වයඹ පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව
Provincial Department of Education - NWP

තෙවන වාර පරීක්ෂණය - 13 ශ්‍රේණිය - 2026
Third Term Test - Grade 13 - 2026

9 E I

Index No: .....

BIOLOGY - I

02 Hours

Instructions:

- **Answer all questions**
- **In each of the question 01 to 50, pick one of the alternative on from (1). (2), (3), (4), (5) which is correct or most appropriate and mark your response on the answer sheet.**

(01) Which of the following statements regarding water is correct?

A - Act as a reactent in brochemical reactions.
B - Density of water increases as temperature decreases.
C - Prevent over heating of surface of plant body due to high light.
D - Water act as an electron donor.

(1) A and B only (2) A and C only (3) A, C and D only
(4) C and D only (5) B, C and D only

(02) Which of the following statements given in the table regarding main compound found in living matter is correct ?

	Cabohydrate	Protein	Lipids
(1)	Macromolecules	Macromolecules	Not macromolecules
(2)	Elements are C,H,O	Elements are C,H,O,N	Present C,H,O
(3)	Water soluble	Water insoluble	Water insoluble
(4)	Components of structure and storage	Storage component but not structural	Structural and storage component
(5)	The most abundant organic compound on the earth	Have four strctural level	Variable group of compound

(03) Which of the following is incorrect regarding biochemical molecule act as hereditory materials in all living organisms ?

(1) Store genetic information by sequence of codon
(2) Directly involve in polypeptide synthesis
(3) Have antiparallel and similar back bones for every molecule
(4) Double helical structure and bears twenty nitrogenous bases in a complete turn.
(5) Has an ability to self replicate very accurately

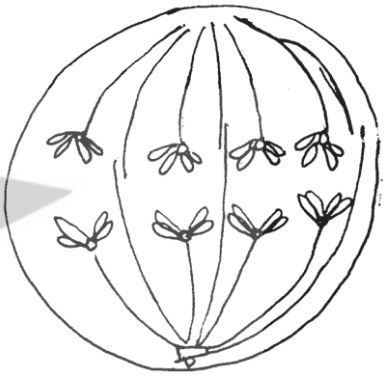
(04) Which of the following magnification of eye piece lens and objective lens combination is correct regarding observing high number of cells in *Tradescantia* peel in visual field in compound light microscope?

(1) 5×40 (2) 5×45 (3) 5×100
(4) 5×10 (5) 5×20

(05) Which of the following combination is correct regarding statements proposed for structural components in a living cells?

(1) Cell wall - Extracellular structure always possesses cellulose composition.
(2) Smooth ER - Synthesize phospholipids, doesn't act as membrane factory.
(3) Central vacuole - large fluid filled cavity found all cells.
(4) Cytoskeleton - Static structure build up with protein and microtubule
(5) Mitochondrion - Only involve in cellular respiration.

(06) Which of the following statements is / are incorrect regarding the phase of cell division given in the diagram?



A - Segregation of dominant and recessive alleles
B - Have four sets of homologus chromosomes
C - Human liver cells have such stage
D - Kinetochore microtubules shorten and microtubules which connect two poles are lengthen
E - Two genetically non identical nuclei are produced immediately after this phase.

(1) B and C (2) A and B (3) A,B and C only
(4) B,C and D only (5) B and E only

(07) Which of the following statments regarding process of photosynthesis is correct ?

(1) Only globe importance is fulfil energy requirement of living organims.
(2) Sugar is produced by reduction of CO_2 by hydrogen in water using light energy.
(3) Two path ways of photosynthesis present acroding to first product during corboxylation
(4) Chlorophyll pigment directly involve in light reaction in photosynthesis.
(5) Spliting of water occurs at all photosystems in light reaction of photosynthesis.

(08) Which of the following statements regarding theories of evolution is/are incorrect ?

A Long muscular neck of the giraffe had evolved over many generations as giraffe stretch their necks.
B Over production and Natural selections are the observations in Darwin's theory
C Only Darwinian theory and the knowledge of Mendelian genetics developed in Neo-Darwinism

(1) A only (2) B only (3) C only
(4) A and B only (5) A, B and C only

(09) The statement not incompatiable with domain which include methenogenic bacteria is?

(1) Unicellular prokaryotic.
(2) Size - Most are 0.5 μm -5 μm
(3) No peptidoglycan
(4) Live only in extreme environment
(5) Some hydrocarbons are branched in membrane lipids.

(10) Which of the following combinations is correct regarding characteristic shown by each Phylum?

features	clan
1 Possesses, xylem vessels, produce seed.	(a) Lyocophyta
2 No xylem vessels produce seeds,	(b) Pterophyta
3 Heteroporous, arranged heterophylls as pairs.	(c) Bryophyta
4 Highly dissected leaf blade, homosporous.	(d) Gnetophyta
5 No true leaves, homesporus.	(e) Cycadophyta

(1) e, d, a, b, c (2) d, e, b, a, c (3) d, e, c, a, b,
(4) d, e, a, b, c (5) e, d, c, b, a

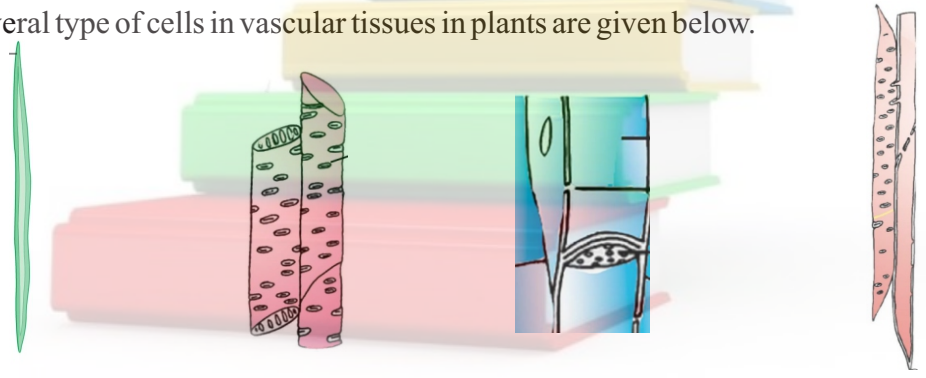
(11) Which of the following is common to both kingdom Protista and fungi ?

(1) Mode of the nutrition
(2) Cell wall components
(3) Storage food
(4) Having unicellular and multicellular type
(5) Having contractile vacuole

(12) Which of the following is not an adaptation of a plant for capturing light?

(1) Possession of vertically arranged leaves
(2) Elongation of plant stem
(3) Having various branching pattern
(4) Arrangement of leaves on the plant stern
(5) Possession of broad leaves in plant in tropical rain forest.

(13) A Several type of cells in vascular tissues in plants are given below.



A B C D

Which of the following statements is correct regarding combination of structure and functions?

(1) All of these cell types are important in transportation and support
(2) Free movement of water take place from B to D through sieve plates
(3) All vascular plants contains C Involve in transportation of organic nutrient
(4) B is too short and broad than D processes thin cell wall. Important for transportation and support.
(5) A, B and D belong to vascular tissue system and are lignified, dead cells.

(14) The data taken from an experiment that do in the school laboratory to find water potential of lower epidermal peel of *Rhoeo* are given below.

Molarrity of fue suerose mol^{-1} mol dm^{-3} (M)	0. 1	0. 2	0. 3	0. 4	0. 5	0. 6
Solute potentral KPa	-260	-540	-820	-1120	-1450	-1800
Percentage (%)	3	15	50	80	85	100

Which of the following statement is incorrect regarding above data?

(1) Molarity of the sucrose solution that create incipient plasmolysis is 0.3

(2) Pressure potential of Cells that dip in 0.6 M sucrose solution is positive value.

(3) Cells in the visual field is counted by using mid power of the compound light microscope

(4) Solute potential of *Rhoeo* lower epidermal peel is - 820

(5) Mount fragments of each *Rhoeo* epidermal peels in a drop of the sucrose solution from which peels were immersed.

(15) Which of the following is true regarding plant nutrition?

A - Mineral elements that cause strong chlorosis in mature leaves absorbs only as anion.

B - Mineral element that cause thick leathery and discolored leaves and cofactor in chlorophyll synthesis is absorbed from soil solution as an anion.

C - Mineral nutrient that cause purpling of veins, poor flowering and fruiting component of ATP

(1) A only (2) B only (3) C only

(4) All A, B and C (5) B and C only

(16) Which of the following is not an example for a photomorphogenesis in plant?

(1) Seed germination (2) Increasing height of plants grown under canopy layer

(3) Flowering (4) Gravitrophism

(5) Shoot elongation and phototrophism

(17) Following statements are on animal tissues

A - Cells in tissue closely packed

B - Dice shaped cells

C - Involved in reabsorption

D - Target site for Aldesterone

Which of the following response is the correct location of this tissue?

(1) Salivary glands (2) Lining of small intestine

(3) Proximal convoluted tubule (4) Endothelium of blood vessels

(5) Distal convoluted tubule

(18) Which of the following is similarity between parts of the stomach and duodenum in the human digestive tract?

(1) Role of amylase enzyme (2) Having large permanent circular folds

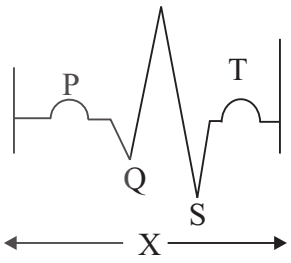
(3) Reabsorption of water by osmosis (4) Mechanical digestion by muscle contraction

(5) Emulsification of fat

(19) Which of the following is incorrect regarding food that taken for healthy life ?
(1) Negative effect on good health occurs as all essential nutrients required for good health is not in appropriate proportion.
(2) Diabetes arises when energy expenditure of an active person is much less than the energy intake.
(3) If fibres present in diet, prevent gastrointestinal disorders.
(4) Alergy reactions can occur in some persons due to some food varities.
(5) Malnutrition arises due to deficiency of one or more essential nutrients.

(20) Which of the following is not a function of transport system in animal body?
(1) Transportation of O_2 from respiratory substrate to tissues.
(2) Transportation of nutrients from absorptive site to emulsifying site.
(3) Removing of non - absorptive materials from the body
(4) Carrying hormones from the places where they synthesized to target site.
(5) Transportation of CO_2 from tissue to respiratory substrate.

(21) Which of the following statement regarding the graph given below is incorrect?
(1) Shows electrical activities of heart muscles in a cardiac cycle
(2) Atrial depolarization exhibits by P wave while ventricular repolarization exhibits by T wave.
(3) X shows time ;period for a cardrac cycle
(4) No atrial repolarizations occur in the person
(5) Q, R and S complex represent ventricular depolarization



(22) Select the correct statement,
(1) Occuring of AB blood group is codominance and both A and B antibodies present in blood plasma.
(2) It is always dangerous when Rh^+ fetus concieve in Rh^- mother
(3) The ability of blood recipiency is high in a person with AB^- than AB^+
(4) Rh^+ antibodies already present in persons blood who did not recieve blood from blood transfusion
(5) It is very important of matching of presence of antigen in red blood cells in donor with antibody in blood plasma in recipient.

(23) Which of the following combination is correct regarding homeostatic control in human respiration?
A - Inereasing CO_2 level in tissues - increase blood pH
B - Removing of CO_2 as increasing of depth and speed of respirations - set blood pH level up to normal value
C - Activate circuits in pons varolli - increase depth by decreasing speed of respiration.
D - Decrease pH level in cereberospinal fluid - Identify by sensors in medulla oblongata

(1) A, B and C (2) A, B and D (3) A and C
(4) B and D (5) C and D

(24) Which of the following occurs when pathogen tries to break down of the first level barrier defense and try to enter into the body ?

(1) Providing chemical protections by mucus membranes

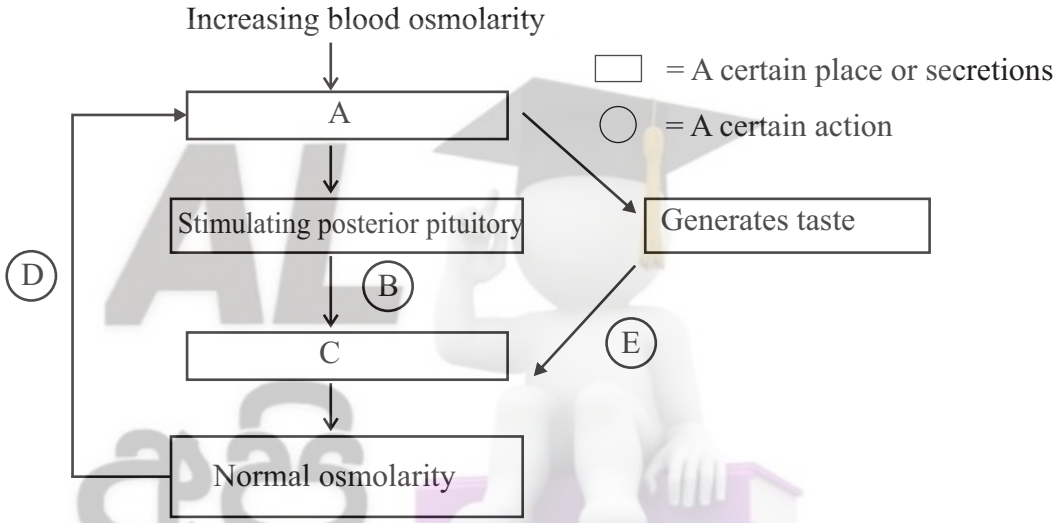
(2) Action of sweat and sebaceous glands

(3) Action of complementary protein and interferon

(4) Action of cytotoxic T cells.

(5) Destroying of pathogen by antibodies.

(25) The flow chart given below describes action of hormones on activity of kidney.



Which of the following is incorrectly represent when labelling A - E ?

(1) A - Osmoreceptors in Hyphothalamus

(2) B - Releasing ADH

(3) C - Reabsorption of water at proximal and distal convoluted tubule

(4) D - Inhibitron of activity

(5) E - Drinking of water

(26) Which of the following regarding action potential in a neuron is incorrect?

(1) Any stimulations can generate an action potential

(2) Na^+ channels which embbeded in plasmamembrane opens for depolarization, from polarization.

(3) Na^+ channels closed and K^+ channels still opens as membrane become to an action potential

(4) Charges inside the membrane become negative as repolarization take place.

(5) Na^+ channels closed at hyperpolarization.

(27) Activities of eye at vision are given below.

A - Cones stimulate at every light conditions

B - Action of external eye muscles are important for foccusing the object closest to the eye.

C - Relaxation of cilliary muscles occurs as observing distant object.

Which of the above statement/s is/are correct?

(1) B only (2) A only (3) C only

(4) B and C only (5) A and C only

(28) In oogenesis in human female,

(1) Ova mother cells produce by mitosis of primodial germ cells at childhood.

(2) Development and growth of follicle stimulate by LH beginning at puberty

(3) Secondary oocytes arrested at meiosis II released by rupturing follicle

(4) Cytokinesis take place equally as meiosis occurs.

(5) The ruptured follicle develop into corpus albicans

(29) Joints their locations and types of movements of human skeletal systems are given below.

Types of Joints	Location	Types of movements
A - Pivot	E - Hip Joint	H - flexion, extensions
B - Himge	F - Atlas-axis joint	I - Rotation
C - Ball and socket	G - between phalanges	J - Adduction, Abduction

Which of the following regarding above facts in table is correct ?

(1) A - G - H (2) B - G - I (3) A - F - I

(4) C - F - J (5) B - E - H

(30) Which of the following regarding gene linkage is correct ?

(1) Always linked genes are recombined

(2) Parental phenotypes are produced in the progeny

(3) Recombination may take place at the metaphase in meiosis II

(4) There is more tendency to exchange genes where locate at both side of the centromere.

(5) Parental and recombinent phenotypes emerge in equal ratio at incomplete dominance.

(31) Which of the following regarding interspecific breeding is not correct?

(1) Progeny obtained may be fertile, partially fertile or sterile

(2) The intermediate form of a plant hybrid is more likely to be physiologically successful

(3) Sterile interspecific hybrid can undergo a doubling of their chromosome set and become fertile tetraploid.

(4) The hybrids can become new species with characeristics different from either of the plants.

(5) Infertility can remove by interbreeding of Interspecific hyborid progeny with their parents

(32) Which of the following correct regarding DNA probes?

(1) A fragment of double stranded labelled DNA used to detect the presence of complementory nucleic acid sequence.

(2) The labeling can be done incorparations of a radroactive only.

(3) If the probe is radioactively labelled the band with target sequance can be identified by autoradiography of the membrane.

(4) Complementary DNA sequence can be identified by using probes at the gel

(5) This single stranded fragment can hybridized only with complementary single DNA fragment

(33) Which of the following statements / statements is correct regarding events that used in field of genetric enginering ?

A. DNA sequencing - process to determine the precise order of bones in a DNA molecule.
B. Gene clonning - copying millionths of desired DNA in invitro
C. Transduction - delivering of foreign DNA to the host cells by bacteriophages

(1) All A, B and C (2) A and C only (3) A and B only
(4) B only (5) B and C only

(34) Which of the following is not an incident for of genetic modification in medicine ?

(1) Production of human insulin by genetically engineered *E.coli*
(2) Production of hepatities B vacine in yeast
(3) Production of factor VIII in yeast cells that grown in cell culture.
(4) Production of tissue plasminogen activator used to treat heart attack.
(5) Using of gene therapy to treat Leukemia

(35) The Biome which North American prairie include is,

(1) A grassland with tropical climatic regions
(2) Dominant species are grass and grass are tall.
(3) All prairies grasslands is now in endangered.
(4) Large grazers such as horses and many type of burrowing mammals present.
(5) Rain is constant throughout the year.

(36) A several effect of Globle environmental issues and causes of thems are given below.

(A) Severe drought - occuring of acid rain
(B) Increasing insect population - globle warning.
(C) Potential risk of skin cancer - occurring of acid rains.
(D) Carbon storage capacity of plants and soil reduce in the long runs - Desertification.
(E) Leaching of some heavy metals into soil - ozone depletion.

Which of the above issues and causes combination is / are correct?

(1) B and D only (2) A, B and D only (3) C and D only
(4) Band C only (5) B only

(37) Which of the following statement is not true regarding nitrogen cycle ?

(1) All the organic matter found in plant and animal residues decompose by extracellular enzymes secreted by micro organisms
(2) Nitrifying bacteria converts NH^{+}_{4} into NO_2 by oxidation
(3) *Azotobacter* act is special aerobic conditions at fixation of atmospheric nitrogen.
(4) *Pseudomonas* involve for oxidations of NO^{-}_{3} into N_2
(5) Some bacteria and cyanobacteria important for fixation of atmospheric - Nitrogen symbiotically.

(38) MMR vaccines used for immunization.

(1) Killed pathogenic micro organisms are included
(2) Given for measles rubella and tetanus
(3) Is a subunit Vaccine
(4) It is given life long immunity
(5) Is important to give boosters dose repeatedly.

(39) Which of the following matching combination regarding viral morphology and their examples is not correct?

(1) Enveloped virus - Herpis simplex virus
(2) Polyhedral virus - Tobacco mosaic virus
(3) Complex virus - Bacteriophage
(4) Helical virus - Rabies virus
(5) Polyhedral virus - Adenovirus

(40) Several statements on nano-shells are given below.

A. Use for treating diabetes.
B. Used for enhancing bio imaging
C. Used for treating cancers
D. Used for treating pain

Which of the following is / are correct regarding above statements?

(1) A and B (2) B and C (3) C and D
(4) A and C (5) B and D

- **For each of the questions 41 to 50, one or more of the responses is/are correct. Decide which response / responses is/are correct and then select the correct number.**

If only A, B and D are correct (1)
If only A, C and D are correct (2)
If only A and B are correct (3)
If only C and D are correct (4)
If any other response or combination of responses are correct (5)

(41) Which of the following is / are correct regarding electron transport chain in aerobic respiration?

A. Occurs through inner membrane of mitochondrion
B. Movement of electron and proton occurs through inner membrane of mitochondrion
C. Oxidation of NADH and $FADH_2$ take place
D. Possesses a series of non-proteinous molecules for movement of electron and proton
E. Production of ATP from substrate and oxidative phosphorylation

(42) Which of the following match correctly as character and phylum

A. Sensory papillae present at the anterior end of the body - Platyhelminthes ?
B. Segmented cylindrical body - Nematoda
C. Muscular foot for locomotion - Mollusca
D. No circulatory system and heart - Echinodermata
E. Vertebral coloumn, dorsal heart - Chordata

(43) Which of the following response / responses regarding auxin, giberrelin and ethylene is / are correctly represent in sequence?

A. Retards leaf abscission , stimulate fruit growth, promotes ripening of fruit.
B. Enhances apical dominance, stimulate pollen development, promote roots and root hair formation.
C. Delay leaf senescence, functions in gravitrophism, promote dessication tolerance.
D. Promotes vascular differentiation, stimulate stem elongation, promote triple response in seedlings.
E. Promote seed dormancy, stimulate seed germination, promote flowering

(44) Which of the following satement / s is / are true regarding clotting of blood and its importance ?

A. Platelet plugs provide instance protection against blood loss
B. Formation of thrombin take place after releasing clotting factor by platelets
C. Activated prothrombin invoved in formation of more thrombin
D. Prevent further blood loss only by blood clotting
E. Heparin prevent the clotting of blood

(45) Which of the following regarding hormones and their action or places where they acts on is / are correct ?

A. Triodothyronin - metabolism of protein, Carbohydrate, and lipids
B. Calcitonin - a thyroid hormone, act on oocytes
C. Oxytocin - produce by hypothalamus acts on milk glands.
D. Cortisol - production of glucose by breaking down of protein in muscle tissues
E. Aldesterone - Produced in adrenal medulla, reabssorption of K^+ from distal convoluted tubule

(46) Which of the following statements regarding structure of sarcomere is / are not true?

A. Sarcomere made of myofibrils
B. Two types of thick and thin filaments are present
C. Boundary of sarcomere is Z line
D. Terminal end of sarcomere have thick and thin filaments
E. Thick filaments bind with M line

(47) Which of the following / s is / are correct regarding invasive alien species?

A. Threaten for native species,
B. Reproduce successfully and spread without limits
C. *Lantana camera* causes forest fire
D. Have an ability to tolerate environmental factor
E. All alien species become threaten state and harm to biodiversity.

(48) Which of the following is / are characteristics of genetic code?

A. Possesses codon
B. Every 64 codons code for amino acid
C. Genetic codes are universal
D. No space to limit the words in genetic code
E. Codon is overlapped as it read one after another

(49) The physical changes occurs of food spoilage is / are,

A. Pigmentation B. Accumulation of toxins C. Bad odor
D. Ropiness E. Sour taste

(50) Filariasis related in lymph vessels in sri lanka,

A. A' disease caused by a nematoda which spread through water.
B. Permanently cause damages.
C. Number of infected person cause transmission of disease.
D. Microfilaria live in blood vessels associated in lungs at day time.
E. Adult nematode live in lymphatic system about a year.

වයඹ පළාත් අධ්‍යාපන දෙපාර්තමේන්තුව
Provincial Department of Education - NWP

තෙවන වාර පරීක්ෂණය - 13 ශ්‍රේණිය - 2026
Third Term Test - Grade 13 - 2026

9 E II

Index No: .....

BIOLOGY - II

03 Hours
Extra Reading time 10 minuets

Part -A (Structured Essay)

Introduction:

- **Answer all questions**

(01)(A)(i) State what are known as cohesion reproduction and inheritance of acquired characteristics.

(a) Cohesion -

.....

.....

(b) Reproduction -

.....

.....

(c) Inheritance of acquired characteristics-.....

.....

.....

(ii) Draw the way of formation of Triacylglycerol.

(iii)(a) State the base of categorizing Fats / Glycerides as Saturated fats and, Unsaturated fats.

.....

(b) State how coconut oil differ from butter.

.....

.....

.....

(iv)(a) What is the molecule that act as the genetic material of all organisms ?

.....

(b) State two functional characteristics of above mentioned molecule.

.....

.....

(v) (a) What is the dynamic supporting structure in Eukaryotic cell ?

.....

(b) What are the components which above mentioned structure made out of ?

.....

(B) (i) (a) State the phases where cell cycle controlling check points available.

.....

(b) State the significance of these controlling check points.

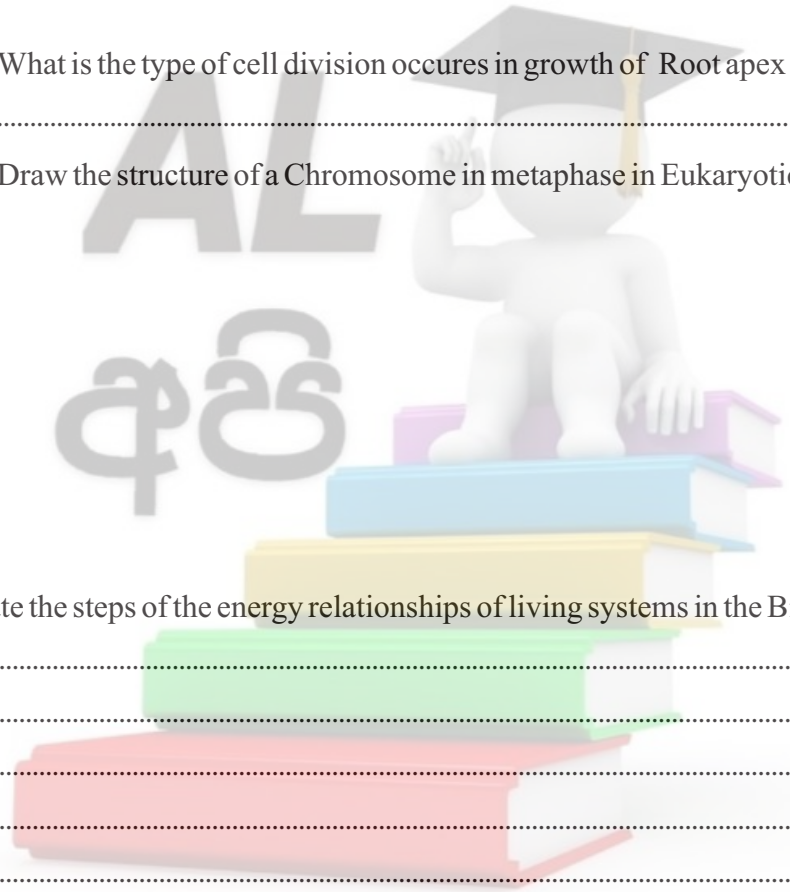
.....

.....

(ii) (a) What is the type of cell division occures in growth of Root apex ?

.....

(b) Draw the structure of a Chromosome in metaphase in Eukaryotic cell cycle.



(iii) State the steps of the energy relationships of living systems in the Biosphere in order.

.....

.....

.....

.....

.....

.....

(iv)(a) What is known as Photoprotection and state the materials engage with the process ?

.....

.....

b) State the importance of Photoprotection.

.....

(v) (a) Mention two factors affecting on rate of Photosynthesis except light intensity.

.....

.....

(b) State the instrument that can be used to identify, the way of affecting light intensity on Photosynthesis.

.....

(C)(i) (a) Write the steps of obtaining readings by using above instrument with different light intensities ?

.....

.....

.....

.....

.....

.....

.....

.....

(b) State and assume that was made when conducting this experiment.

.....

(ii) What conditions were favorable for the synthesis of simple organic molecules essential for the origin of life ?

.....

(iii) State the special event occured in the following systems with the origin of Photosynthetic organism.

Water system - .....

Atmosphere - .....

(iv) How does Natural classification differ from Artificial classification ?

.....

.....

(v) State the special events occured during given below time duration, when studying the evolutionary relationship in the Plant kingdom.

a. Million 470 years - .....

b. Million 425 years - .....

c. Million 305 years - .....

(02) (A) (i) Some organisms of kingdom Protista are heterotrophs. They have some special structures to engulf food. State that kind of structure and examples for each.

structure	example
.....	.....
.....	.....

(ii) According to the fossils suggestions, the ancestors of vascular plants had Gametophyte and Sporophyte that were about equal in size. Mention the nature of Gametophyte & Sporophyte generations in living vascular plants.

.....

.....

(iii) (a) What type of cells contributes to transport in the Xylem of all vascular plants ?

.....

(b) Write answers according to above type of cells ?

Shape of cell - .....

Way of moving water from end to end - .....

(iv) Write the sexual reproductive structures of below genus ?

Rhizopus - .....

Aspergillus - .....

(v) Complete the key by using given animals.

Hydra, Round worm, Leech, Snail, Spider, Star fish

(1) Symmetrical body. - .....

Asymmetrical body. - .....

(2) Tentacles present - .....

Tentacles absent - .....

(3) With External segmented body - .....

Without external segmented body- .....

(4) Presence of suckers - .....

Absence of suckers - .....

(5) Possesses tube feet - .....

Do not possess tube feet - .....

(B) (i) (a) State what is Stomata.

.....

.....

(b) State the way of regulating the diameter of the Stomata.

.....

.....

(ii) Environmental stress such as drought, high temperature and wind can cause Stomata to close during the day time. State another two factors affecting on the opening & closing of Stomata. .....

.....

(iii) (a) What is known as Diffusion ?

.....

.....

(b) Mention a different character between Diffusion & Facillitated diffusion.

.....

.....

(iv) (a) What is the difference between Photomarphogenesis and Thigmomorphogenesis ?

.....

.....

(b) State an example for Photomorphogenesis & Thigmomorphogenesis.

Photomorphogenesis - .....

Thigmomorphogenesis - .....

(v) (a) Write two growth substances which act oppositely on plant leaves ?

.....

.....

(b) State what are the opposite effects you mentioned above.

.....

.....

(C)(i) (a) What is the basic structural unit of Nervous tissue ?

.....

(b) State the main parts of above mention structure.

.....

(ii) (a) How does a Nerve form ?

.....

(b) What is considered a Nerve impulse ?

.....

(iii) What are the main stages in holozoic nutrition occured within Oral cavity ?

.....

.....

(iv) What are the main type of muscles in the wall of the Oesophagus and state their functions ?

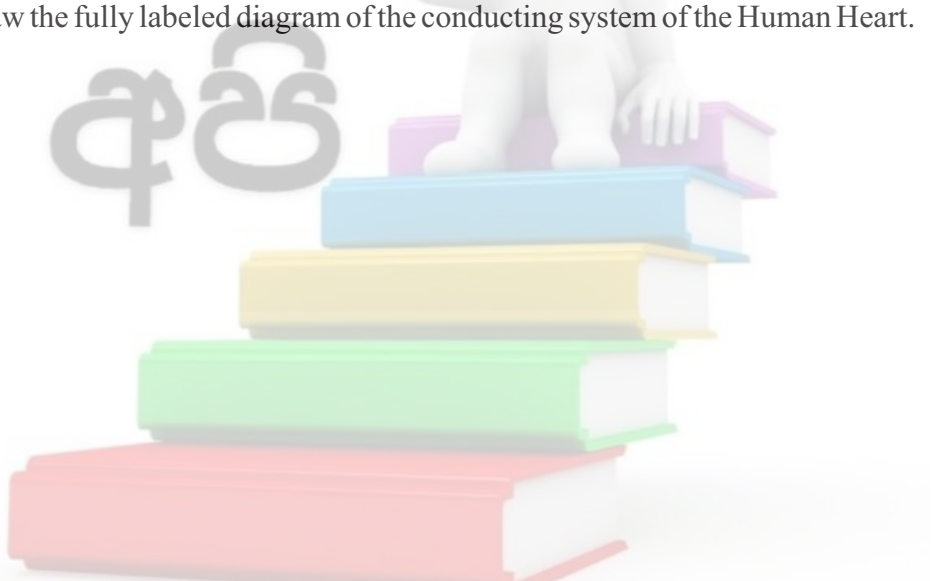
.....

.....

(v) What are the main consists of each pulmonary and systemic circuits ?

.....

(03)(A)(i) Draw the fully labeled diagram of the conducting system of the Human Heart.



(ii) (a) What is the part of the nervous system that accelerates the heart beat rate ?

.....

(b) How does that part affect on Digestive system ?

.....

.....

(iii) What does an ECG diagram show ?

.....

.....

(iv) (a) A state an Enzyme is contained in the plasma of Human red blood cells ?

.....

(b) What is the function of that Enzyme ?

.....

(v) (a) How does the voice of a person comes out when they speak ?

.....

.....

.....

.....

(b) State the immunity responses is activated when pathogens penetrate the external deffensive barriers in the skin and mucus membrances in the Human body?

.....

(B)(i) State two non cellular components consist in the above mentioned defensive mechanism.

....

(ii) State two signaling molecules upon infection or injury in inflammatory response and mention type of cells. Which they produce and the function done by them.

Signaling molecule	Producing cell	Function
.....	.....	.....
		.....
.....	.....	.....
		.....

(iii)(a) State the importance of Osmoregulation and Excretion.

Osmoregulatron - .....

- .....

Excretion - .....

- .....

(b) Arrange the Nitrogenous excretory products in order of increasing solubility in water

.....

(iv) (a) State what is chronic Kidney disease.

.....

(b) Mention two things that you can do to prevent chronic Kidney disease.

.....

.....

(v) (a) State the processes done by the eye which are involved in producing a clear Image on the Retina.

.....

.....

(b) State a method that can be done to control Hypothyroidism ?

.....

(C)(i) (a) What causes the secretion of Gonadotrophic hormones by the anterior pituitary to be inhibited in the early stages of follicular phase ?

.....

(b) What is the reason of increase GnRH secretion sharply ?

.....

.....

(ii) (a) State what is implantation.

.....

.....

(b) State the nature of Vertebral column in the foetus.

.....

(iii)(a) Indicate the time frame and reason by which the child is able to straighten the head and body.

Head upright - .....

.....

Body upright - .....

.....

(b) What is the percision grip in the arm is unique to humans?

.....

(c) How did human acquire that ability?

.....

.....

(iv) How does incomplete dominance differ from mendelian inheritance ?

.....

.....

.....

(v) (a) State the difference between Inbreeding & Hybrid breading.

.....

.....

.....

.....

(b) Name a plant whose yield has been increased through Hybridization today.

.....

(04)(A)(i) (a) State two functions of Restriction Endonuclease enzyme in gene technology.

.....

.....

(b) Which enzyme is involved in the synthesis of DNA chain from a RNA template ?

.....

(ii) (a) What is DNA probe ?

.....

.....

(b) State two methods of labeling.

.....

.....

(iii) State two advantages of YACs than other DNA vectors.

.....

.....

(iv) (a) What is the reason for only one strand of double stranded DNA acts as a template for transcription ?

.....

(b) Write a type of protein that degrades rapidly after its function ?

.....

(v) What are Exones ?

.....

(B)(i) What is known as Niche ?

.....

(ii) (a) State the largest Biome on the Earth.

.....

(b) Name a place where Wet Pathana Grassland can be seen in Sri Lanka.

.....

(iii)(a) State three effects of the global warming and climatic change.

.....

.....

.....

(b) State the aims of CITES.

.....

.....

.....

.....

(iv) How *Lantana camera* threat on natural bio diversity as an invarsive alien species ?

.....

.....

.....

(v) Mention two organisms which have affected due to over exploitation except *Salacia reticulata*.

.....

.....

(C) (i) (a) Mention unique characteristic of mollicutes.

.....

(b) State a micro organism that can be used to produce Protiase enzyme commercially.

.....

(ii) (a) State what is culture media.

.....

.....

.....

(b) State a culture media that can be used to grow bacteria.

.....

(c) Mention two primary purposes of a simple stain.

.....

.....

.....

(iii) (a) State the antibiotic that disrupting plasma membrane.

.....

(b) Mention an Extra - cellular enzyme which releases by pathogens that disrupt cell membrane.

.....

(iv) (a) What is known as Nursery ?

.....

.....

.....

(b) Write the main reason of following protected cultivation technology ?

.....

.....

(v) (a) What is known as Human Genome Sequencing ?

.....

(b) Name a plant sp. that has completed Genome Sequencing except Human Genome Sequencing.

.....

Part B - Essay

Answers 04 questions only.

(05) (a) Explain the regulation mechanism of enzymatic activity in cells.

(b) Briefly explain the process of DNA replication in Eukaryotes.

(06) (a) Describe the Phloem translocation of Angiosperms by pressure flow hypothesis.

(b) Explain the life cycle of a non vascular plant with an example.

(07) (a) Describe the mechanism of ventilation of lungs.

(b) Briefly describe the functions perform by the sympathetic division of the autonomic nervous system on internal body organs.

(08) (a) Describe the ultrafiltration ocures in the process of urine formation.

(b) Describe the structure of inner ear of Human.

(09) (a) Explain the applications of genetically modified organisms (GMO) in agriculture.

(b) Describe human sex - linked characteristics.

(10) Write short notes on followings.

(a) Exotoxins

(b) Mangroves

(c) Applications of nano technology in medical field.