



SPECIAL 100



Qn [1.] CELL.

a) Mitochondria.

- ↳ It is called as "power house of the cell" because of the formation of ATP.
- ↳ ATP - Adenosine triphosphate.
- ↳ participate in cellular respiration.
- ↳ Able to produce their own protein.
- ↳ DNA is found in mitochondria.

b) Cell wall.

- ↳ Absent in Animal
- ↳ made up of cellulose (In plants)
- ↳ chitin (In fungi)
- ↳ Hemicellulose (In Algae).

c) NUCLEUS.

- ↳ control room of cell.
- ↳ DNA is mainly found in nucleus.
- ↳ conduct cell division.

d) Lysosomes.

- ↳ known as "suicidal Bag" of cell. due to presence of hydrolytic enzymes.

e) RIBOSOME.

- ↳ It is made up of RNA, takes part in protein synthesis.

(f) ENDOPLASMIC RETICULUM:

- ↳ attached with ribosome & takes part in protein synthesis & detoxification of toxic substance.
- ↳ protein synthesis takes place on Rough Endoplasmic reticulum, and detoxification of toxic substance is the function of smooth Endoplasmic reticulum.

[g]. "vacuole" stores food and waste material of cell.

- ↳ found in both plant & Animal cell.
- ⊗ **Centrosome** takes part in cell division.

h) PLASTID:

- ↳ provide different colour to plant.
- ↳ chloroplast is a type of plastid found in plant leaf and also takes part in protein synthesis, that is why it is known as "kitchen of the cell".
- ↳ only found in plant cell.

Q₂. Disorder in chromosomes causes genetic or Hereditary diseases

- ↳ Sickle cell Anemia
- ↳ Haemophilia.
- ↳ colour blindness.
- ↳ Down syndrome.
- ↳ Turner's syndrome.
- ↳ Klinefelter syndrome.

Q₃ Azotobacter, Azospirillum and clostridium bacteria live freely in the soil and fix atmospheric nitrogen into the nitrogenous compound.

Qn[4] XYLEM & PHLOEM

↳ are conducting tissue in plants.

↳ Function of xylem is conduction of water and minerals, where as function of phloem to conduct foods prepared.

Qn(5) The green colour of plants is due to presence of chlorophyll. mg is present in chlorophyll.

Qn[6] Five Hormones are found in plants.

1) Auxins.

2) Gibberellins

3) cytokinins.

4) Abscisic acid or ABA.

5) Ethylene.

↳ Auxins hormone controls the growth of plant

↳ Ethylene is only hormone which is found in gaseous form. and helps in ripening of fruits.

Qn[7] Acid Rain

↳ Sulphur dioxide (SO_2), sulphur trioxide (SO_3), Nitrogen oxide (NO_2) react with environmental water and form sulphuric acid and (H_2SO_4) & Nitric acid (HNO_3). These acids reaches to Earth with water is called acid rain.

Qn [8] HUMAN BLOOD:

- ↳ fluid connective tissue.
- ↳ pH = 7.4 (Basic in nature)
- ↳ protein found in Blood plasma is
Albumin.
Fibrinogen.
prothrombin.

BLOOD CORPUSCLES:

RBC:

- ↳ Erythrocytes.
- ↳ Life span - 120 days.
- ↳ Amt - 4 to 6 m/ml.
- ↳ Nucleus, mitochondria & E.P. Apparatus are absent. Except camel & LAMA.

↳ Function:-

Transportation of oxygen to all cells of body and bring back CO₂

- ↳ All are formed in "bone marrow" and destroy in "spleen".

↳ spleen is called graveyard of RBC

↳ R:BC:WBC = 600:1

- ↳ Increase in number of RBC causes Leukemia (Blood cancer)
- ↳ Decrease in number of RBC causes Leucopenia

WBC:

- ↳ Leucocytes.
- ↳ Life span - 2 to 3 days.
- ↳ Amt - 8000-10,000 WBC/ml.
- ↳ Nucleus present.

↳ Function:-

Strengthen immune system protect the body from diseases.

↳ Shape - Amoeba (Irregular)

PLATELETS:

- ↳ Thrombocytes.
- ↳ Life span - 7 days.
- ↳ Amt - 2.5 to 4 lacs.
- ↳ Nucleus Absent.

↳ Function:-

Help in clotting of blood, with the help of prothrombin protein.

★ BLOOD CLOTTING:

parathrombin (Plasma protein) $\xrightarrow[\text{+ vitamin K}]{\text{Thromboplastin (Platelets protein)}}$ Thrombin protein.

Fibrinogen (Plasma protein) $\xrightarrow{\text{Thrombin protein}}$ Fibrin.

Fibrin + Blood corpuscles \rightarrow Blood clotting

Time - 3 to 4 minutes.

\rightarrow The compulsory protein making for clot. is Fibrinogen.

★ BLOOD GROUP:

BLOOD GROUP	Antigen	Antibody	DONAR	ACCEPTOR.
A	'A'	'b'	A, AB	A, O
B	'B'	a	B, AB	B, O
AB	A & B.	Absent	AB	A, B, AB & O
O	Absent	a, b.	A, B, AB & O	O

BLOOD GROUP DETERMINATION

FATHER	MOTHER	CHILD.
A	B	A, B, O, AB.
O	A	O, A.
A, B	A	A, O.

★ DIGESTIVE SYSTEM:

JUICE	ENZYME	EDIBLE SUBSTANCE	AFTER Reaction
1) Saliva	Ptylin Maltase	starch maltose	maltose glucose
2) Gastric Juice	Pepsin Renin	protein casein	peptone caseinogen
3) Pancreatic Juice (complete digestive juice)	Trypsin Amylase Lipase		
4) Intestinal Juice	Erepsin maltase Lactase Sucrase Lipase		

⊗ Stool Tract :-

Large Intestine → Rectum → Anus →

⊗ Fibrinogen protein helps in blood clotting whereas heparin prohibits blood clotting.

⊗ LIVER:

↳ Largest gland of human body

↳ conversion of glucose into glycogen is called glycogenesis, occurs in Liver.

↳ Gall bladder attached to it and stores bile produced by it.

↳ Liver has an important role in fat digestion

☆ pancreas is the second largest gland of human body. It secretes pancreatic juice into duodenum.

↳ α -cell of pancreas secretes glucagon hormone raise the concentration of glucose and fat in blood.

↳ β -cell of pancreas secretes Insulin.

↳ Insulin (-) \rightarrow diabetes.

Insulin (+) \rightarrow Hypoglycemia.

↳ Insulin maintains glucose level in blood.

VEIN:-

↳ Blood vessels carrying the blood from the body towards heart.

↳ vein carries impure blood except pulmonary vein which always carry pure blood.

↳ pulmonary vein :- From Lungs to Left Auricle.

Artery:-

↳ Blood vessels carrying the blood from heart towards the body.

↳ Artery carries pure blood except pulmonary Artery.

↳ pulmonary Artery :- carry blood from right ventricles to lungs.

↳ The artery carrying blood to muscles of heart is called coronary arteries.

* URINE.

↳ pH = 6 (Acidic)

↳ colour is light yellow due to urochromes.

↳ Stone formed in kidney is made up of calcium oxalates.

↳ Urinary Tract.

kidneys → ureters → urinary bladder → urethra.

* Thyroxine and Adrenaline hormones control heart beat.

* NERVOUS SYSTEM

* Cerebrum:-

↳ centre of memory, knowledge, thinking, will power etc.

* Thalamus:-

↳ centre of pain, cold and heat.

* Hypothalamus:-

↳ controls hormonal secretion.

↳ centre of Love, Hate, Anger, Thirst.

* Corpora quadrigemina:-

↳ centre of control on vision and hearing power.

* Cerebellum:-

↳ Responsible for co-ordination of muscular body movements.

* Medulla

↳ controls activity like coughing, sneezing, respiration, swallowing, vomiting etc.

GLAND

- ⊗ Enzymes are secreted by Exocrine glands, whereas Hormones are secreted by Endocrine glands.
- ⊗ ↳ pituitary gland, Thyroid gland and parathyroid glands are example of Endocrine glands.

Pituitary GLAND

- ↳ known as master gland.
- ↳ Growth hormone secreted by pituitary gland stimulates cell reproduction and regeneration.
- ⊗ Hormone secreted by Thyroid gland is called Thyroxine.
- ⊗ parathyroid gland secretes two hormones, which control the quantity of calcium in blood.

ovary

↳ secretes two hormone.

I) ESTROGEN

II) PROGESTERONE

} Female sex hormone stimulates and maintain uterus.
↳ main job is get uterus ready for pregnancy

TESTES

- ↳ Testosterone hormone secreted by Testes
- ↳ Testosterone stimulates the sexual behaviour and growth of secondary sexual character

NUTRITION

☆ carbohydrate:

↳ made up of carbon, Hydrogen & oxygen.

↳ C:H:O = 1:1:1.

1 gm = 4.2 Kcal.

Important points:

Glucose → Instant Energy

Fructose → sweetest sugar

Galactose → Juice of fruits.

Maltose → Dry fruits.

Sucrose → Table sugar.

protein:

↳ carbon, Hydrogen, oxygen and Nitrogen are present.

1 gm = 4.1 Kcal.

☆ Important proteins:

Keratin protein - found in Nail, Hairs & Horn

Myosin protein - Help in muscles contraction

Elastin protein - provide shape to tissue.

Thrombin protein - found in Blood (helps in blood clotting)

Histone protein - found in membrane of cells

(*) wheat - Glutin protein.

Egg - Albumin protein.

Milk - casein protein.

Blood Plasma - Fibrinogen protein.

Haem RBC - Haemoglobin protein.

pulse - Proteins protein.

⊗ 'Deficiency of protein causes'

(i) Kwashiorkor (In Adults)

(ii) Marasmus (In children)

↳ muscles are loosened.

Fats:

1 gm = 9.3 Kcal.

↳ simple lipid made up of fatty acid and glycerol.

VITAMIN

- ↳ Invented 'F.G Hopkins' & term given by 'FUNK'
- ↳ No calorie obtained from it.
- ↳ protect the body from disease.

on the basis of solubility.

Fat Soluble.

- vit. A.
- vit. D.
- vit. E.
- vit. K.

water soluble.

- vit 'B' complex.
- vit C.

VITAMIN 'A'

SHIVAM RAJ (MJS)

Chemical Name: → Retinol.

Source - carrot, fruits, green vegetable, milk.
egg

Deficiency disease - Night blindness &

↳ Essential for healthy skin and normal vision.
Xerophthalmia, dry & scaly skin

* VITAMIN 'D' (Calciferol)

↳ It is Hormone vitamin.

↳ Sunlight + skin → vit. D (synthesis)

function.

↳ It increases absorption of CA.

↳ Important for bones.

Deficiency causes.

- 1) Rickets (In children)
 - 2) osteomalasia.
- } Bones will become weak.

Vitamin 'E'

- ↳ Chemical name - Tocopherol.
- ↳ Necessary for glowing skin & hair.
- ↳ Stimulate gametes formation. that's why it's reproductive vitamin.

Deficiency:

- ↳ Less fertility (sterility).
- ↳ Unglow skin.

Vitamin 'K'

SHIVAM RAJ
(NJS)

- ↳ Chemical name Phylloquinone.
- ↳ Necessary for blood clotting.
- ↳ Help in synthesis of clotting protein.

water soluble vitamins:

Vitamin 'C'

- ↳ Chemical name Ascorbic acid.
- ↳ Antioxidant vitamin.
- ↳ necessary for tissue regeneration / formation of collagen.
- ↳ Temperature sensitive vitamin.
- ↳ Excrete with urine.
- ↳ Essential for formation of bone and teeth.

Deficiency:

- ↳ Scurvy. (Bleeding & swelling in gums, Pain in joints).

⊗ Citric acid is the substitute of malic acid. used in soft drinks.

Vitamin 'B' (complex of several vitamins).

Vitamin B₁

↳ chemical name - Thiamine.

↳ deficiency causes (Beri-Beri) ^{causes} Heart failure & muscle paralysis.

Vitamin B₂

↳ chemical name - Riboflavin.

deficiency causes - Redness/on tongue & crackness.

→ angle's corner crack.
(cracking of skin)

SHIVAM RAJ (MJS)

Vitamin B₅ (pantothenic acid).

deficiency :- whitening of hair, mentally Retardness.

Vitamin B₃ (Nicotinamide or Niacine)

deficiency :- Pellagra or '4D' syndrome.
- Loss of memory (Dementia)

Vitamin B₆ (Pyridoxine)

deficiency - Anemia.

Vitamin B₇ (Biotin).

deficiency - paralysis, body pain.

Vitamin B₁₂ (Cyanocobalamin)

↳ Help in Blood & DNA formation.
(RBC)

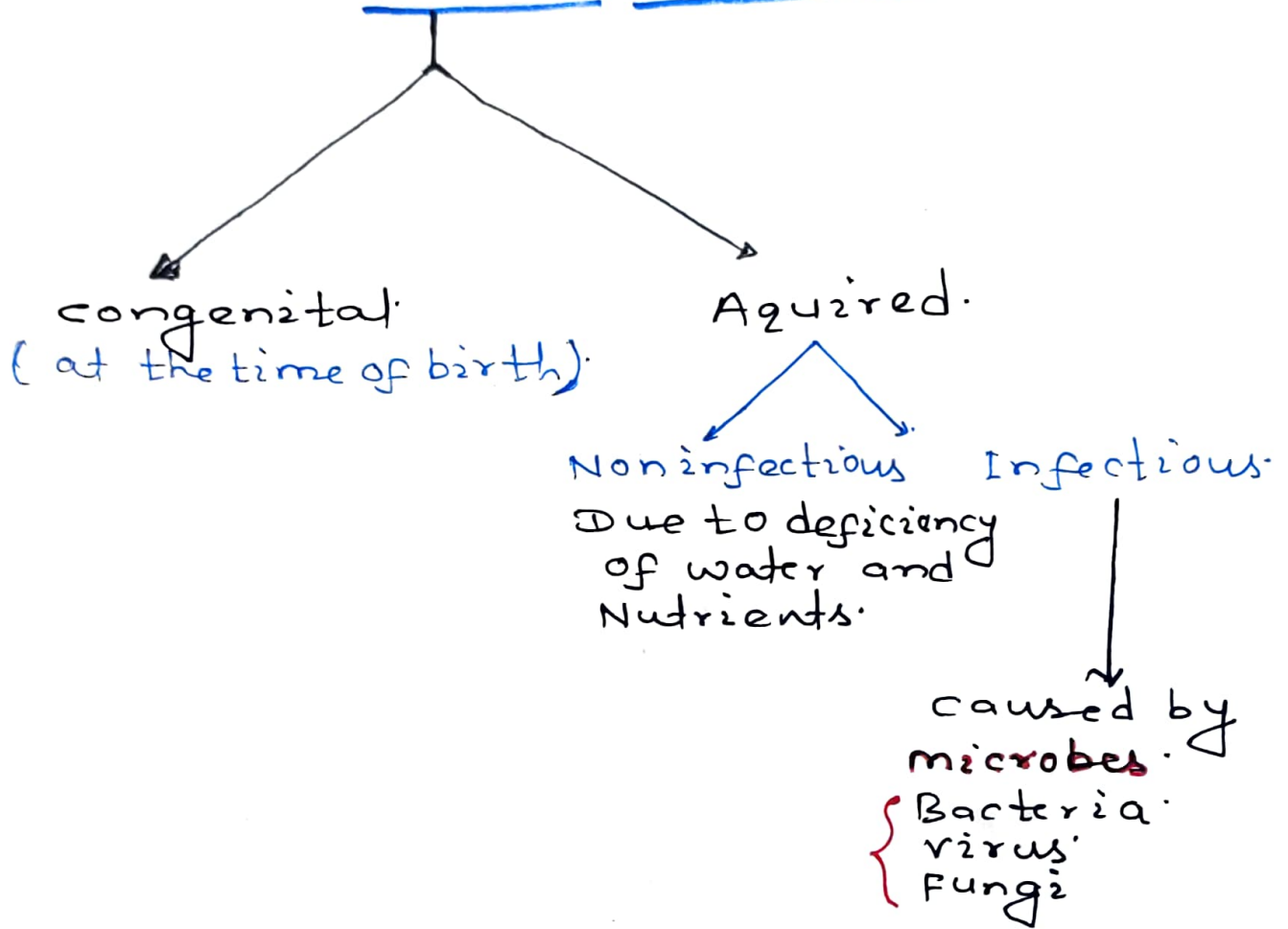
↳ cobalt is found in B₁₂ (help in treatment of cancer).

Deficiency:- Anaemia.

WISH YOU ALL THE GOOD LUCK
FOR YOUR FUTURE ENDEAVORS.

vitamin	chemical name	Deficiency Diseases.
vitamin-A.	Retinol	colour blindness, Xerophthalmia.
vitamin-B ₁ .	Thymine	Beriberi
vitamin-C.	Ascorbic acid	Scurvy, swelling of gums
vitamin-D.	calciferol.	Rickets (in children) osteomalasia (in adults).
vitamin-E.	Tocopherol.	Less fertility.
vitamin-K.	Phylloquinone	Non-clotting of blood.

HUMAN DISEASE:



DISEASE CAUSED BY BACTERIA:

1) LEPROSY. (श्लेष्म)

SHIVAM RAJ (MJS)

- ↳ caused by mycobacterium leprae
- ↳ Affected organ nervous system.
- ↳ Symptoms → Body injured, Bleeding & organ decay.

2) Tuberculosis (T.B)

- ↳ caused by mycobacterium Tuberculosis.
- ↳ Affected organ → Lungs & Lymph.
- ↳ symptoms → High coughing.

3) pneumonia:

- ↳ caused by streptococci bacteria.
- ↳ Affected organ Lungs.
- ↳ High cough, cold & fever.

(iv) Tetanus:

- ↳ caused by clostridium Tetani
- ↳ Affected organ - Nervous system.
- ↳ symptoms - Body muscles cramped & Jaw locked.

(v) Cholera:

- ↳ caused by vibrio cholerae.
- ↳ Affected organ - Intestine.
- ↳ found in unripened fruits.
- ↳ symptoms - continuous vomiting & loose motion.
- ↳ spread by contaminated food & water.

(vi) Whooping cough:

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- ↳ caused by Hemophilis pertussis.
- ↳ Affected organ - Respiratory system.
- ↳ symptoms - continuous coughing.

(vii) Plague:

- ↳ caused by Y-pestis bacteria.
- ↳ Transmission - Rat, Rabbit, Goat, Fox, wolf.
- ↳ symptoms - High fever & swelling on body.
- ↳ Affected organ - Lungs.

(viii) Diphtheria

- ↳ caused by bacteria diphtheriae.
- ↳ Affected organ - Respiratory Tube.
- ↳ symptoms - Difficulty in respiration.

(ix) Typhoid:

Mob-8840409878

- ↳ caused by salmonella typhosa.
- ↳ Affected organ - Intestine.
- ↳ High fever, Headache.

Sexual Transmitted Bacterial Disease:

1) Syphilis:-

- ↳ caused by *Treponema pallidum*.
- ↳ Affected organ urinary path.
- ↳ symptoms - swelling in urinary path.

2) Gonorrhoea:

- ↳ caused by *Neisseria Gonorrhoeae*.
- ↳ Affected organ urinary path.
- ↳ They are sexual transmitted diseases, transmitted through unprotected sexual contact.

DISEASES CAUSED BY VIRUSES:

SHIVAM RAJ (MATH JUGAD
viral SE)

1) AIDS:

- ↳ It is sexually transmitted ^{viral} disease.
- ↳ caused by Human Immuno virus (HIV)
- ↳ It affects the immunity of the person.
- ↳ It can be transmitted by sexual intercourse (through unprotected sexual contact), by blood transfusion and from pregnant mother to baby through placenta.
- ↳ The Human T-cell is very specific host cell of HIV. When HIV enters into human body, the virus can bind to T-cells and start replication.
- ↳ Test of AIDS is "ELISA Test." (Enzyme linked immuno sorbent assay).

2) Rabies:

- ↳ caused by Rabies virus.
- ↳ Affected organ - nervous system.
- ↳ It is also called hydrophobia.
- ↳ found in saliva of dog & monkey.

VIRAL DISEASE	Affected organ	Name of virus
Dengue fever	whole body	—
polio	Throat, backbone nerve	polio virus
chicken pox	varicella virus	whole body
Small pox	varicella virus	whole body
measles	whole body	morbillivirus

DISEASES CAUSED BY FUNGI

1) RINGWORM

- ↳ Itching in round shape
- ↳ Round red spot found on skin

2) Baldness

- ↳ Loss of hair

3) Asthma

- ↳ muscles contraction in lungs
- ↳ problem in breathing

4) scabies

- ↳ skin itching and white spot found on skin

SHIVAM RAJ
(NJS)
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DISEASES CAUSED BY PROTOZOA

Diseases	Parasites	Affected organ	carrier
1) pyorrhoea	gingivitis	teeth & gums	—
2) malaria	Plasmodium	RBC & LIVER	female Anopheles
3) kala-azar	Leishmania	Blood, lung & liver	sand flies
4) sleeping sickness	Trypanosoma	Brain	TSE-TSE flies
5) diarrhoea	Giardia lamblia amoeba Entamoeba histolytica	wound in Intestine	Helminthes House flies

6) Filaria (Elephantiasis) SHIVAM RAJ (MJS)

- ↳ caused by wuchereria bancrofti.
- ↳ carrier - culex mosquitoes.
- ↳ swelling in legs, testes and other parts of bodies.

ALL THE BEST.

CUT OFF NHI RANK CHAHIYE.

SHIVAM RAJ
(TEAM MJS).

* DENGUE.

- ↳ transmitted to humans through the bite of female Aedes mosquitoes.
- ↳ symptoms - High fever, severe muscle pain, joint pain, retro orbital pain, skin rash, bleeding from nose and gums.



Diseases caused by Bacteria.

Disease	Affected organ
Cholera	Intestine
Typhoid	"
Tetanus	Nervous system
Leprosy	"
Tuberculosis	Lungs
Pneumonia	Lungs

DISEASES CAUSED BY VIRUS. (26)

Diseases → Affected organ → Virus Name.

1) AIDS → WBC (Defensive system) → HIV.

2) Rabies → Nervous system → Rabies virus.

3) Meningitis → Brain → -----

4) Herpes → Skin → Herpes.

5) Polio → Throat, Backbone, nerve → Polio virus.

6) Influenza (Flu) → whole body → Mixo virus.

7) chicken pox → whole body → varicella virus.

8) Small pox → whole body → variola virus.

9) measles → whole body → morbilli virus.

10) Trachoma → Eyes → -----

11) Hepatitis → Liver or jaundice → -----

Leukemia (Blood cancer):-

This is a great increase in the number of WBC in system. Swelling of spleen takes place. Death occur within few days.

~~IN~~

Diseases caused by protozoa.

Disease	Affected organ	Parasites.
1) malaria.	RBC & Liver.	Plasmodium.
2) pyorrhoea.	Gums.	Entamoeba gingivalis.
3) sleeping sickness.	Brain.	Trypanosoma.
4) diarrhoea.	Intestine.	Entamoeba histolytica.
5) kala-azar.	Bone marrow.	Leishmania donovani.
6) Filariasis.	Legs.	wucheria bancrofti.

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MEDICINAL DISCOVERIES.

Vitamin.	F.G Hopkins
Heart transplantation	Christian Bernard.
Malaria parasite and Treatment.	Ronald Ross
Sex Hormone.	Stenach
First test tube baby.	Edwards and Stepto
Antigen.	Karl Landsteiner.
RNA.	James Watson and Arthur
DNA.	James Watson & Crick.
Insulin	Banting.
Chloroform	Harrison & Symson
Vaccine of chicken Pox.	Edward Jenner
T.B Bacteria.	Robert Koch
Diabetes	Banting.
penicillin	Alexander Flemming
Polio vaccine.	Johan E. Salk.
Bacteria.	Luwenhook.
Blood transfer	Karl Landsteiner.