Biology Pre final – III Key

1) Glucose
2) Peristalsis
3) Villi
4) Epiglottis
5) This helps in expansion and contraction of lungs that helps for respiration.
6) a) We can feel the vibrations of Heart in the wrist below thumb is called pulse.
   b) It can judge the rate of heart beat
7) Edema
8) The valve present between left Auricle and Ventricle it is also called Bicuspid valve, it regulates the flow of blood with normal pressure.
9) Urochrome
10) Waste get stored in fruits in the form of solid bodies called raphides.
11) Association neuron present in grey matter of spinal cord is connected to sensory and motor nerve of spinal cord that receive stimuli and generate response.
12) Tissue formed by cells of mother and embryo in mother's uterus around 12 weeks of pregnancy for nourishment and exchange of gases and waste materials.
13) a) Embryosac is 7 celled with 8 nucliei structure formed in ovule of flower also called female gametophyte
    b) When one of the male nuclei fuse with secondary nucleus present in centre of Embyro sac then it is called tertiary Nucleus (or) Endosperm. It is the reserve food for growing embryo.
14) a) Natural methods of vegetative propogation.
    1) Epiphyllous bud - Ex. Bryophylbum
    2) Stolon - Ex. Vallisneria
    3) Bulb - Ex. Aliumcepa
    4) Root - Ex. Carrot
    5) Tuber - Ex. Potato
    6) Corn - Ex. Colacasia
    b) Artificial methods of vegetative propogation
    1) cutting 2) layering 3) grafting 4) tissue culture
    Ex. Rose Ex. Jasmine Ex. Mango, guava, Sapota
15) a) 5^{th} cranial nerve
    b) 10^{th} cranial nerve (or) vagus nerve
16) a) Diencephalon
    b) Antonomous nervous system
17) Secretin and cholecystokinin hormones move up from small intestinal juice called succus entericus to duodenum to activate liver and pancreas to make acidic chyme to Alkaline.
18) a) Difference in characters with in very closely related groups of organisms are referred to as variations.
    b) error in DNA copy occurs in sexually reproducing organisms and is responsible for variations.
19) a) Charles Darwin c) Julius Von sachs
    b) Marcellomalphigi d) Charles Lyell
20) 1) Contour strip farming – Ex. Corn, Wheat, Cloves, are planted in alternate strips across slope. (or) across a path of prevailing wind
    2) Field Bunding around plots
    3) Growing gliricida plants for nitrogen fixation
    4) using Biofertilisers
21) 1) IUCN stand for International Union for Conservation of Nature
    2) It is founded by private groups to protect wildlife and habitats
    3) It monitors status of endangered wild life, threatened National parks and Sanctuaries.
    4) It helps in encouraging sustainable forestry methods.

5) Involvement of local people in conservation and planting forest.

22) 1) Man can fit for any level of consumers in food chain.
2) He eats green leafy vegetables and fruits so he is primary consumer
3) He eat Herbivores like Rabbit, goat so he is secondary consumer
4) He eat carnivrous animals also for food
5) So he is a omnivore, who can be placed in any trophic level of food chain.

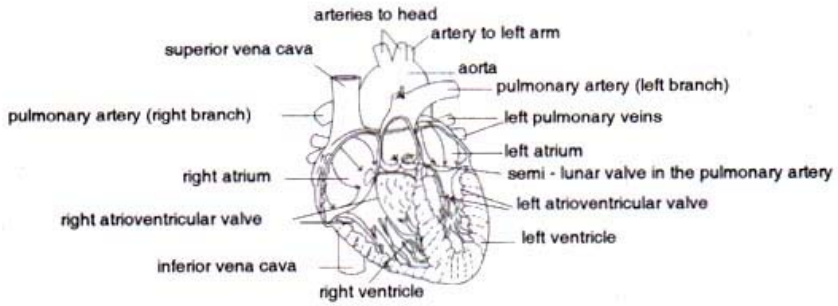
23) 1) In any pyramid, producers are at base
2) So their, number, mass and energy is more
3) The number mass and energy is also decreasing as we move from bottom to top
4) Only 10% of energy transfers from one trophic level to another in food chain.
5) so pyramids are always upright.

24) a) Tropic level is feeding position in food chain
b) In an ecological pyramid first tropic level represent primary producer, its number, its Biomass and Energy
c) In second tropic level represent primary consumer / Herbivore number, its Biomass and Energy.
d) Third tropic level represent secondary consumers, its Number its Biomass and Energy.
e) Fourth tropic level represents tertiary consumers and their its number, its Biomass and Energy

25) a) The process of entering of pollutants in a food chain is bio accumulation
b) The process of tendency of pollutants to concentrate as they move from one tropic level to next is known as Bio Magnification.

26) a) Organs which are not useful in animals are called Vestigial organs.
b) They are nearly 180 vestigial organs in Human being
c) For ex. Appendix, ear pinna, hair on skin, Mammary glands in man,
d) So Human being is a moving museum of vestigial organs

27)a)1)The heart is a pear shaped structure, triangle in outline, wider at the anterior end and narrower at the posterior end.
2) The heart is covered by two membranes called pericardial membrane.
3) The space between two layers is pericardial space. This is filled with pericardial fluid, which protects the heart from shocks.
4) The heart is divided into four parts by grooves. Two upper parts are called atria (auricles), and the two lower parts are called ventricles.
5) The walls of ventricles are thicker then the walls of atria as they have to pump the blood to the various parts of the body.
6) Right and left auricles are separated by inter auricular septum, which prevents the mixing of deoxygenated blood in the right auricle with the oxygenated blood in the left auricle.



Internal structure of heart

7) Similarly right and left ventricles are separated by inter ventricular septum.
8) Auricles (atria) and ventricles are separated by auriculo – ventricular septum.

b) Photosynthesis and Respiration

Photosynthesis	Respiration
1) Occurs only in all plants and photosynthetic bacteria.	1) Occurs in all living organisms
2) Takes place in the presence of sunlight	2) Takes place throughout day and night
3) A plant can survive without performing photosynthesis for a few days.	3) No organism can survive without respiration for few minutes even
4) In plants, only few cells perform photosynthesis	4) All living cells in an organism perform this process.
5) Raw materials are CO_2 and water	5) Uses carbohydrates and oxygen
6) Oxygen is liberated	6) Carbon dioxide is released
7) It occurs in chloroplast	7) It takes place in cytoplasm and mitochondria
8) Adds weight to the organism	8) Decreases weight of the organism
9) It is an anabolic process	9) It is a catabolic process
10) $6CO_2 + 12H_2O \xrightarrow[Chloroplast]{Light} C_6H_{12}O_6 + 6O_2 + 6H_2O$	10) $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O + 686\,k.cal.$

28) a)

Vitamin	Resources	Deficiency diseases	Symptoms
Thiamine (B_1)	Cereals, oil seeds, vegetables, milk, meat, fish, eggs.	Beri beri	Vomitings, fits, loss of appetite, difficulty in breathing, paralysis
Riboflavin (B_2)	Milk, eggs, liver, kidney, green leafy vegetables	Glossitis	Mouth cracks at corners, red and sore tongue, photophobia, scaly skin
Niacin (B_2)	Kidney, liver, meat, egg, fish, oil seeds	Pellagra	Dermatitis, diarrhoea, loss of memory, scaly skin.
Pyridoxine (B_6)	Cereals, oils seeds, vegetables, milk, meat, fish, eggs, liver	Anaemia	Hyper irritability, nausea, vomiting, fits.
Cyanocobalamine (B_{12})	Synthesised by bacteria present in the intestine	Perinicious Anaemia	Lean and weak, less appetite
Folic acid	Liver, meat, eggs, milk, fruits, cereals, leafy vegetables	Anaemia	Diarrhoea, loss of leucocytes, intestinal mucus problems
Pantothenic acid	Sweet potatoes, ground nuts, vegetables, liver, kidney, egg	Burning feed	Walking problems, sprain.
Biotin	Pulses, nuts, vegetables, liver, milk, kidney	Nervous disorders	Fatigue, mental depression, Muscle pains.
Ascorbic acid (C)	Green leafy vegetables, citrus	Scurvy	Delay in healing of wounds, fractures of

	fruits, sprouts		bones.
Retinol (A)	Leafy vegetables, carrot, tomato, pumpkin, papaya, mango, meat, fish, egg, liver, milk, cod liver oil, shark liver oil	Eye, skin diseases	Night blindness, xerophthalmia, cornea failure, scaly skin
Calciferol (D)	Liver, egg, butter, cod liver oil, shark liver oil (morning sun rays)	Rickets	Improper formation of bones, knocknees swollen wrists, delayed dentition, weak bones.
Tocoferol (E)	Fruits, vegetables, sprouts, meat, egg, sunflower oil	Fertility disorders	Sterility in males, abortion in females
Phylloquinone (K)	Green leafy vegetables, milk	Blood clotting	Delay in blood clotting, over bleeding.

b) The following are the functions carried out by endocrine glands.

Name of the gland	Hormone secreted	Response of body to Hormone (function)
Pituitary	1. Somatotrophin 2. Thyrotrophin 3. Gonadotrophin 4. Adrenocortico – trophic hormone 5. Leutinising hormone 6. Follicle stimulating hormone	Growth of bones Activity of thyroid gland Activity of ovary and Testis Stimulates secretion from adrenal cortex In male-secretion of Testosterone In females – ovulation, development of corpusluteum and secretion of progesterone. In male – spermatogenesis In female – Growth of graffianfollicles estrogen secretion, milk production and secretion
Thyroid	Thyroxine	General growth rate and metabolic activity
Ovary	Estrogen	Growth of uterus and skeleton of the pelvis, and control of menstrual cycle
Testis	Testosterone	Growth of hair on face, muscular development, deepening of voice, normal sexual behaviour and development of male sex organs.
Adrenal gland	Adrenaline	Increase in heart-beat rate; Rise in blood sugar; Dilation of coronary artery; dilation of the pupil of the eye
Parathyroid gland	Paratharmone	Controls the levels of calcium and phosphate in the blood and bone.
Pancreas (islets of langerhan)	Insulin	Converts glucose to glycogen. Low levels of insulin causes Diabetes millitus.

29)a) Alkaloids are the nitrogenous by-products and poisonous. These are stored in different parts of the plants.

Alkaloid	Plant	Part	Uses
Quinine	Cinchona officinalis (Cinchona)	Bark	Antimalarial drug
Nicotine	Nicotina tobacum (Tobacco)	Leaves	Insecticide
Morphine, Cocaine	Papaver somniferum (opium)	Fruit	Pain killer
Reserpine	Rauwofia serpentiana (snake root)	Root	Medicine for snake bite
Caffeine	Coffea Arabica (coffee plant)	Seed	Central nervous system stimulant
Nimbin	Azadirachta indica (Neem)	Seeds, Bar, Leaves	Antiseptic
Scopolamine	Datura stramonium	Fruit, Flower	Sedative
Pyrethroids	Chrysanthemum	Flower	Insecticides

b) Formation of urine involves four stages.
(i) Glomerular filtration
(ii) Tubular reabsorption
(iii) Tubular secretion
(iv) Concentration of urine

(i) Glomerular filtration: Blood flows from renal artery to glomerulus through afferent arteriole, under the influence of pressure due to the narrowness of efferent arteriole. As a result it undergoes pressure filtration or ultra filtration. Waste molecules, nutrient molecules and water are filtered out and enter the Bowman's capsule.

(ii) Tubular reabsorption: Glomerular filtrate is also called primary urine which almost equal to blood in chemical composition except the presence of blood cells. It passes into proximal convoluted tubule. Useful substances in primary urine are reabsorbed into pertubular network. The amount of water absorption depends upon amount of excess water present in the body and the amount of dissolved wastes to be excreted.

(iii)Tubular secretion: After reabsorption in PCT region, the urine travels through the loop of Henle into DCT. Here some other wastes like extra salt ions of K^+, Na^+ Cl and H^+ secretes, from peritubular capillaries into DCT.

(iv)Concentration of urine: 75% of water content of the nephric filtrate is reabsorbed in the region of proximal convoluted tubule (glucose, amino acids, vitamin C, potassium, calcium, sodium, chlorides). 10% of water passes out of the filtrate through osmosis in the area of loop of Henle. Further concentration of urine takes place in the area of collecting tubes in the presence of hormone called vasopressin.

After reabsorption the waste products from blood like urea, uric acid, creatinine, salt ions like K^+, Na^+ and H^+ are sent into ureters.

30) **a)**

Insulin : It is the hormone produced by Islets of Langerhans of pancreas. It regulates sugar levels in the blood. Its deficiency results in diabetes mellitus.

b) 1) Brain has the following divisions
1. Forebrain – Cerebrum, diencephalons

2. Mid brain – Optic lobes
3. Hind brain – Cerebellum, medulla

2) Functions of the various parts of the brain

Parts of the brain	Functions
Cerebrum	(i) Seat of mental abilities, controls thinking memory, reasoning, perception, emotions and speech (ii) Interprets sensations and responds to cold, heat, pain and pressure.
Diencephalon	(i) Relay centre for sensory impulses, such as pain, temperature and light. (ii) Reflex centre for muscular activities (iii) Centre for certain emotions such as anger. (iv) Centre for water balance, blood pressure, body temperature, sleep and hunger. (v) The hypothalamus controls the pituitary gland, which functions as the master gland.
Mid brain	(i) It relays motor impulses from the cerebral cortex to the spinal cord and relays sensory impulses from the spinal cord to thalamus, reflexes for right and hearing.
Cerebellum	(i) Maintains posture, equilibrium and muscle tone. (ii) Coordinates voluntary movements initiated by cerebrum
Medulla oblongata	(i) Contains centre for cardiac, respiratory and vasomotor activities. (ii) Coordinate reflexes like swallowing, coughing, sneezing, and vomiting.

31) a)
1) Live and let live
2) If we protect environment, it protects us.
3) Conserve nature – Conserve life.
4) Save mother earth
5) Earth needs you
6) Go ecofriendly
7) Clean the environment, live happily
8) Heal our plant ! Turn it into a better planet
9) Plant a tree for your environment
10) Think ecofridndlyand live ecofriendly.
11) Earth enables you to definitely stand. Allow it to stand the actual way it is.
12) You've only got one plant. Don't trash it.

b) ICRISAT means : International crop research Institute for Semi Arid Tropics
Measures to conserve water
a) Community based Intervention (points)
b) Farmer based Intervention points (points)