRUGS

GROUP	DRUGS	EFFECTS
Stimulants	Amphetamines, cocaine, nicotine and tobacco	Accelerates the activity of the brain
Depressants	Alcohol, Barbiturates, Tranquilizers	Slows down the activity of the brain
Narcotic/ Analgesics	Opium, Morphine	Act as depressants on the Central Nervous System
Cannabis	Bhang (Marijuana), Ganja, Charas	Affects the cardiovascular system.
Hallucinogens	Lysergic acid diethylamide (LSD), Phencyclidine	Distorts the way one sees, hears and feels

DIFFERENTAITION BETWEEN SOMATIC CELL GENETHERAPY AND GERM LINE GENE THERAPY

SOMATIC CELL GENE THERAPY	GERM LINE GENE THERAPY
Therapeutic genes transferred into the somatic cells.	Therapeutic genes transferred into the germ cells.
Introduction of genes into bone marrow cells, blood cells, skin cells etc.,	Genes introduced into eggs and sperms.
Will not be inherited in later generations.	Heritable and passed on to later generations.

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INDICES OF DENSITY

S.NO.	INDICES OF DENSITY	KEYS
1	Population density	It is usually expressed as the number of individuals per unit area or volume. Eg.100 trees per acre
2	Crude density	It is the size of a population in relation to the numbers per unit of total space. Eg.1000 fish in a pond.
3	Ecological density	It is the size of a population in relation to the numbers per unit of habitat space. Eg. 1000 fish in the volume of water in the pond.
4	Relative abundance	These are time relative indices which can show the changes in number (increase and decrease) with respect to time. Number of birds of a species spotted per hour in an unit area over a specified time.

DIFFERENCES BETWEEN r – SELECTED AND k – SELECTED SPECIES

R - SELECTED SPECIES	K - SELECTED SPECIES
Smaller sized organisms	Larger sized organisms
Produce many offspring	Produce few offspring
Mature early	Late maturity with extended parental care
Short life expectancy	Long life expectancy
Each individual reproduces only once or few times in their life time	Can reproduce more than once in lifetime
Only few reach adulthood	Most individuals reach maximum life span
Unstable environment, density independent	Stable environment, density dependent

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TWO SPECIES POPULATION INTERACTION

SN. NO.	TYPES OF INTERATION	SPECIES 1	SPECIES 2	GENERAL NATUE OF INTERACTION	EXAMPLES
1	Amensalism	--	0	The most powerful animal or large organisms inhibits the growth of other lower organisms	Cat and Rat
2	Mutualism	+	+	Interaction favorable to both and obligatory	Between crocodile and bird
3	Commensalism	+	0	Population 1, the commensal benefits, while 2 the host is not affected	Sucker fish on shark
4	Competition	--	--	Direct inhibition of each species by the other	Birds compete with squirrels for nuts and seeds.
5	Parasitism	+	--	Population 1, the parasite, generally smaller than 2, the host	*Ascaris* and tapeworm in human digestive tract.
6	Predation	+	--	Population 1, the predator, generally larger than 2, the prey	Lion predatory on deer

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NATIONAL PARKS IN TAMILNADU

NATIONAL PARKS IN TAMIL NADU	YEAR OF ESTABLISHMENT	DISTRICT(S)
Guindy NP	1976	Chennai
Gulf of Mannar Marine NP	1980	Ramanathpuram and Tuticorin
Indira Gandhi (Annamalai) NP	1989	Coimbatore
Mudumalai NP	1990	Nilgiris
Mukurthi NP	1990	Nilgiris

WILD LIFE SANCTUARIES IN TAMILNADU

PROMINENT WLS IN TAMIL NADU	YEAR OF ESTABLISHMENT	DISTRICTS
Vedanthangal Lake Birds WLS	1936	Chengalpet
Mudumalai WLS	1942	Nilgiris
Point Calimere WLS	1967	Nagapattinam
Indira Gandhi (Annamalai) WLS	1976	Coimbatore
Mundanthurai WLS	1977	Tirunelveli

DIFFERENCE BETWEEN INSITU AND EXSITU CONSERVATION

INSITU CONSERVATION	*EXSITU* CONSERVATION
It is the on-site conservation or the conservation of genetic resources in natural populations of plant or animal species.	This is a conservation strategy which involves placing of threatened animals and plants in special care locations for their protection.
It is the process of protecting an endangered plant or animal species in its natural habitat, either by protecting or restoring the habitat itself, or by defending the species from predators.	It helps in recovering populations or preventing their extinction under simulated conditions that closely resemble their natural habitats.
National Parks, Biosphere Reserve, Wild Life Sanctuaries form *insitu* conservation strategies.	Zoological parks and Botanical gardens are common *exsitu* conservation programs.

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MAJOR SOURCES OF SOLID WASTE

WASTE CATEGORY	SOURCE
Residential	Food wastes, plastics, paper, glass, leather, cardboard, metals, yard wastes, ashes, tires, batteries, old mattresses
Industrial	Packaging wastes, ashes, chemicals, cans, plastics, metal parts
Commercial	Thin and thick plastics, food wastes, metals, paper, glass, wood, cardboard materials
Institutional	Wood, paper, metals, cardboard materials, electronics
Construction and Demolition	Steel materials, concrete, wood, plastics, rubber, copper wires, dirt and glass.
Agriculture	Agricultural wastes, spoiled food, pesticide containers
Biomedical	Syringes, bandages, used gloves, catheter, urine bags, drugs, paper, plastics, food wastes, sanitary napkins and diapers, chemicals.
E-waste	Electronic items like used TVs, transistors, tape recorders, computer cabinets, mother boards, CDs, cassettes, mouse, wires, cords, switches., chargers.

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