

Ministry Of Education

Science Branch

General Certificate of Education (Adv. Level) Examination, 2020

Revision Exercises

Biology

09

E

II

Impotent

Part A - Structured Essay. Answer all question on the paper itself.

Part B - Essay, Answer four questions only. Give clearly labeled diagrams where necessary.

Part A (Structured Essay)

1) A).

I. What is the mode of nutrition shown by first formed organism in the earth?

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II. What are the criteria used to observe a diversity among living organisms?

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III. Define the term reproduction

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IV. List 3 environmental problems arise due to over exploitation of natural resources.

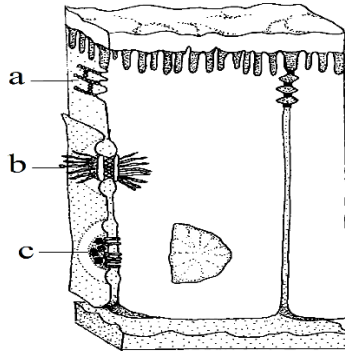
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B).

I. The diagram given below shows extracellular components. Name the structures labelled as a, b and c.



..... a..... b..... c.....
.....

II. Name the structure present in plant to perform same function of the above structures.

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III. Name a nucleotide which can act as an oxidizing agent in photosynthesis.

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IV. a). After converting which compound that fatty acids can enter to the aerobic respiration

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b). Write two importance of anaerobic respiration for organisms?

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V. Complete the following dichotomous key using the organism given below

(*Amoeba*, *Euglena*, *Paramecium*, Diatom, *Saragassum*, *Ulva*)

1. Possesses flagella -

Do not possess flagella –

- 2. Possesses gas filled bulb –
- Do not possess gas filled bulb -
- 3. Possesses holdfast –
- Do not possess holdfast -
- 4. Possesses oral groove –
- Do not possess oral groove -
- 5. Possesses pseudopodia –
- Do not possess pseudopodia -

C).

I. a). Name the main cell wall component of most bacteria.

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b). According to the amount above compound present in the cell wall bacteria are classified in to two groups. Name those two groups.

.....

II. a). Name one common physiological feature present in some bacteria and cyanobacteria.

.....

b). Name one genus of cyanobacteria and bacteria who shows symbiosis relationship for the above mentioned (ii-a) physiological feature.

Bacteria.....
 cynobacteria.....

III. List four characteristic features of phylum Chordata that can be used to distinguish them from other all animal phyla.

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IV. a). Write one main physiological adaptation shown by class aves for flying.

.....

b). Name two external structural features present in class aves not present in class reptilia.

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.....

2) A)

I. Write symbiotic relationship shown by following organisms.

a). Orchid –

b). *Cuscuta*-

c) *Rhizobium* and legume root nodules–.....

II. Name two genera of terrestrial plants which are carnivorous

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III. Define the term essential elements for plants

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

IV. Complete the following table regarding plant nutrition

| | Element | Form of intake | Function |
|---|---------|----------------|----------|
| 1 | C | | |
| 2 | Ca | | |
| 3 | N | | |
| 4 | Ni | | |

B).

I. List 3 facts that why blood is not clotting in blood vessels at normal conditions.

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II. Name one substance that is widely used clinically as an anticoagulant.

.....

III. Explain how above mentioned (ii) substance can prevent clotting.

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IV. What is the basis of human ABO blood grouping?

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.....

V. a). What will happen when blood is not compatible with their own blood at blood transfusion?

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b). The first-born child of a mother of Rh⁻ became Rh⁺. After the first birth the said mother did not give birth to any child. Explain this briefly.

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.....

C).

I. What is the duration following events took place after fertilization?

a) Cleavage of the zygote -

- b) Morula reach to the uterus-
- c) Form blastocyst -
- d) Implantation of the blastocyst –

II. What is the local regulator used to initiate pasteurisation and state the site of synthesis?

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III. Name 3 stages that the labor can be divided.

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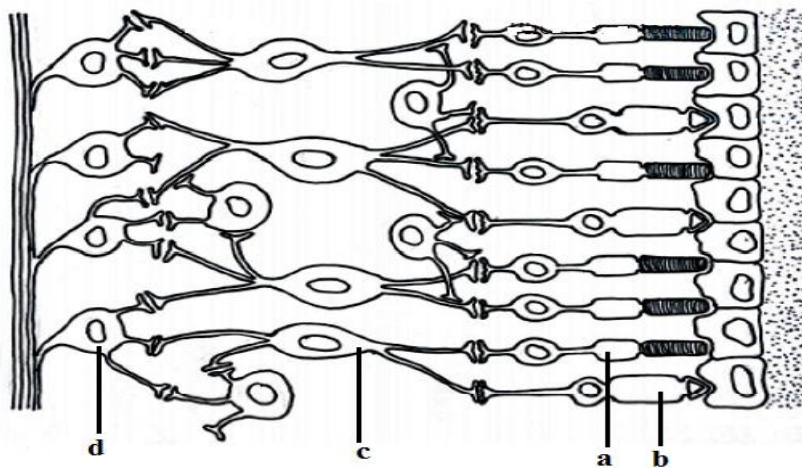
IV. Name 2 assisted reproductive technology used for resolving infertility problems

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V. Name one sexually transmitted infection that can transfer via placenta from mother to fetus.

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3) A)



I. Identify the diagram given above.

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II. Name parts labelled a-d.

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.....
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.....

III. Name photo sensory pigment that present in photo receptor cells of human eye.

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IV. Write 2 adjustment should be happen in eye for near vision.

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.....

V. State two advantages of binocular vision.

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B)

I. What are the internal defences in innate immunity?

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.....

II. Name 2 types of immune responses in acquired immunity.

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.....

III. Name two types of lymphocytes involved for innate immunity and write relevant effector cells for them

| Type of lymphocyte | Effector cell type |
|--------------------|--------------------|
| | |
| | |

IV. In what type of auto immune diseases following symptoms can be observed.

1) Specific lymphocytes attack the sheaths around neurons -

.....

2) Attack the tissue surrounding joints due to mistakenly sends antibodies to the lining of the joints –

.....

C)

I. Write the location of human kidney.

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II. Name 2 types of nephrons present in human kidney.

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III. Name parts of human nephron.

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.....
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IV. Name 3 steps in urine formation

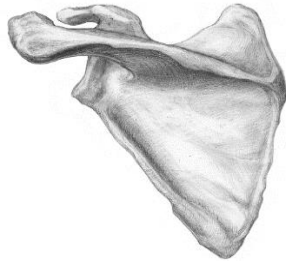
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V. Name 2 hormones involved for more reabsorption of water in the nephron.

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4). A)

I. Identify the structure given below.



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II. Using arrow show the place where head of the humerus articulate with a bone mentioned above and label it as X.

.....

III. Name a type of movement shown by above mentioned bone with the head of humerus.

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.....

IV. Main bone used to connect upper limb and lower limb to assail skeletal system.

Upper limb.....

Lower limb.....

V. What is the main reason that upper limb shows wide range of movement over than lower limb?

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VI. a). what are the special gripping ability present in upper limb to manipulate fine objects such as holding a needle?

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b). Explain how skeleton of limbs are facilitate to do above mentioned (iv-a) gripping ability.

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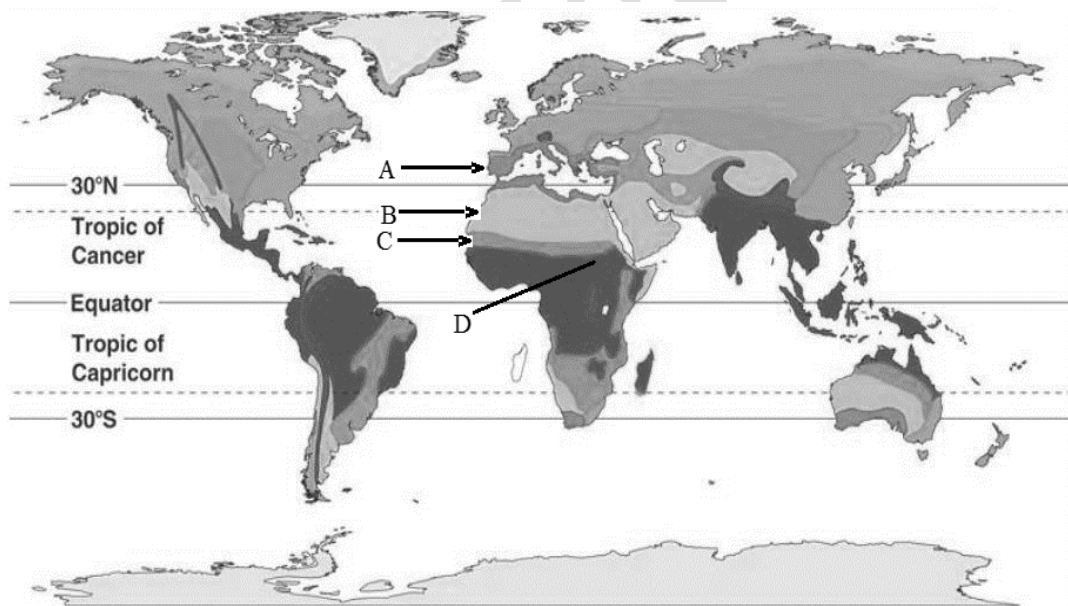
VII. a). State two other functions done by lower limb of man other than walking.

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.....

b). Write two adaptations shown by lower limb to do each of the above-mentioned function

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.....

B)



I. Name a main terrestrial biome that can be seen in the areas which marked as A, B, C and D on the map given above.

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II. State a plant species with two wings like structure on the fruit which is commonly found in lowland environment in Sri Lanka.

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III. Name two main threats on biodiversity that Sri Lanka faced instead of environmental pollution and introduction of alien invasive species.

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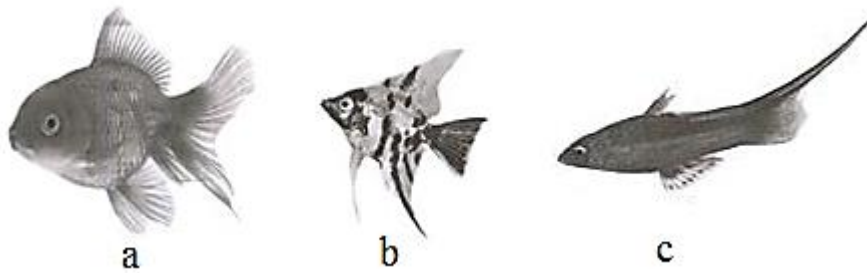
IV. Yoghurts produce by fermentation of milk. Name a species of microorganism who involved in fermentation of lactose in production of lactose

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.....

V. Write steps, how to stain bacterial specimen which is already air dried.

C)

I. Following given diagrams are represent the ornamental fish species which cultured in aquariums in Sri Lanka. Give common names of a, b, and c after identification.



a..... b..... c.....

II. Name 4 things that should be considered daily when maintaining ornamental fish aquarium.

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

III. Write a common disease which occurs in fins of ornamental fish.

.....

IV. Name a most common plant which is grown in green house including polytunnels.

.....

V.

a) Write 3 actions that can be taken to reduce the post-harvest losses due to poorly maintained transportation.

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.....
.....

b) Mention 2 actions that should be taken to reduce the post-harvest losses in immediate harvesting of paddy.

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VI.

a) Name a fungus presents in grains which release toxins.

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b) Mention the principle based the preservation of dry fish.

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Part B – Essay

Answer four questions only.

05.

- a) Describe the structure of chloroplast.
- b) Briefly explain Calvin Cycle.

06. Describe the movement of water molecule, through a plant from soil solution to atmosphere.

07.

- a) Describe the basic histological structure of pancreas.
- b) Explain the role of pancreases' in homeostatic regulation of blood glucose level.

08.

- a) Explain the steps in Polymerase Chain Reaction (PCR).
- b) List out beneficial and adverse effects of natural and artificial breeding.

09.

- a) Briefly describe the main factors affect to distribution of soil microorganisms in soil.
- b) Express the role of microorganisms in main 4 steps in nitrogen cycle by giving appropriate examples.

10. Write short notes

- a) Human Lactation
- b) Domain Achaea
- c) Dengue

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