



Final Term Test - November 2022

Grade 13

Biology 1

09 E I

Two hours

Answer all questions.

- (1) Which of the following is correct regarding nucleic acids and nucleotides?
  - 1) Messenger RNA : Most abundant type of RNA in a cell.
  - 2) Transfer RNA : Least abundant type of RNA in a cell.
  - 3) Ribosomal RNA : Has a complex irregular structure.
  - 4) NADP<sup>+</sup> : Acts as universal energy carrier.
  - 3) FAD : Acts as a reducing agent in photosynthesis.
- (2) Correct statement regarding the extracellular matrix is,
  - 1) All the organisms who do not have a cell wall have extracellular matrix as a protective layer over the cell surface.
  - 2) Main components of the ECM are proteoglycan and other carbohydrates.
  - 3) Most abundant proteoglycan in the ECM is collagen.
  - 4) The collagen fibers are embedded in a network woven out of glycoprotein secreted by the cell.
  - 5) ECM influences the cell behavior by involving in the mechanical and chemical signaling.
- (3) Steps involved in preparation of a specimen of an onion epidermal peel for microscopic observation are as follows.
 

A - make thin epidermal peels of onion and place in water in a watch glass.

B - Transfer a piece of onion peel on to the slide using a fine paint brush.

C - Place a drop of water on the centre of the clean slide.

D - Cover the specimen with a coverslip not allowing air bubbles to be trapped under the cover slip.

The correct sequence of above steps are,

1) ACBD      2) ABCD      3) ABDC      4) CABD      5) ABC only.
- (4) Incorrect statement regarding the eukaryotic cell cycle is,
  - 1) Cell cycle controlling check points are available at G<sub>1</sub>, G<sub>2</sub>, and m phases.
  - 2) DNA replication occurs only in synthetic phase.
  - 3) The formation of mitotic spindle begins in prophase of mitosis.
  - 4) Spindle microtubules get depolymerized in cytokinesis.
  - 5) By the end of anaphase. equal and complete set of chromosomes found at each pole of the cell.
- (5) Incorrect statement regarding enzymes inhibitors is,
  - 1) Most of the competitive inhibitors are reversible inhibitors.
  - 2) Reduction of the rate of enzyme catalyzed reactions due to competitive inhibitors can be Overcome by increasing the substrate concentration.
  - 3) Protease inhibitors block the activity of protease enzyme which involve in reproduction of HIV.
  - 4) Non - Competitive inhibitors can change the shape of active site to make it less effective for the formation of enzyme substrate complex.
  - 5) Toxins and poisons act as competitive inhibitors.



- (6) Number of turns of calvin cycle that should be taken place to produce one glucose molecule is,  
 1) 3 turns  
 2) 2 turns  
 3) 6 turns  
 4) one turns  
 5) 12 turns
- (7) Consider the statements A and B given below.  
 A - Most of gymnosperms have flagellated sperms.  
 B - All the seed plants do not need external water for fertilization.  
 Which of the following is correct regarding the above statements?  
 1) A is correct and B is incorrect.  
 2) A is incorrect and B is correct.  
 3) Both A and B are incorrect.  
 4) Both A and B are correct and A is supported by B.  
 5) Both A and B are correct and A is not supported by B.
- (8) Meiosis taken place,  
 1) When conidia are produced at the tip of the conidiophores.  
 2) When ascospores are produced inside the asci  
 3) When basidia are produced on the gills of the basidiocarp.  
 4) When male gametes are produced inside the pollen grains.  
 5) When eggs are produced inside the ovule.
- (9) Some structures found in different animal phyla and functions of them are given below.
- | phylum        | Structure             | Function                            |
|---------------|-----------------------|-------------------------------------|
| A. Annelida   | P. Pseudocoelom       | a. Excretion                        |
| B. mollusca   | Q. Cephalization      | b. Contains reproductive Structures |
| C. Nematoda   | R. Malpighion tubules | c. Sensation                        |
| D. Arthropoda | S. Visceral mass      | d. Locomotion                       |
- Select the response that indicates the correct combination.  
 1) A P d  
 2) B S c  
 3) D R a  
 4) C Q c  
 5) A R a
- (10) Reptiles are the first animals to live a complete terrestrial life.  
 Which of the following features is not an adaptation of reptiles for complete terrestrial life.  
 1) Posses limbs for locomotion.  
 2) Body is covered with keratinized scales.  
 3) Posses lungs for respiration.  
 4) Lay shelled eggs.  
 5) All are ectotherms.
- (11) Which of the following statements regarding xylem tissue is correct?  
 1) In all angiosperms and some seedless vascular plants contain vessel elements and tracheids.  
 2) Sieve plates are present at end walls of vessel elements.  
 3) Parenchyma functions in radial transportation of water  
 4) Tracheids are non-conducting cells of water  
 5) Secondary walls of vessel elements and tracheids are thickened with suberin and often interrupted by pits.



- (12) Dicot leaves differ from monocot leaves because in dicot leaves.
- 1) Stomata are present in both lower and upper epidermis in equal amount.
  - 2) mesophyll cells are not differentiated into palisade and spongy mesophyll cells.
  - 3) Chloroplasts are abundant in all mesophyll cells.
  - 4) Some mesophylls are arranged with many air spaces
  - 5) Veins are parallelly arranged.
- (13) Solute potential
- 1) is directly proportional to water potential.
  - 2) of pure water is 0 MPa
  - 3) of a solution is not often negative.
  - 4) is the physical pressure on a solution
  - 5) will become more negative as the solute concentration increases
- (14) Select the correct statement regarding root pressure and guttation.
- 1) Root pressure is created at night when relative humidity of atmosphere is low.
  - 2) Endodermis contributes for creating root pressure by reducing water potential.
  - 3) The process of removal of water vapour from leaf tips or leaf margins is known as guttation.
  - 4) Guttation may be take place through lenticels
  - 5) Root pressure pushes water up distance over meters within the plant.
- (15) Select the response that indicates a macronutrient and a micronutrient that activate many enzymes respectively
- 1) N, Cu                      2) K, Mn                      3) Cl, B                      4) Mg, Zn                      5) Ca, Mo
- (16) Which of the following statements regarding life cycle of cycas is correct ?
- 1) Both megasporophylls and microsporophylls are arranged in the same cone.
  - 2) Heterophyllous leaves are arranged as pairs in sporophyte.
  - 3) External water is essential for fertilization.
  - 4) Female gametophyte partially depends on stored food in the megaspore.
  - 5) Male gametophyte has short life span.
- (17) A few functions of plant hormones are given below.
- Stimulate stem elongation
  - Promote leaf senescence
  - Stimulate seed germination
  - Enhance the rate of senescence
- Plant hormones involving above functions are respectively.
- 1) Cytokinins, Auxins, Ethylene, Gibberellins.
  - 2) Gibberellins, Absciscic acid, Cytokinin, Ethylene.
  - 3) Ethylene, Cytokinins, Auxins, Absciscic acid.
  - 4) Auxins, Ethylene, Gibberellins, Cytokinin.
  - 5) Absciscic acid, Auxins, Gibberellins, Ethylene.



- (18) Which of the followins is not a function of neuroglial cells.
- 1) Insulation of nerve cells.
  - 2) Transmit impulses to other neurones
  - 3) Nourishment of nerve cells
  - 4) Replenishing neurons
  - 5) Modulate neurones functions.
- (19) A function of saliva.
- 1) Chemical digestion of polysaccharides into small polysaccharides and disaccharide maltose.
  - 2) Provides liquid medium for swallowing.
  - 3) Protects the lining of the digestive tract.
  - 4) Protects against bacteria that enter the mouth, by lysozymes.
  - 5) Prevent tooth decay by neutralizing buffers.
- (20) Which of the followins is not a risk factor for hypertension.
- 1) Shock
  - 2) Obesity
  - 3) Stress
  - 4) smoking
  - 5) A sedentary life style
- (21) Which one of the following is not correct?
- 1) A person with a specific antigen in red blood cells does not possess the antibody in the plasma.
  - 2) Individuals have anti - A and anti - B in plasma.
  - 3) If red blood cells have antigen B and plasma with antibodies a that persons blood group is B.
  - 4) If red blood cells have no antigen Aor B but plasma has both antibodies.
  - 5) The surface of the red blood cells carries antigen called agglutinin.
- (22) Find the incorrect statement.
- 1) Each heam group can combine with reversibly with molecules of oxygen.
  - 2) CO<sub>2</sub> combine with protein group of hemoglobin and form carbamino hemoglobin.
  - 3) CO<sub>2</sub> does not compete with oxygen binding sites in hemoglobin.
  - 4) When CO<sub>2</sub> diffuces into the red blood cells the enzyme carbonic anhydrase catalye the combination of water and CO<sub>2</sub>.
  - 5) The least amount of CO<sub>2</sub> is dissolved in plasma as free as.
- (23) Which one of the following is not happened in the respiration of human ?
- 1) Concentration gradient favours the diffusion of O<sub>2</sub> and CO<sub>2</sub> in opposite directions.
  - 2) In the internal respiration movement of O<sub>2</sub> from blood to the tissues and CO<sub>2</sub> from the tissues to the blood takes place.
  - 3) In the external respiration transport of O<sub>2</sub> from the lungs to the blood and movement of CO<sub>2</sub> from the blood to the lungs take place.
  - 4) In the unloading of O<sub>2</sub> the net diffusion of O<sub>2</sub> from the blood stream into the tissue takes place.
  - 5) Diffusion of O<sub>2</sub> and CO<sub>2</sub> requires pressure gradients between the alveolar air in the lungs and blood during internal respiration.
- (24) Which one of the following statement is not correct about the structure of the kidney.
- 1) Medulla is composed of renal pyramids.
  - 2) Kidney is held in position by a fibrous connective tissue.
  - 3) Reanal cortex is granulated due to the presence of glomeruli.
  - 4) Apex of the pyramid projects into the renal pelvis through papillae.
  - 5) Cortex and medualla is tightly packed with excretory tubules.



(25) The correct order of the regulation of blood osmotic pressure.

- A - Juxtaglomerular apparatus release Renin
- B - When blood pressure or blood volume drops due to blood loss, sensors in JGA detects decrease in pressure or volume
- C - Renin converts Angiotensinogen released from the liver into the Angiotensin I.
- D - Secretion of Aldosterone by Adrenal gland
- D - More  $\text{Na}^+$  and  $\text{H}_2\text{O}$  are reabsorbed in distal tubules increasing blood volume

- 1) ABCDE                      2) BACDE                      3) CBAED
- 4) CARDE                      5) DECBA

(26) Which one of the following is correct about the importance and need of osmoregulation and excretion.

- A - Animal have to get rid of toxic products produced during metabolism.
- B - The amine group is converted to ammonium which is highly toxic.
- C - Accumulation of weak acids and bases will lead to denaturation of protein.

- 1) Only B is correct
- 2) Only A is correct
- 3) Only A and B are correct
- 4) Only A and C are correct
- 5) Only B and C are correct

(27) Which of the followins is not a source of vaccines in the artificially acquired active immunity.

- 1) Killed pathogens.
- 2) Weakened pathogens.
- 3) Inactivated bacteria cell.
- 4) Inactivated genes encoding microbial protein.
- 5) Inactivated genes encoding microbial DNA.

(28) The biome that relatively escapes from disturbances due to human activities is,

- 1) Tundra                      2) Northern Coniferous forest                      3) Chaparral
- 4) Desert                      5) Savanna

(29) Which of the following statement regarding biodiversity is correct ?

- 1) Biodiversity is the variability of interactions in ecosystems.
- 2) Basic component of biological diversity is the ecosystem diversity.
- 3) Species diversity is the largest scale of biodiversity.
- 4) Species diversity includes the number of species, their abundance and, ecological interaction with environment.
- 5) Ecosystem diversity is the variety of habitats, living communities and ecological processes in the living world.

(30) Select the response that indicates in digenous species only.

- 1) Indian pitta , Lingula
- 2) Kitul , Snakehead
- 3) Blue magpie , water hyacinth
- 4) Giant panda , *Ichthyophis*
- 5) Tuatara , Bengal tiger



- (31) During DNA replication proofreading activity is done by the enzyme.  
 1) DNA polymerase                      2) DNA ligase                      3) Primase  
 4) Helicase                                  5) Topoisomerase
- (32) Which of the following statement regarding transcription step of mechanism of polypeptide synthesis is incorrect ?  
 1) Transcription is DNA directed RNA synthesis.  
 2) Transcription is initiated at a specific site called promoter.  
 3) Only one strand of DNA acts as a template for transcription.  
 4) the enzyme called RNA polymerase stimulates the process of RNA polymerization.  
 5) Promoter site is determined by DNA helicase.
- (33) Colour of human skin  
 1) is determined by gene interactions.  
 2) is involved with two contrasting traits  
 3) which results from alleles of heterozygotes express the phenotype  
 4) which results from cumulative expression of two to more alleles.  
 5) It is expressed due to inheritance of a phenotype revalant to qunlitative traits
- (34) Which one is the end product of Gene expression?  
 1) ATP                      2) Glycogen                      3) Lipid                      4) Keratin                      5) Amino acid
- (35) Which of the followins is not a man made industrial gases that largely contributes to the Globes warming?  
 1) PFC<sub>2</sub>                      2) CH<sub>4</sub>                      3) HFC<sub>5</sub>                      4) SF<sub>6</sub>                      5) NO<sub>2</sub>
- (36) One of the parents has blood group O. These parents have a probability of 50% of bearing a child that has blood group O. The genotype of other parent.  
 1) I<sup>A</sup> I<sup>B</sup>                      2) I<sup>A</sup> I<sup>A</sup>                      3) I<sup>B</sup> I<sup>B</sup>                      4) ii                      5) I<sup>A</sup> i
- (37) In DNA replication, the enzyme which replaces ribonucleotides those with deoxyribonucleotides is  
 1) RNA polymerase                      2) DNA polymerase  
 3) Primase                                  4) Helicase                                  5) Tropoisomerase
- (38) The system infected by *Leptospira interrogans* is,  
 1) Reproductive system                      2) Immune system  
 3) Respiratory system                      4) Nervous system  
 5) Urinary system
- (39) Which one is correct pair regarding common disease caused by Fresh water or mental Iish species.  
 1) Coloumnaris diseases                      -                      Fungi  
 2) External mycosis                      -                      Bacteria  
 3) Skin infestation                      -                      unicellular parasite  
 4) gill rot                      -                      Fungi  
 5) Fish white spot disease                      -                      Obligatory parasite



- (40) Which species from following is not used to control Dengue vector?
- 1) Guppy
  - 2) Dandi
  - 3) Juvenile stage of Tilapia
  - 4) *Bacillus thuringiensis israelensis*
  - 5) Fungus

The instructions for the questions 41 to 50 are given below.

- 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 only correct ..... 4  
 If any other response or combination of response is correct ..... 5

Summary of above instructions				
1	2	3	4	5
Only (A) (B) and (D) correct	Only (A) (C) and (D) correct	Only (A) and (B) correct	Only (C) and (D) correct	Any other response or combination of responses correct

- (41) Which of the following take/s place during both glycolysis and citric acid cycle?
- A) Substrate phosphorylation.
  - B) Production of NADH.
  - C) Production of FADH<sub>2</sub>
  - D) Production of CO<sub>2</sub>.
  - E) Oxidative phosphorylation.
- (42) Correct statement/s is /are,
- A) *Halophiles* have peptidoglycan in their cell wall.
  - B) *Acetobacter*, *Clostridium*, *Nostoc* fix N<sub>2</sub>.
  - C) Both *Paramecium* and *Amoeba* consist of food vacuoles.
  - D) Gas filled bulb shape floats are found in *Sargassum*.
  - E) *Ulva*, *Gelidium* and Diatoms are only marine.
- (43) Preexisting structural defense mechanism / mechanisms of plants is / are,
- A) Thorns, pricks, trichomes.
  - B) Thickness of epidermal cell walls.
  - C) A, B production of toxic compounds.
  - D) Formation of cork layers.
  - E) Morphological changes in the cell wall.
- (44) Which of the following could be the effect / effects of pollution ?
- A) Deforestation.
  - B) Severe droughts.
  - C) Creating oxygen depleted zone in aquatic ecosystems.
  - D) Killing many leaves of plants.
  - E) Regional flooding.



- (45) A tropic hormone/s secreted by the anterior pituitary.  
 A) ACTH  
 B) Oxytocin  
 C) GH  
 D) TSH.  
 E) Prolactin
- (46) The correct relationship/s about the birth control methods.  
 A) Oral contraceptives for female – Inhibit of LH secretion thereby prevent follicle maturation.  
 B) Vasectomy for males – prevent maturation of sperms  
 C) IUD – Prevent implantation of a fertilized ovum  
 D) Depo – Provera – prevents sperm entry  
 E) LRT – Prevent releasing of ovum.
- (47) Which of the following is / are not correct about sliding filament theory.  
 A) Few myosin heads can be found in one thick filament  
 B) When a new molecule of ATP binds to the myosin heads the cross bridge is formed.  
 C) Thin filament in each sarcomere slide past each other pulling the Z lines at each end  
 D)  $\text{Ca}^{2+}$  and some other proteins also play major role in muscle contraction.  
 E) Myosin heads can only bind to actin when the binding sites on actin are exposed by the action of  $\text{Ca}^{2+}$
- (48) Which of the following microorganism/ s fulfills / fulfill nutritional requirement by inorganic chemicals and inorganic carbon ?  
 1) *Nitrobacter*  
 2) *Acetobacter*  
 3) *Nitrosomonas*  
 4) *Thiobacillus*  
 5) *Clostridium*
- (49) Which of the following diseases is / are controlled by inactivated vaccines ?  
 1) Polio  
 2) Cholera  
 3) Rubella  
 4) Chicken pox  
 5) Hepatitis B
- (50) Select the correct statement / statements regarding filariasis.  
 1) Filariasis is transmitted by the mosquito belonging to genus *Culex* in Sri Lanka.  
 2) Female mosquitoes of *Culex* lay eggs in polluted water.  
 3) Parasite of filariasis lives for a long time in association with human liver.  
 4) Due to blocking of lymphatic vessels by adult worms of filariasis they get distorted and lymph tends to accumulate in legs and hands.  
 5) Most abundant parasite of filariasis in Sri Lanka belongs to platyhelminthes.

22 A/L අයි [ papers group ]





Royal College - Colombo 07

Grade 13

Final Term test - November 2022

Biology II

09 E II

Time : 3 hours and 10 minutes

Name :- ..... class :- ..... Index no :- .....

**Important :**

- The question paper consists of 11 pages
- The question paper comprises **Part A** and **Part B**. The time allotted for both part in 3 hours and 10 minutes

**Part A - Structured Essay**

(10 pages)

Answer all the questions on this paper itself. Write your answers in this spaces provided is sufficient for your answers and that extensive are not expected.

**Part B - Essay**

(01 page)

This part contains three questions. Use the papers supplied for this purpose. At the end of the time allotted for this paper, tie the two papers so that **Part A** is on top of **Part B** before handing them over to the Supervisor.

You are permitted to remove **only Part B** of the question paper from Examination hall.

**For Examiner's use only**

For the second paper		
Part	Question nos.	Marks
A	1	
	2	
	3	
	4	
B	5	
	6	
	7	
	8	
Total		

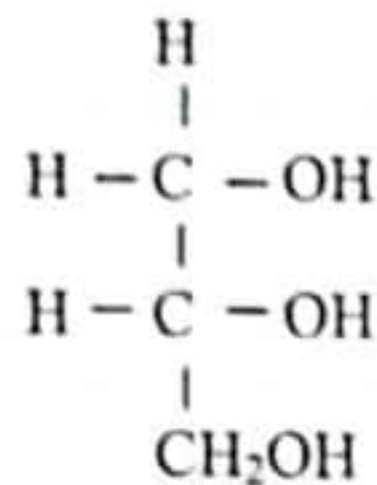
**Final Marks**

In numbers	
In words	



Answer all questions on this paper itself

(1) A) i)



- a) Above molecule can be obtained by hydrolyzed reaction of organic compounds found in cells.

State the organic compounds in which the above molecule can be obtained.

.....  
.....

- b) Write the elemental composition of the above mentioned compounds.

.....  
.....

- ii) a) How is the secondary structure of protein formed?

.....

- b) What are the two types of secondary structure of proteins? Give an example for each type.

type

example

.....

.....

.....

.....

- iii) a) Which organelle is abundant in secretory cells?

.....

- b) Why is above mentioned organelle more important for the organelle which digests food particles received by phagocytosis?

.....

- iv) a) Which type of cell junctions in animal cells allows signal and material exchange between adjacent cells through direct connections?

.....

- b) Write a place where above junctions are found.

.....



B) i) Mention a structural similarity between the plasma membrane of *Anabaena* and that of *Paramecium*.

.....  
ii) How do the gametophytes of phylum lycophyta fulfil their nutrient requirement?

.....  
iii) Mention a main difference between class monocotyledoneae, and class dicotyledoneae regarding their gametophytic generation.

.....  
iv) Write the relevant structure in kingdom fungi for the following.

a) Spores produced by *Penicillium* during asexual reproduction .....

b) Dominant stage of the life cycle of *Agaricus* ! .....

c) Perinating structure of *Rhizopus* ! .....

d) Asexual spores produced by *Chytridium* ! .....

v) a) What is an ovule?

.....  
b) What is the chemical component found in the wall of the pollen in seed plants?

.....  
c) State the exact locations of female gametophyte and male gametophyte of seed plants.

female gametophyte : .....

male gametophyte : .....

C) i) Complete the following dichotomous key to distinguish the animals given below.  
Earth worm, Sea star, *Planaria*, *Fasciola*, Snail, centipede

1) Pentaradially symmetrical body : .....

Not having a pentaradially symmetrical body : .....

2) Dors<sup>so</sup>oventrally flattened body : .....

Not having a dors<sup>so</sup>oventrally flattened body : .....

3) ..... *Planaria*

4) Presence of clitellum : .....

Absence of clitellum : .....

5) Presence of muscular foot : .....

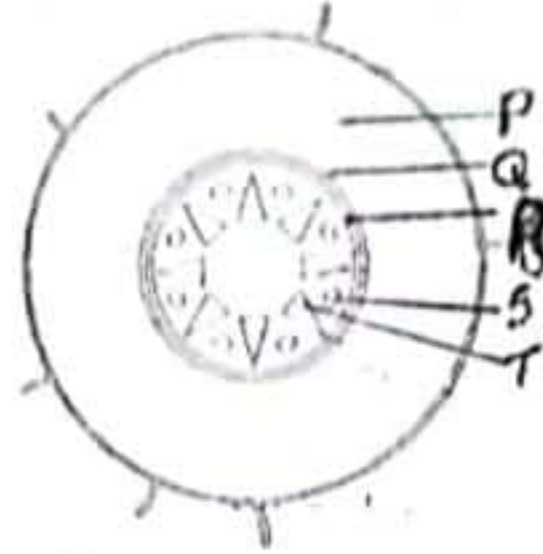
Absence of muscular foot : .....



ii) State the function of following structures found in animals.

- a) Papillae : .....
- b) Radula : .....
- c) Parapodia : .....
- d) Swim bladder : .....

(2) A) This question is based on the following diagram of primary structure of typical monocot root.



i) Name the structures labelled as P, Q, R, S and T in the above diagram.

P : .....

Q : .....

R : .....

S : .....

T : .....

ii) State two main functions of the structure labelled as P.

.....  
.....

iii) What is the specific structural arrangement present in the structure Q? state how these arrangements are important to the plants.

.....  
.....

iv) How is the structure R of dicot root functionally changed from monocot root?

.....  
.....

v) What is the difference between monocot root and stem regarding the arrangement of S and T structures?

.....  
.....



B) i) What is known as transpiration?

.....  
.....

ii) Briefly explain the effect of availability of soil water on the rate of transpiration.

.....  
.....

iii) Name three basic methods of water and mineral transportation.

.....  
.....  
.....

iv) Give two examples for the mutualistic relationship of plants.

.....  
.....

v) State two requirements of elements that can be considered as essential elements in plants.

.....  
.....

C) i) State three adaptations of mangrove plants for the survival in their environment.

.....  
.....

ii) What are the factors that determine the distribution of major vegetation types in Sri Lanka?

.....  
.....

iii) State the grasslands present in wet zone in Sri Lanka.

.....  
.....  
.....

iv) a) What is the principal goal of conservation of organisms?

.....  
.....

b) Name two ways of conservation of organisms.

.....  
.....



v) a) What is the international convention covering prevention of marine environment by ships?

b) State the objective of this convention.

(3) A) i) a) What are the two different types of systems for coordination in animals?

b) Name an animal that possesses the brain in the animal kingdom at the first time.

ii) Write three adaptations of the brain and the spinal cord to be protected from physical injuries?

iii) a) What are the parts of human brain given rise by embryonic fore brain?

b) What is corpus callosum?

iv) a) What is the part of human brain that plays a role in sexual behaviours?

b) Write another two functions of that part.

v) a) What is meant by neurotransmitters?

b) Name three common neurotransmitters.

B) i) a) What is semen?



b) What is the composition of semen?

.....  
.....

c) What is the normal sperm count in semen at one ejaculation?

.....

ii) Describe human ovum.

.....  
.....  
.....  
.....

iii) Describe the tropoblast.

.....  
.....

iv) Write three major changes that take place in the first trimester.

.....  
.....  
.....

v) a) What is meant by infertility?

.....  
.....  
.....

b) Mention three modern reproductive scientific and technological advances for resolving infertility problems.

.....  
.....  
.....

C) i) a) How many bones are there in human skull?

.....

b) Name main two parts of the skull and state number of bones consisted of each part.

.....  
.....

ii) a) What is occipital condyles?

.....



b) Name the processes consisted of a temporal bone.

c) Mention functions of them.

iii) a) Draw the diagram of first cervical vertebra in the space given below.



b) What is the main difference seen in lumbar and thoracic vertebrae.

iv) Write two reasons that show the contribution of human axial skeleton to maintain the upright posture.

v) a) For what <sup>function</sup> ~~is the structure~~ of upper limb is adapted?

b) Mention five adaptations of the human upper limb for movement through a wide range.

vi) What is meant by slipped disc?

4) A) i) a) What is ~~the~~ known as DNA replication?

b) What is the relationship between DNA replication and variations?

c) How are variations important for organisms?



ii) a) How do polysomes form?

b) What is the function of polysomes?

iii) What are the techniques used to make a recombinant DNA molecule in recombinant DNA technology?

iv) Write three applications of DNA finger printing,

1. ....
2. ....
3. ....

v) a) What is known as a genetically modified organism?

b) State one application of such organisms in agriculture.

(4) B) i) a) What is the type of nutrition in cyanobacteria?

b) What is the function of akinete?

c) What is the enzyme contained within heterocyst <sup>and</sup> state the function of this enzyme  
enzyme : .....  
function : .....

iii) a) What is known as bioremediation?

b) Write two applications of microorganisms in bioremediation.

- 1) .....
- 2) .....



iv) a) What is known as wastewater?

.....  
.....

b) State two main steps in purification of industrial waste water.

1) .....

2) .....

c) Write three adverse effects of discharging large amount of waste water into natural water bodies.

1) .....

2) .....

3) .....

C) i) a) State two species that are commonly used in freshwater ornamental fish culture in Sri Lanka.

1) ..... 2) .....

b) State an activity that should be carried out weekly when maintaining an aquarium for ornamental fish culture.

.....

c) State two bacterial diseases affecting the species of freshwater ornamental fish.

1) .....

2) .....

ii) a) Who are the causative agent and vector of dengue?

Causative agent .....

Vector .....

b) State a biological method for controlling the vector of dengue.

.....

iii) a) What is known as stem cells?

.....

.....

b) State two types of stem cells.

1) ..... 2) .....

★★★★





Royal College - Colombo 07

Grade 13

Final Term test – November 2022

Biology II

09 E II

**Part B – Essay**

- **Answer four questions only.**  
**Give clear labelled diagrams where necessary**  
**(Each question carries 150 marks)**
- (5) Describe the basic chemical nature, structure and functions of proteins with suitable examples.
- (6) Briefly describe the way of transport of water absorbed by roots to the leaves.
- (7) a) Describe the structure of human ear.  
b) Describe the process of hearing.
- (8) Define plant and animal breeding and discuss the importance of breeding.
- (9) a) Define mineralization and explain how mineralization is important for plants.  
b) Describe the role of microorganisms in the nitrogen cycle with suitable examples.
- (10) Write short notes on following.  
a) Tropical forest biome.  
b) Silicosis  
c) Applications of genetically modified organisms in medicine.

22 A/L අයි [ papers group ]





**LOL.Lk**  
Learn Ordinary Level

# විභාග ඉලක්ක පහසුවෙන් ජයගන්න පසුගිය විභාග ප්‍රශ්න පත්‍ර



- Past Papers
  - Model Papers
  - Resource Books
- for G.C.E O/L and A/L Exams



විභාග ඉලක්ක ජයගන්න  
**Knowledge Bank**



**Master Guide**

**WWW.LOL.LK**



**CASH  
ON**

**DELIVERY**



Whatsapp contact  
**+94 71 777 4440**

Website  
**www.lol.lk**



**Order via  
WhatsApp**

**071 777 4440**