Provincial Department of Education, Northern Province.

மாகாணக் கல்வித் திணைக்களம், வடக்கு மாகாணம்

General Certificate of Education (Adv. Level) Sixth Term Evaluation. October - 2025.

கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர) ஆறாம் தவணை மதிப்பீடு. ஒக்டோபர் - 2025.

Grade13 (2025)	Biology I	09 E I	*Two hours*

Instructions:

* Answer all questions.
* Write your ***index number*** in the answer sheet provided.
* In each of the question from **1** to **50**, pick one of the alternatives from (1), (2). (3), (4), (5) which is ***correct*** or ***most appropriate*** and ***mark your response on the answer sheet with a cross (X)*** on the number of the correct option. Use blue or black ink pen for your responses.

1. Which one of the followings is a sugar consists of ketose type monosaccharide?
   1) Maltose 2) Sucrose 3) Lactose 4) G3P 5) Glucose

2. Smooth Endoplasmic Reticulum
   1) transports protein synthsized by ribosomes.
   2) stores Mg^{2+} ions.
   3) synthesizes membrane phospholipids.
   4) produces transport vesicles to transport within cell.
   5) produces pectin.

3. Event possible to occurs in mitosis and meiosis II
   1) Crossing over.
   2) Holds the homologous chromosomes by zipper like proteins.
   3) Synapsis occur inbetween homologous pairs.
   4) Destruction of proteins that holds the sister chromatids.
   5) Formation of two genetically non identical daughter nuclei .

4. Select the correct answer.
   1) In plant cells ATP is synthesised only by photo phosphorylation.
   2) In animal cells ATP is synthesised only in the mitochondria.
   3) ATP is synthesised abundantly in the mitochondria by using energy released from the oxidation of molecules.
   4) ATP is synthesised only by the breaking of complex molecules into simple ones in glycolysis.
   5) Energy is released from ATP molecule by an endergonic reaction.

5. In the linear electron transport of light reactions of photosynthesis
   1) P 680^+ is neutralised by electrons produced by splitting of water.
   2) P 700^+ is neutralised by the excited electrons from phtosystem I.
   3) P 700^+ is neutralised by electrons produced by splitting of water.
   4) Phtosystem II participates in reduction reactions while photosystem I doesnot participates in reduction reactions.
   5) Rubisco catalyzes the reaction.

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6. Which one of the following statements is correct regarding C4 photosynthesis?
1) It improves the efficiency of CO_2 fixation at higher CO_2 concentrations.
2) Atmospheric CO_2 fixation occurs twice in this plants.
3) CO_2 fixing enzyme in mesophylls is PEPcarboxylase.
4) During this, the first formed stable carbohydrate compound is oxaloacetate.
5) CO_2 acceptor in mesophyll cells is 3-PGA.

7. In the phylum consists of plants that have docotomously branching roots,
1) all of them are epiphytes.
2) all of them are heterosporous.
3) some of them shows homosporous.
4) some sporophytes live below the ground and nourished by symbiotic fungi.
5) some members bears dominant photosynthetic gametophytes.

8. Organism that inhabit in both marine and freh water, photosynthetic consists of cell wall and unicellular.
1) *Euglena*
2) *Paramecium*
3) *Amoeba*
4) Diatom.
5) *Saccharomyces*

9. a. conidia b. sporangium c. ascus d. basidium e. zygosporangium
Form from asexual reproduction of fungi.
1) a, b 2) b, c 3) c, d 4) d, e 5) c, d, e

10. Common to both bony fish and cartilagenous fish
1) Ctenoid scale 2) Placoid scale 3) Internal fertilization
4) Heterocercal tail 5) Swim bladder

11. Which one of the following statements is correct regarding ground tissues of plants?
1) Parenchyma cells consist of thin secondary cell wall.
2) Collenchyma cells are generally elongated.
3) Sclerenchyma cells consist of large central vacuoles.
4) Seed coats consists of fibres.
5) Epidermis are loosely packed single cell layered.

12. Correct statement regarding primary growth processes in plants
1) Multi celullar root hair are found in the differentiation zone of root.
2) Cortex found in the cell elongation zone of the stem.
3) In the shoot apex, meristametic cells divide outward and form leaf primodia.
4) Primary tissues of the stem are formed due to cell differentiation.
5) Root cells elongate, always to more than ten times their original length in the zone of elongation.

13. Which prevents solutes concentrated in the xylem leaking back into the soil solution,
1) pericycle.
2) endodermis.
3) parenchyma cells.
4) sclerenchyma fibres.
5) tracheids.

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14. Loose connective tissue
    1) binds epithelia and the underlying tissues.
    2) is found where tensile strength is required.
    3) is widely distributed in animal body.
    4) is not considered as a generalised type of tissue.
    5) is found in bones which contains air spaces.

15. Correctly indicates the combination of feeding mechanism of animals and related features.

A. Subtrate feeder	P. human body
B. Filter feeder	Q. maggots
C. Fluid feeder	R. baleen whales

    1) A-P, B-R, C-Q 2) A-P, B-Q, C-R 3) A-Q, B-Q, C-P
    4) A-Q, B-R, C-P 5) A-Q, B-P, C-Q

16. Element which is needed to maintain acid base balance, water balance and nerve function.
    1) P 2) K 3) Fe 4) Ca 5) Cl

17. Correct statement regarding conducting system of human heart.
    1) It is a specialized neuro cells found in the myocardium.
    2) SA transmits the electrical signals from the atria into the ventricles.
    3) AV node is the pace maker.
    4) SA node is found in the right atrium near the opening of the superior vena cava.
    5) AV node is situated in the wall of the atrial septum which is located between the left and right atria.

18. The volume of air remaining in the lungs at the end of a normal expiration
    1) in normal women is 3100 ml.
    2) in normal men is 4800 ml.
    3) is important for continuous exchange of gas in the alveoli.
    4) is the functional residual volume.
    5) prevents the collapse of alveoli during inspiration.

19. Antigen receptor molecules
    1) found only in T lymphocytes.
    2) are poly saccharides.
    3) found only in B lymphocytes.
    4) can be bind to epitope of the antigens.
    5) can be found in Y shaped in all lymphocytes.

20. Secretion in human nephron
    1) always occurs actively 2) occurs in the Bowmen's capsule.
    3) occurs in both proximal and distal convoluted tubules.
    4) does not remove the drugs and toxins that have been metabolized in the liver.
    5) helps in the regulation of blood osmotic pressure.

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21. Select the correct statement regarding the human brain.
1) Hind brain consists of two ventricles.
2) Pineal body is located in the upper part of the brain stem.
3) The meninges outer to the brain is arachnoid mater.
4) Mid brain coordinates auditory and visual reflexes.
5) Control for involuntary reflex centres are found in the thalamus.

22. In human, parasympathetic nervous stimulation
1) inhibits adrenal medulla.
2) constricts bronchi.
3) inhibits salivary secretions.
4) promotes ejaculation.
5) dilates pupil of eye.

23. During the refractory period,
1) the neuron can respond to another stimulus.
2) potassium channels become inactivated.
3) sodium potassium pump will be act.
4) sodium channels become inactivated.
5) enhancement of reverse conduction of an impulse in a cell body.

24. Hormones which can mediate short term responses in human
1) enhance the reabsorption of water and sodium ions.
2) promote glucose release into the circulating blood by increasing break down of fatty acids.
3) stimulate the parasympathetic nervous division.
4) act on anterior pituitary gland.
5) are mainly secreted by the adrenal cortex.

25. Which one of the statements regarding sexual reproduction of animals is correct?
1) Diploid gametes are the reproductive cells.
2) Bisexual animals produce male and female gametes from separate organisms.
3) All the animals show internal fertilization.
4) Internal fertilization is associated with the production of fewer gametes than the external fertilization.
5) Shells of Amphibia, Aves and Reptiles protect eggs from water loss and physical damages.

26. hCG is initially secreted by
1) trophoblast 2) morula 3) placenta
4) anterior pituitary gland 5) chorion membrane

27. Zygomatic arch is composed of
1) frontal bone and zygomatic bone. 2) temporal bone and occipital bone.
3) temporal bone and zygomatic bone. 4) temporal bone and sphenoid bone.
5) frontal bone and mar

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28. Human sternum
1) is not involved with the production of red blood corpuscles.
2) is made the ribs to articulate only with its body.
3) consists of manubrium as the uppermost section.
4) is a long thin bone.
5) provides protection to organs such as liver and stomach from physical damage.

29. ATP joints with the straited muscle,
1) in its low-energy configuration.
2) after the formation of cross bridges.
3) with the aid of Ca^{++}.
4) between two Z lines.
5) would be not the reason for detachment of myosin head from the actin.

30. In a plant red flower (R) is dominant to the white flower (r) normal leaf (N) is dominant to wrinkled leaf (n). Genes for flower colour and shape of the leaf are located in different chromosomes. Genotypes of the two parents for the following offsprings:

Red flower and normal leaf	-	150
Red flower and wrinkled leaf	-	147
White flower and normal leaf	-	51
White flower and wrinkled leaf	-	48

1) RrNn X RrNn 2) RRnn X rrNN 3) RrNn X RrNN
4) RrNn X Rrnn 5) Rrnn X Rrnn

31. Which one of the statements regarding sickle cell anemia is correct?
1) It is a recessive disorder occurs due to chromosome mutation.
2) This occurs due to the substitution of valine with glutamic acid.
3) It causes severely detrimental effects in heterozygous individuals.
4) The heterozygous individuals will suvive malaria attacks better than individual with homozygous wild type alleles.
5) It occurs due to the mutation in the secondary structure of the beta globin.

32. Which one of the following genetically modified plants, get its better effects due to the changing of orientation of gene?
1) Golden rice 2) Apple 3) Potato 4) Mazic 5) Tomato

33. Correct statement regarding biomes
1) Conifers are found in tropical regions.
2) The average annual rain fall in savnna is around 500 - 800 mm.
3) Evergreens are prominent in tropical rain forests.
4) Deserts are is distributed only in temperate zones.
5) Seed germination do not occur evan after a hot fire in chaparral.

34. Plant varieties that could be found in a same ecosystem in Sri Lanka
1) *Colocasia , Alocasia* 2) Beach morning glory, lotus
3) Hora, *Terminalia chebula* 4) Wild olive, *Mesua ferra*
5) *Cissus quadrangi*

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35. Which one of the followings as the major contributing factors on global warming and climatic change that have an enomerous ability to absorbe heat and it causes to increase the air temperature?
    1) CO 2) CH_4 3) N_2O 4) Black carbon 5) PFCs

36. The reason, for the most of the exotoxins are quite harmful even a small amount of toxin,
    1) due to their catalytic nature.
    2) because of they are structures of bacterial cells.
    3) because of they are poly saccharides.
    4) because of they are thermo unstable.
    5) because of they are gram negative.

37. Which one of the statements regarding rhizosphere and mycorrhizae is correct?
    1) Fungi are abundantly found in the rhizosphere.
    2) Mycorrhizae increase uptake of copper from soil by the roots.
    3) Rhizosphere is most diverse and stable habitat.
    4) Mycorrhizae receive inorganic carbon from the plant.
    5) *Nitrobater* is the most abundant found in the rhizosphere.

38. Which one of the following is correctly indicated that should be included in the secondary treatment of waste water treatement?
    1) Release of methane.
    2) Sperying of water quickly over a bed of roky material.
    3) Oxidation of organic materials.
    4) No biological activities is used.
    5) Sedimentation is enhanced by adding alum.

39. “Single unicellular and colonial non filamentous” types and “colonial unicellular and colonial filamentous” types of cyanobacteria reproduce respecitvely,
    1) fragmentation and simple cell division.
    2) budding and binary fission.
    3) conjugation and simple cell division
    4) simple cell division and binary fission
    5) simple cell division and fragmentation.

40. Which one of the pairs of example plants as flouriculture practices found in Sri Lanka for cut flowers?
    1) Shoeflower, Anthurium
    2) Anthurium, Orchid
    3) *Dracaena, Begonia*
    4) Shoeflower,Rosa
    5) Ganosans, Anthurium

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 is correct……(5)

[see page 7

Directions summarized				
1	2	3	4	5
(A), (B), (D) Correct.	**(A), (C), (D)** Correct.	**(A), (B)** Correct.	**(C), (D)** Correct.	Any other responses or combination of responses Correct.

41. Which of the followings is / are carbohydrate / carbohydrates that stores glucose?
    A. Starch
    B. Glycogen
    C. Inulin
    D. Lactose
    E. Maltose

42. Combination / combinations regarding characteristics found in the same animal phylum.
    A. Mouth down version, excretion through body surface, budding.
    B. Central nervous system, free livings have cilia for locomotion, parasitic forms have larval stages
    C. No heart, exclusively marine, exoskeleton.
    D. Alimentary canal, longitudinal excretory ducts, body wall is composed only longitudinal muscles
    E. Jointed appendages, sensory papillae, exoskeleton.

43. Which of the following / followings contain / contains phtosynthetic gametophytes?
    A. *Selaginella*
    B. *Cycas*
    C. *Nephrolepis*
    D. *Pogonatum*
    E. *Alocasia*

44. Which of the following statement / statements is/ are correct regarding female reproductive system?
    A. Uterine contractions stimulate secretion of oxytocin from posterior pituitary gland.
    B. Hormones such as oxytocin and prostaglandins induce and regulate contractions of the uterus during labour process.
    C. Oxytocin is produced even after the child is born.
    C. Prolactin is the main hormone that produce and secrete milk.
    D. Parturition process ends after the egestion of fetus.

45. In human, if P is the fifth thorasic vertebra, Q is the third vertebra , R is the typical vertebra. then
    A. P has more articulatory surfaces than that of R.
    B. Q has bifid spinous process and foramen in the transverse process.
    C. Body of the R is smaller than that of P.
    D. There is a superior projection found above the vertebra- Q and there is a bifid spinous process found below the vertebra- Q.
    E. There are twelve R vertebrae and five Q vertebrae.

46. Which of the following / followings represent / represents correctly the parents of test cross?

A. One individual has the dominant phenotype and the other has the recessive phenotype.

B. The person with recessive phenotype is homozygous.

C. One individual is homozygous.

D. Both parents may be homozygous.

E. Both parents may be heterozygous.

47. Which of the following statement / statements is /are correct regarding genes and how they work?

A. Operons are specific system of eukaryotes.
B. Introns are non coding sequences which found between genes.
C. Intergenic DNA has no identified functions.
D. In diploid cells genes are found in pairs.
E. In prokaryotes, most of the DNA segments are non functional.

48. Enviornmental service value / values

A. National parks.
B. Botanical gardens.
C. Pollination.
D. Recharging of ground water.
E. Bulls are considered to be an important part of hindu culture.

49. Correct combination / combinations regarding sterilization method – example.

A. Moist heat method - health care instruments.
B. Dry heat sterilization - oven.
C. Membrane filtration - antibiotics.
D. UV radiation - nursaries.
E. Using ethylene oxide - enclosed buildings.

50. Correct statement / statmens regarding human genome project.

A. During this, approximately 20,000 genes are identified.
B. It was originally a 13 year project, from 1990 to 2003.
C. It determine the sequence of two billion chemical base pairs that make up human DNA.
D. Related technologies are not transferred to private sector.
E. Genome project of yeast also completed along with human genome project.

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  AL/2025/09/E-II(A)

Provincial Department of Education, Northern Province.

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General Certificate of Education (Adv. Level) Sixth Term Evaluation. October - 2025.

கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர) ஆறாம் தவணை மதிப்பீடு. ஒக்டோபர் - 2025.

Grade 13 (2025)	Biology II	09	E	II	*Three hours*

Additional reading time 10 minutes.

Index No: ……..……

❖ ***Use additional reading time to go through the question paper, select the questions you will answer*** **and decide which of them you will prioritise.**

Instructions:

- ❖ This question paper consists of **10** questions in **12** pages.
- ❖ This question paper - **Part II** comprises Part **A** and **B**. The time allotted for **both parts** is **three hours**.

Part A – Structured essay (Pages 2 – 11)

- ∗ Answer **all four** questions on this paper itself.
- ∗ Write your answers in the space provided for each question. Note that the space provided is sufficient for your answers and extensive answers are not expected.

Part B – Essay (Page 12)

- ∗ Answer **four** questions only. Use the papers supplied for this purpose. At the end of the time allotted for this paper, before handing over to the supervisor tie the two parts together so that **Part A is on the top of Part B**.

- ∗ You are permitted to take only **Part B (**page 12**)** of the question paper from the examination hall.

For examiners' use only

Part	Question. No	Marks
A	1	
	2	
	3	
	4	
B	5	
	6	
	7	
	8	
	9	
	10	
Total		

Total Marks

In Numbers	
In Letters	

Code Numbers

Marking Examiner 1	
Marking Examiner 2	
Marks Checked by	
Supervised by	

[see page 2

Do not write in this column.

Part II A – Structured essay

❖ **Answer all questions in this paper itself.**

(Each question carries 100 marks)

1.

A. (i) Indicate how peptide bond is formed.

……..

……..

(ii) What is the major difference between DNA and RNA regarding nitrogen the base?

……

(iii) Name a subcellular component which could be found in all cells.

……

(iv) In which phase, nuclear envelope fragments in the reduction phase of meiosis?

……

(v) a. What are enzyme cofactors?

……

……

b. Give examples each for reversible and irreversible inhibitors

Reversible inhibitor ……..

Irreversible inhibitors ……

(vi) a. Which is the end product that forms during the reduction phase of photosynthesis?

……

b. Which is the product that forms during the oxygenase reaction Rubisco other than 3-PGA?

……

c. What happens to the above-mentioned product in (vi) a.?

……

……

(vii) Indicate the total number of ATP and NADH molecules formed during glycolysis.

ATP ……..

NADH ……..

Do not write in this column.

B. (i) What is the part of the binomial nomenclature which is unique for each species within the genus?

……

(ii) Which photosynthetic pigments found in both diatom and *Sargassum*?

……..

(iii) Which fungus phylum produces spores exogenously during sexual reproduction?

……..

(iv) a. Which animal group consists of bony scales?

……

b. Which are the bony scales found in the above mentioned in (iv) a?

……

(v) Indicate **two** animal phyla which include animals have mouth down versions.

……

(vi) Where gonads found in the most of the Mollusks?

……..

(vii) Which animal group colonized in land first?

……

C. (i) Indicate **two** ground tissue types which not contain secondary cell wall**.**

……

(ii) Which is the component of vascular tissue found in all vascular plants for the conduction of water?

……

(iii) Which is found to conduct phloem sap in seedless vascular plants and gymnosperms but not in angiosperms?

……

(iv) a. What is bark?

……

b. Which are the major components of bark?

……

(v) Give **two** major differences of monocotyladonous leaves form dicotyladonous leaves other than paraellel venation.

……

……

(vi) Which is formed from the functional mega spore of anthophytes?

……

(vii) Which plant growth regulators induce stem elongation?

……

(viii) Name a plant which shows thigmonasty.

……

Do not write in this column.

100

2) **A.** (i) Give **two** functions of epithelial tissues which could not be the functions of connective tissues.

……

……

(ii) Indicate the type of connective tissue where tensile strength is required and give the locations where it found in human body.

Type of connective tissue ……

Locations ……

(iii) What are the functions of water in the saliva?

……

……

……

(iv) Write the energy budget balance sheet in the form of estimating energy available for growth and reproduction.

……

(v) Which are the vitamins act as antioxidants?

……

(vi) From where the coronary arteries, that supplies arterial blood, branch from heart?

……

(vii) How stroke occurs?

……

……

B. (i) Which is the respiratory pigment found in marine annelids?

……

(ii) What is serum?

……

(iii) Indicate the blood group that could donate to all and receive from all regarding agglutinogen and Rh factors

Donor……..... Recipient …….

(iv) Where the sensors found in the human body to detect pH changes due to concentration changes of CO_2, during the regulation of breathing?

……..

……..

……

(v) Which chemical component found in the cigarette smoke stops the cilia from working properly?

……

(vi) Indicate the function where each of the following components of human skin in the innate immunity.

a. Keratinized epidermis: ……

b. Perspiration: ……

(viii) Which are the effector cells of T lymphocyte?

……..

……..

C (i) i. What is salt gland?

……

……

(ii) What are the roles of aldosterone in human kidney?

……..

……..

(iii) Indicate **two** measures to prevent chronic kidney disease.

……

……

(iv) Briefly indicate the nervous organization of animals of Platyhelminthes.

……

(v) Which part of the human brain coordinates voluntary muscular movements?

……

(vi) What is nerve impulse?

……

……

Do not write in this column.

ee page 6

Do not write in this column.

(vii) a. In the human eye, which part is rich in blood vessels?

……

b. Indicate a function of the above – mentioned part other than supply of materials.

……

(viii)a. Write the sequential order of pathway of the sound vibration that enters the auditory canal until reaches the auditory receptor.

……

……

b. Which part of the human inner ear related to gravity or linear movements?

……

100

3.A

(i) a. Which hormones are secreted by thyroid gland?

……

……

b. In human, which are the major components of controlling systems to maintain homeostasis?

……

……

……

(ii) Which are the **two** homeostatic processes that could be the role human liver in protein metabolism?

……

……

(iii) In to which ejaculatory duct opens in the male reproductive system?

……

(iv) What is the sperm count per ml in a healthy adult male during ejaculation?

……

ee page 7

Do not write in this column.

(v) Which hormone induce the thickening of endometrium during proliferative phase and which structure secretes this hormone?

Hormone ……

Structure ……..

(vi) a. Which structure forms after the cleavage that occurs in the oviduct?

……

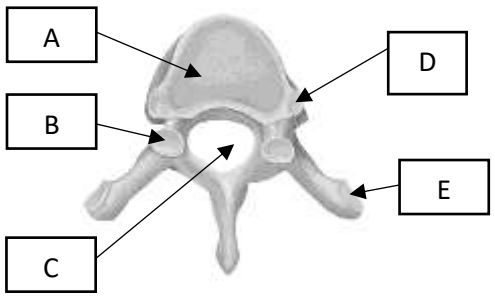
b. In which, the above -mentioned structure in (vi) a. gets the nourishment?

……

B (i) Which animal group move by undulating their body and tail up and down?

……

(ii)



a. Identify the above bone.

……..

b. Name A, B and C.

A …….. B……

C ……..

c. Give the special features along with their alphabets that could be used to identify the above bone.

……..

……..

(iii) How pivot joint is formed in human?

……..

……..

(iv) Two or more genes are involved in determining a particular phenotype. Name such **two** inheritances.

……

……

(v) Which is the mental disorder occurring due to epigenetics?

……

(vi) What is hybrid vigour?

.....

C (i) a) In DNA replication, which enzyme catalyzes the formation of DNA-RNA hybrid?

.....

b) Name the type of enzyme involved in the cutting or excision during the DNA repairing.

.....

(ii) What is the significance of polysomes in protein synthesis?

.....

(iii) a) What is meant by nondisjunction in chromosome mutations?

.....

b) Name a chromosome mutation which is monosomic.

.....

(iv) a) Which substances are used in the dissociation of nucleoprotein complex in the isolation of DNA.

……

……

b) Indicate **three** applications of DNA sequencing.

……

……

……

(vi) Indicate the GM products which grown in mammalian cell culture to treat the following diseases.

Heart attack ……

Haemophilia ……

(vii) What is biopiracy?

……

……

Do not write in this column.

100

4. **A.**

Do not write in this column.

(i) What is community?

……

……

(ii) a. What is food web?

……

……

b. What is the reason for limitation of number of trophic levels in a food chain to four or five?

……

(iii) Indicate the location of each of the following biomes.

a. Tropical forest ……

b. Alpine tundra ……

(iv) Indicate **two** grass species of savanna ecosystem.

……

(v) One of the threats to biodiversity is overexploitation.

Indicate a plant and an animal seems to be overexploited in Sri Lanka.

Plant……..

Animal ……...

(vi) In which of the category of IUCN red data book butter cup is included?

……

(vii) Indicate **two** manmade industrial gases considered as greenhouse gases.

……..

……..

(viii) What are policies regarding the environments of Sri Lanka?

……..

B.

(i) a. Name the reproductive method of colonial filamentous and colonial unicellular forms of cyanobacteria.

……

ee page 10

b. Name a chemo autotroph bacterial species other than nitrifying bacteria.

……

(ii) What can you say about the symmetry of enveloped viruses?

……..

(iii) Name **two** microorganisms which can multiply with the help of host's gene.

……

……

(iv) Name the culture medium can be used to culture fungi and bacteria.

Fungi ……

Bacteria ……

(v) a. What is opportunistic pathogen?

……

……

b. Name an example microorganism for an opportunistic pathogen.

……

(vi) Name a microbial species for the production of each of the followings.

a. Lipase …….

b. Cobalamin ……..

(vii) Name the types of the mix populations of microorganisms which could be involved in composting.

……

……

……

(viii) Why it is essential to detect the presence of coliform bacteria as an indicator organism in the drinking water?

……

C.

(i) Why brown encrustations found on an aquarium?

……

(ii) What are the conditions must be completed to initiate seed germination?

……

……

……

Do not write in this column.

(iii) Indicate a fish species that feed on both larvae of *Aedes* and *Culex*.

……

(iv) Which are the types of stem cells?

……

……..

(v). Indicate, to which process each of the followings can be used in nano technology.

a. Nano particles with titanium dioxide ……..

b. Viva gel ……

c. Nano composite ……...

Do not write in this column.

100

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Provincial Department of Education, Northern Province.
மாகாணக் கல்வித் திணைக்களம், வடக்கு மாகாணம்.

General Certificate of Education (Adv. Level) Sixth Term Evaluation – October - 2025.
கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர) ஆறாம் தவணை மதிப்பீடு – ஒக்டோபர் - 2025.

Grade 13 (2025)

09	E	II

Biology II

Part B - Essay

Instructions:

* *Answer **four** questions only*
Give clear labelled diagrams where necessary
*(Each question carries **150** marks).*

5. a. Beiefly describe how temperature and inhibitors affect the rate of enzymatic reactions.
   b. Beiefly describe the agarose gel electrophorosis in the seperation of cut DNA fragments.
6. a. Beiefly describe the primary histological structure of dicotyladonous stem.
   b. Beiefly describe the factors affecting the rate of transpiration.
7. a. Beiefly describe the gross structure of human lungs.
   b. Beiefly describe the role of antimicrobial proteins in innate immunity.
8. a. Beiefly describe how resting membrane potential is maintained in a non coducting neuron.
   b. Beiefly describe the hearing mechanism in human ear.
9. a. Beiefly describe the chrachteristics of Kingdom Fungi.
   b. Beiefly describe the major features of mangroove ecosystem.
10. Write short notes on the followings:
   a. Sickle cell anemia.
   b. Sanitary land fills.
   c. Tissue culture.

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