

Ministry of Education

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General Certificate of Education (Adv. Level)

Biology

Part II A – Structured essay

1. A. i. a) What is an adaptation?

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.....

b) Write 2 adaptations against the salt stress in mangrove plants

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ii.a) Write structural polysaccharide in animal.

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b) What is the building unit in above ii) (a) mention polysaccharide

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iii . Write 2 structures in eukaryotic cells which shows micro tubule (9+2) structure

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.....

iv. Write 2 structure which is present outside of the outer boundary in a living cell.

.....
.....

v. What is the specimen use to observe different stages in mitotic division in school laboratory?

.....

B. i. Write the specific location for the below given enzymes naturally available in organisms

Enzyme Specific location

(a). PEP carboxylase

(b). Carbonic anhydrase

(c). Nitrogenase

(d). NADP reductase

ii. Some steps in cellular respiration in eukaryotic cell are given below

- a) Glycolysis
- b) Kreb's cycle
- c) Electron transport chain
- d) Ethyl alcohol fermentation
- e) Lactic acid fermentation

Select the correct respiratory step from the above list or below given instances

- a) Release CO₂ in cytosol
- b) Consumption of ATP
- c) Synthesis highest no of ATP
- d) Last electron acceptor being an organic molecule

iii. a) What is kranz anatomy?

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b) Write 2 adaptations in kranz anatomy to increase the efficiency in photosynthesis

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.....
.....

c) What is the 1st ancestral carbohydrate in the C4 mechanism, and where is it synthesized?

Ancestral molecule

Particular place of synthesis

.....

C. i. What is the classification of organisms?

.....
.....

ii. Name 2 indicators which used by Aristotal when classifying organism

.....
.....

iii. Name the kingdom/s which microorganisms belong according to the classification introduced by Robert Vitaker

.....
.....

iv. Write the scientific name of a plant species endemic to Sri Lanka

.....

v. Given below are the few organisms in Kingdom animalia

- a) *Hydra* b) *Lordiya* c) *Planaria* d) *Taenia* e) *Wueheraria bancrofti*
- f) Leech g) Octopus h) Chiton i) Tick j) *Aedes aegypti*

Select the English letter from the above list to the characters given below

- a) Use illia for locomotiom
 b) Having whrole of tentacle around the mouth
 c) An endoparasite Whose body is covered by a hard culicle
 d) Having radulla but no shell
 e)An organism having 4 pair of jointed legs

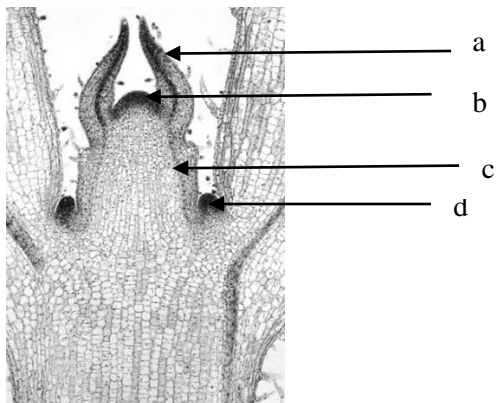
vi. Name one genus pf the each of yhe following type of spore producing fungi

- a) exogenous sexual spore
- b) Exogenous Asexual spore

vii Member of the kingdom plantae are considered to have evolved from green Algae.. Name 2 characteristics that were present in terrestrial plants during evolution and not in green algae.

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.....

2. A.



i. Recognize the above diagram.

.....

ii. Name the parts mention as A-D.

- a)
- b)
- c)
- d)

iii. State 2 structural features of the cells at b in the diagram.

.....

iv. a) What is the function of a?

.....

b) What is the structure of the root the tip that does the same function as a?

.....

c) Name the component concentrated in the structure you mentioned in (b) When responding to gravity

.....

v. Name the 2 main photoreceptors present in plants and write the regulatory activity of each photosystem.

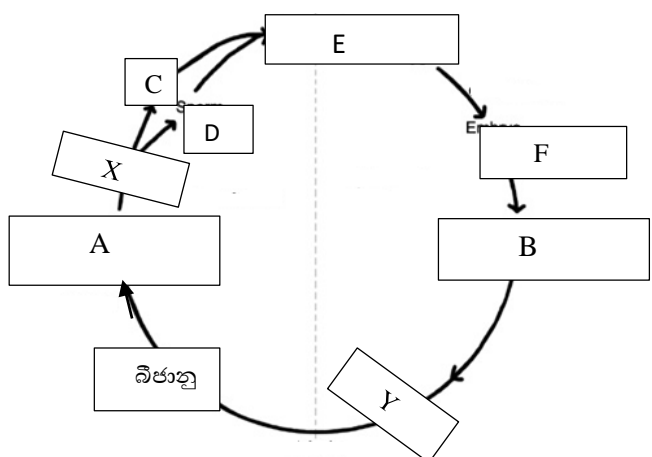
Type of photoreceptor	Activity
.....
.....

B.

i. What is the heteromorphic alternation of generation?

.....

ii Below given diagram indicates the common life cycle which exhibit by the members of kingdom plantae



iii a) Write the structures mentioned as A,B, E and F.

A. B

E F

b) Name the processes mentioned as X and Y.

X Y

c) Name the haploid multicellular structure from the above diagram.

.....

d) Name the Genus of the life cycle which exhibits above given type of life cycle

.....

e) Write 2 structural terrestrial adaptation which exhibits by the sporophyte of the above mention genus of plant

.....

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C.

i. Define the below given terms according to the ecological basics.

a) Primary consumer

.....

.....

b) Habitat of an organism

.....

c) Food chain

.....

.....

ii. a) What is an inland fresh water marshy land?

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.....

b) Name the plant which grow in inland fresh marshy land.

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c) Name the freshwater swamp forest in Sri Lanka

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iii. a) Write the biological definition for species

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.....

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b) Name the relict species in Sri Lanka

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iv. State the three levels of threatened species in order of increasing risk of endangerment.

.....

v. a) What is the global warming according to the United Nations Framework Convention on Climate Change?

.....
.....

b) Name 2 greenhouse gases produced by burning fossil fuel .

.....

c) How does ozone depletion effect on global warming ?

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.....
.....

d) Mention the international convention focused on reducing greenhouse gases

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3. A

i. a) Name 2 main cells innervous tixxue.

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b) What is the most abounded type of cell in nervous tissue

.....

ii. Write 3 main parts in peripheral system

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iii Fill the table based on Peripheral nervous system

Efferent component	Main function	Effector organ

iv. a) what is the neuro transmittor?

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.....

b) Name the neuro transmittor secreate by sympathetic nerve system.

.....

B. i. a) What is acquired immunity /adaptive

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.....

b) Name the important features in acquired immunity.

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.....

ii. What are the effector cells involved in acquired immunity

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.....

iii. Name the effector cell of T lymphocyte.

Type of effector cell	role
.....
.....

iv. a) State the reason why diabetes I is considered to be an autoimmunity disease.

.....
.....

b). What is the reason for diabetes II ?

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.....

v. Name the autoimmunity disease associated with human the skeletal system

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B. i Name the genetic pattern associated with the below given genetic phenomena.

a) Determine the character due to the cumulative expression of two or more alleles.

.....


b) Effect of the expression of the gene at the different locus by an expression and the homozygous recessive gene at the different locus of chromosome


.....

c) Both alleles are equally contributing to expressing phenotype in heterozygosity.

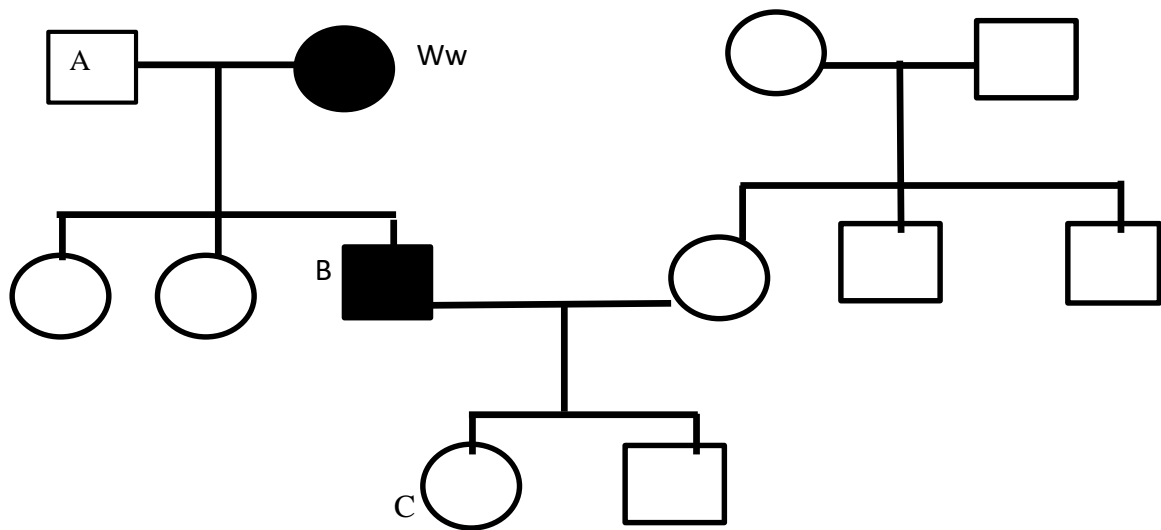
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ii. What is represent by the following symbols in pedigree chart?

a) 

b) 

iii The following pedigree chart shows the how the “widow’s peak” has been inherited in human family



b) Write the genotype in A,B,C.

A..... B.....
C.....

c) What is the probability of having “Widow peak” of the child if the parents of C expecting their 3rd child.

.....

iv. a) What is inbreeding?

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.....

c) Write 2 disadvantages in inbreeding

.....

.....

c) Write an advantage of inbreeding on Agriculture.

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4. A. i. Mention the suitable methods and conditions which are used for sterilization of the following substances.

Substances	Suitable method	Conditions which are used
Inoculation needles		
Nutrient agar		
Glasswares		

ii. Write the sequence of main steps of staining bacteria in a toddy sample.

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.....
.....

B. i. Mention the main objective of biodiversity conservation.

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.....
.....

ii. Name the group of organisms that absorb 60-70% from atmospheric carbon.

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iii. Mention three main factors that contribute to the depletion of the ozone layer.

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iv. Write three major components of biodiversity.

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.....
.....

v. State the three main objectives of the convention on biological diversity.

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vi. Which agreement was reached to protect biodiversity from potential threats to biodiversity from genetically modified organisms?

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C. i. What is post-harvest damage?

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ii. Mention any two measures that can be taken to prevent post-harvest damage during transportation.

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iii. Name a species of mosquito that carries dengue.

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iv. Write four warning signs of dengue.

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v. Name the genetic modification technology used to control dengue vector mosquitoes.

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vi. Mention two main characteristics of human embryonic stem cells.

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