கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர) முன்னோடிப் பரீட்சை - 2018
General Certificate of Education (Adv. Level) Pilot Examination - 2018

உயிரியல் I Biology I	09 E I	இரண்டு மணித்தியாலயம் Two hours

Instructions:

- Answer all the questions.
- Write your index number in the space provided in the answer sheet.
- In each of the questions 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) in accordance with the instructions given on the back of the answer sheet.

1. In plants the element responsible for the maintenance of osmosis and ionic balance,
   1) Ca 2) Cl 3) K 4) Fe 5) P

2. Which of the following is **not** a storage polymeric compound?
   1) Glycogen 2) Casein 3) Starch
   4) Triglycerides 5) Inulin

3. Which of the following is **incorrect** regarding organelle-function comparisons?
   1) Golgi bodies – Collecting, packaging, and distribution of materials.
   2) Central vacuole – Storage of colour pigments
   3) Smooth endoplasmic reticulum – Synthesis of membrane phospholipids
   4) Mitochondria – Involves in photorespiration
   5) Glyoxisome – Oxidation of lipids

4. CO_2 forms in the aerobic respiration
   1) only in cytosol
   2) in cytosol and matrix of mitochondria
   3) in cytosol and stalked particles
   4) only in matrix of mitochondria
   5) only in inner membrane of mitochondria

5. Which of the following statements is correct regarding C_4 photosynthesis?
   1) ATP is used only in the Calvin's cycle.
   2) RuBP accepts atmospheric CO_2.
   3) PEP converts as oxaloacetate by accepting CO_2 in the bundle sheath cells.
   4) CO_2 is fixed twice in the bundle sheath cells.
   5) H^+ which is released when malate changes as pyruvate, is used to reduce the NADP in the bundle sheath cells.

6. The factor which can be used to differentiate the diatoms from the other autotrophic protists,
   1) Absence of chlorophyll d.
   2) Presence of cell wall made up of cellulose.
   3) Unicellular
   4) Storage food is chrysolaminarin.
   5) Absence of flagella in reproductive cells.

[See page 2

7. Which of the following is the plant phylum with vascular tissues, seedless which need external water for fertilization and does not contain homospores only?

1) Pterophyta 2) Cycadophyta 3) Bryophyta
4) Coniferophyta 5) Lycophyta

8. Select the **incorrect** statement regarding the animal classes given below.

a. Crustacea b. Echinoidea c. Cephalopoda
d. Reptilia e. Insecta

1) b, c and d have well developed body cavity.
2) Gills are found in a,b,c
3) Endo skeleton is found in b,c,d
4) Ecdysis is found in a and e.
5) Exo skeleton made of chitin is found in a and e.

9. In which of the following vitamin deficiency affects the synthesis of collagen?

1) Pyridoxine 2) Thiamine 3) Ascorbic acid
4) Cobalamin 5) Pantothenic acid

10. a. Grasshopper b. Spider c. Centipede
d. Prawn e. Mullet f. Millipede

Which of the above animals **have no** respiratory structures with blood supply?

1) a, b only 2) a, c, f only 3) a, f only
4) c, f ; only 5) d, e, f only

11. The **incorrect** comparison between transpiration and guttation is,

	Transpiration	**Guttation**
1)	No influence of root pressure	caused due to positive root pressure
2)	Takes place largely in day times	generally takes place at nights
3)	Takes place only through stomata	takes place only through hydathodes
4)	Water lost as water vapour	water lost as liquid
5)	Low atmospheric humidity is favourable	low atmospheric humidity is unfavorable

12. A, B are two adjacent plant cells consist of solute potential -0.8 MPa, -0.5 MPa and pressure potential 0.3 MPa, 0.2 MPa respectively. The correct statement regarding these two cells,

1) Water moves from cell A to cell B
2) Water movement takes place according to water potential gradient
3) there is no water movement after obtaining an equilibrium
4) Water moves from cell B to cell A
5) Solutes move from the cell B of high solute potential to the cell A of low solute potential

13. Which of the following statements is correct regarding the circulatory system of animals?

1) Single circulation is not found in the vertebrates
2) Open circulation is found only in the invertebrates
3) All the hearts of vertebrates pump oxygenated blood from the heart chambers to the systemic circulation
4) Molluscs have ventral hearts with open circulation
5) All chordates have four chambered heart

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14. Which of the following **does not** involve in the regulation of the blood pressure in human?

1) Kidneys 2) Chemo receptors in carotid and aortic bodies 3) Medulla of adrenal gland

4) Skin 5) Autonomic nervous system.

15. Stimulation of human para sympathetic nervous system,

1) reduces the urine output.
2) reduces the salivary secretion.
3) causes vasodilation of coronary arteries.
4) increases the tear secretion.
5) reduces sweating.

16. Which one of the following comparisons is **incorrect** regarding the part of human brain-function?

1) Hypothalamus - Regulates the sleeping waking cycles
2) Medulla oblongata -Regulation of autonomic nervous system.
3) Pons varolli – act as a relay station associated with the cranial nerves.
4) Cerebrum - perception of sensory information.
5) Cerebellum - Coordinating the movement of skeletal muscles.

17. The set of hormones which performs similar functions in human is,

1) Calcitonin -Prothramone
2) Glucagon -Insulin
3) Gastrin -Enterogasterone
4) LH - hCG
5) GHRH –Somatostatin.

18. Which of the following statement is **incorrect** regarding the human eye?

1) Sclera is the outermost tissue layer of eyeball, anteriorly continues as cornea.
2) The choroid which is found in the middle of the eyeball consists of large number of blood vessels.
3) The interior structures of the eye are protected by the iris.
4) Aqueous humour is found in between the lens and cornea.
5) Ciliary body regulates the thickness of eye lens.

19 .a. Contractile vacuoles b. Nephridia c. Sweat glands

d. Salt glands e. Malphegian tubules

Which of the above excretory structures is/are found in the invertebrates?

1) a, b and e only 2) b and e only 3) c and d only

4) b only 5) e only

20. Which of the following statements regarding the human nephron is **incorrect**?

1) Proximal convoluted tubules is made up of cubical epithelium.
2) Outer wall of Bowman's capsule is made up of squamous epithelium.
3) Epithelium of the distal convoluted tubules consists of the microvilli facing the lumen.
4) Descending limb of loop of Henley is made up of cubical epithelium
5) It is a single layered tubule which is closed at one end and opened at the other end.

[See page 4

21. Features of some bones of human vertebral column are given below.
    a. Foramen in the transverse process and no distinct body.
    b. Bodies and transverse process have facets for articulation.
    c. Has a small body with a superior projection.
    d. Consists of five rudimentary fused vertebrae.

    Correct sequence of vertebrae regarding the above descriptions
    1) Axis, Thoracic vertebrae, Atlas, Lumbar vertebrae
    2) Atlas, Thoracic vertebrae, Axis, Sacrum
    3) Atlas, Lumbar vertebrae, Axis, Sacrum
    4) Cervical vertebrae, Thoracic vertebrae, Atlas, Sacrum
    5) Coccyx, Atlas, Thoracic vertebrae, Axis

22. The **incorrect** statement regarding the human skeletal system.
    1) Five meta-carpal bones form the palm.
    2) Knee joint is formed in between the distal end of femur and tibia.
    3) Tibia and fibula are articulated at their both ends.
    4) The femur bones are parallel to the axis of the body to support the erect body position.
    5) Two types of lateral and longitudinal arches are present in the foot for weight lifting.

23. The correct statement regarding the plant movements,
    1) There are no participations of plant growth substances in trophic movements.
    2) Some of the thigmo trophic movements are reversible.
    3) Nastic movements due to turgidity changes are reversible.
    4) Tactic movements occur in a certain part of the organisms.
    5) During the seed germination, radicle shows the negative geotrophic movement and the plumule shows the positive geotrophic movement.

24. There will be no cell division processes in the human spermatogenesis,
    1) during the formation of secondary spermatocytes from the primary spermatocyte
    2) during the formation of sperms from the spermatids
    3) during the formation of primordial germ cells
    4) when secondary spermatocytes become as spermatids
    5) during the formation of primary spermatocytes from the spermatogonia

25. Which of the following statements regarding menstrual cycle is **incorrect**?
    1) Hormones secreted during this cycle are regulated by the negative feedback mechanism.
    2) In the first half of the menstrual cycle, oestrogen stimulates the hypothalamus alone to secrete FSH, LH.
    3) Both the luteal phase and the secretory phase have same duration.
    4) In the second half of the menstrual cycle, both progesterone and oestrogen inhibit the secretion of FSH, LH from the hypothalamus.
    5) hCG helps to stabilize the corpus luteum during menstrual cycle.

26. Which of the following features **cannot** be used to differentiate the angiosperms and gymnosperms from the other terrestrial plants?
    1) External water is not essential for the fertilization.
    2) Wind dispersal of spores
    3) Pollination
    4) Gametophytes completely depend on the sporophytes.
    5) Seed formation

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27. Which of the following pairs of plant growth substances can give the similar effects for a considered process?
    1) Apical dominance -Auxin, Cytokinin
    2) Germination of seed – Gibberellin, Abscisic acid
    3) Stem elongation -Gibberellin, Ethelene
    4) Cambial activity – Auxin, Abscisic acid
    5) Abscission of leaves- Auxin, Ethelene

28. Which of the following statements regarding the human reproduction is **incorrect**?
    1) Acrosomal reaction of sperms is not essential to penetrate through the corona radiata.
    2) Haploid secondary oocyte is released from the Graffian follicle during the ovulation
    3) Enzymes of the ovum involve in the cortical reactions.
    4) Sperms should be fertilized within 72 hours after the ejaculation..
    5) Oogenesis get started 28 days before the puberty.

29. In sesame plants, the one- pod condition (P) is dominant to the of three pod condition (p) and normal leaf (L) is dominant to wrinkled leaf (l). Pod type and leaf type are inherited independently. Determine the possible genotypes of the two parents producing the following off springs:

    One pod, normal - 150
    One pod, wrinkled - 147
    Three pod, normal - 51
    Three pod wrinkled - 48

    1) PPLl x PpLl 2) PpLl x PpLl 3) PPLL x ppll
    4) PpLl x Ppll 5) PpLl x ppLl

30. The nature of rolling tongue is dominant and not rolling tongue is recessive in human. If 64% of a population can roll the tongue, then what percentage of them are heterozygous to this nature?
    1) 32% 2) 24% 3) 48% 4) 36% 5) 16%

31. Some amino acids and anticodons of tRNA molecules which carry specific amino acids in protein synthesis are given below.

Amino acids	**Anticodon of tRNA/ triplet N-bases**
Phenyl Alanine	AAA
Lysine	UUC
Arginine	GCU
Alanine	CGU

Which of the following is the sequence of DNA which is required to produce the polypeptide sequence of alanine-arginine-lysine-phenyl alanine?

1) CGU, GCU, UUC, TTT 2) CGT, GCT, TTC, AAA
3) CGT, GCT, TTC, TTT 4) GCT, CGT, TTC, AAA
5) CGU, GCU, CUU, AAA

[See page 6

32. Which of the following is **incorrect** regarding the DNA finger printing?

1) DNA fragments move towards the positive electrode during electrophoresis.
2) After electrophoresis, DNA bands can be seen under microscope which are stained.
3) Profile obtained is specific to a particular individual.
4) After electrophoresis, DNA bands can be transferred onto nitro cellulose paper.
5) This technique can be used in forensic medicine.

33. Different categories of threatened organisms according to IUCN red data book in the increasing order of threatened levels are,

1) CR, EN, VU, NT
2) NE, VU, NT, CR
3) EX, VU, NT, CR
4) NE, VU, EN, EW
5) DD, NT, EW, CR

34. Select the **incorrect** statement regarding natural resources.

1) All living resources are renewable.
2) Clean air is a non-living renewable resource.
3) Recyclable resources can be used many times.
4) Renewable non-living resources are not found naturally.
5) No need of sustainable usage of natural resources for the inexhaustible resource.

35. a. 2500 – 5000 mm annual rainfall

b. Dry season from May to August

c. Highest number of endemic species

d. North-west and south-east regions of Sri Lanka

e. Emergent trees

Features found in tropical rain forests of Sri Lanka of the above,

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

36. Which of the following statements is **incorrect** regarding the biogeochemical cycles?

1) Major reservoir of carbon is found in the sedimentary rocks in oceans.
2) Elements without gaseous state compounds do not pass through the atmosphere.
3) Denitrification plays a major role in the maintenance of N_2 in the atmosphere.
4) Micro-organisms and the human activities do not affect the hydrological cycle.
5) *Clostridium* is a free living bacteria which fixes the nitrogen.

37. Select the **incorrect** statement.

1) *Saccharomyces cerevisiae* is used in the wine production.
2) *Penicillium* is used for the treatment of diseases.
3) *Azotobacter* increases the nitrogen content of the soil.
4) *Corynebacterium glutamicus* is used in the production of amino acid lysine.
5) *Bacillus thuringiensis* is used as bio pesticides.

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38. **Incorrect** comparisons regarding endotoxins and exotoxins produced by the micro-organisms.

	Endotoxin	**Exo-toxin**
1)	Thermo stable	Thermo liable
2)	Produce non-specific effects on host	Produce effects on specific tissues of host
3)	Can't be converted into toxoids	can be converted as toxoids
4)	Need in high concentrations to produce effects	Low concentration is enough to produce effects
5)	Secreted by cells	not secreted by cells

39. p - Interferon
q – Lactoferrin
r - Immunoglobulin
s - Lysozymes
Which of the above can be seen in blood of a person infected with viral disease?
1) p only 2) p and q 3) p and r 4) p and s 5) r only

40. Which of the following is **not** a physical change during the food spoilage?

1) Softening of food
2) Accumulation Toxin in food.
3) Rancidity
4) Slime or gum formation in food.
5) Pigmentation of food.

***** For the questions 41 – 50, follow the following instruction

A,B,D correct	A, C, D correct	A, B correct	C, D correct	Any other combinations of responses
1st answer	2nd answer	3rd answer	4th answer	5th answer

41. In which of the following/ followings sulphur is a structural component?
A. Co-enzyme A B. Lysine C. Methionine
D. Albumin E. Chlorophyll

42. Which of the following cellular organelle/organelles is/are participated in detoxification?
A. Golgi apparatus B. Lysosome C. Peroxisome
D. Smooth endoplasmic reticulum E. Central vacuole

43. The following features are observed in an animal phylum with cord.

- 12 pairs of cranial nerves
- Respiration through the lungs
- Uric acid as excretory product

Which of the following feature/features can be seen in the above animal phylum other than the above given features.
A. Nictitating membrane B. Three chambered heart C. External fertilization
D. Ovoviviparous E. Absence of external ear

44. Which of the following statements regarding the human digestive system is/are correct?
A. Enterokinase activates the proteolytic precursor peptidases found in pancreatic juice.
B. Water, alcohol and some lipid soluble drugs are absorbed in the stomach in small quantities.
C. Oblique muscles are found in between the circular muscles and the longitudinal muscles in the stomach.
D. An intrinsic factor for the absorption of vitamin B_{12} is secreted and absorbed in stomach.
E. Peyer's patches are found in large intestine to destroy the micro-organisms.

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45. Which of the following statements is/are **incorrect** regarding the human heart?
A. Cardiac output depends on stroke volume and heart beat rate.
B. AV node is present in the wall of auricular ventricular septum.
C. Atrio-ventricular valves are open when the heart at completely relaxed stage.
D. Aortic valve and pulmonary valve opens when the ventricles contract.
E. Rate of heart beat is increased by the influence of parasympathetic nervous system and adrenalin hormone.

46. The correct statement/statements regarding nerve cells
A. Dendrites are generally short and branched
B. Na^+ is the major cation in the extra cellular fluid during the resting membrane potential.
C. Conduction speed of nerve impulse depends on length of the axon and the strength of the stimulus.
D. During the refractive period another action potential is not generated.
E. Depolarization and repolarization take place at the internodes of myelinated axons.

47. Which of the following is/are correct regarding part/parts commonly used by the Sri Lankan farmers in the vegetable production and their examples?
A. Corm - *Colocasia*
B. Rhizome - *Canna*
C. Bulbil - *Ananas*
D. Stem cutting - *Saccharum*
E. Runners - *Cyperus*

48. Which of the following mutation/mutations **does not/do not** occur/s due to change in number of chromosomes?
A. Haemophilia B. Down's syndrome C. Albinism
D. Color blindness E. Thalassemia

49. Which of the following air pollutant/pollutants affect/affects to oxygen carrying capacity?
A. Haemophilia B. Ozone C. Nitrogen oxides
D. Color blindness E. Particulate matters

50. Which of the following process/processes is/are taken place in urban water treatment plants to remove disease causing micro-organisms?
A. Filtration using sand filters.
B. Disinfection using chlorine
C. Water is allowed to cascade down several steps and aerated.
D. Sedimentation
E. Trickling filter method is used.

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General Certificate of Education (Adv. Level) Pilot Examination - 2018

உயிரியல் II
Biology II

09 E II

மூன்று மணித்தியாலம்
Three hours

சுட்டெண் :..................................

Instructions :

* This question paper consists of *9* pages.
* This paper comprises of two parts **A and B**. The time allotted for the **two parts** is **three hours only.**

Part A – Structured Essay (Pages *2 - 8*)

* Answer all the questions on the question paper itself.
* Write your answers in the space provided for each question. Please note that the space provided is sufficient for the answer and that extensive answers are not expected.

Part B – Essay (**Page** *9*)

* Answer **four** questions only. Use the papers supplied for this purpose.
* At the end of the time allotted for this paper, tie the two papers together so that Part **A** is on top and hand them over to the Supervisor. You are permitted to remove only Part **B** of the question paper from the Examination Hall.

For Examiner's Use Only

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

Final Marks

In Numbers	
In Letters	

Code Numbers

Marking Examiner 1	
Marking Examiner 2	
Checked by	
Supervised by	

[See page 2

Part A – Structured Essay

Answer all questions on this paper
itself Ecah question carries 10 marks

Do not write in this column

1. A.i) State two polymers which act as the storage components in animals.

……
……

ii) State two non-polymeric compounds with glycosidic bonds.

……
……

iii) How does the high specific heat capacity of water provide influence on animals?

……
……

iv) a. What is the main type of bond present in proteins?

……

b. State the experiment to identify the presence of the bond you mentioned in above (iv) a and describe briefly how this experiment can be carried out in the laboratory.

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……
……

v) What is cytoskeleton?

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……
……

vi) State three functions of cytoskeleton

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……
……

B. i) State three co-factors essential for the activity of enzymes and give one example for each of them.

Co-factor	**Example**
.....	.....
.....	.....
.....	.....

ii) Briefly describe the influence of temperature on the rate of enzyme reaction.

……
……
……

[See page 3

Do not write in this column

iii) Name the molecules which carry the energy generated in the light reactions of photosynthesis to the Calvin cycle.

……

iv) State the processes of Calvin cycle in which the molecules you mentioned in above B (iii) participate.

……

……

……

C. i) Complete the dichotomous key given below using the following animals.

Earth worm, Liver fluke, Jelly fish, *Chiton*, Snail, Round worm

1. Cylindrical shaped body .....2.....
   Non-cylindrical shaped body .....3.....

2. Have setae .....
   Have no setae .....

3. Have suckers .....
   Have no suckers .....

4. Have tentacles .....
   Have no tentacles .....

5. Have shell .....
   Have no shell .....

ii) a. What is tentacle?

……

……

b. Name two phyla of invertebrates which pocess tentacles.

……

iii) Name an organ of aquatic invertebrates which is used to identify the state of its body in its surroundings.

……

2. A. i) Name the three types of salivary glands in human and state the locations of them.

....

....

....

ii) Give two anti-microbial substances which are found in the human saliva?

……

iii) Which is the proximal part of the human large intestine?

……

iv) What are the nutritional components stored in the human liver?

……

……

[See page 4

Do not write in this column

v) a. Which is the bile secreting gland?

……

b. Which hormone induces the release of bile from its storage part?

……

vi) What are the advantages of fibres in the human food?

……

……

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……

B. i) Name one basic respiratory structure found in following animals.

a. *Areniocola* .....

b. Mite .....

c. Starfish .....

ii) Give reasons for the animals belong to phylum coelenterate, phylum Platyhelminthes have the body surface as their respiratory structure.

……

……

iii) Name the main type of cells which involve in the formation of human alveoli and the other types of cells which found along with this main type of cells.

Main cells .....

Other cells .....

iv) a. What is the main function of respiration in human?

……

……

b. What is the average rate of respiration in a healthy adult human at rest?

……

c. What is the major factor which controls the human respiration?

……

d. What is the location of the peripheral chemoreceptors which identify the factor you mentioned above in (iv) c?

……

v) a. What is the respiratory rhythmic centre?

……

b. Which part involves in the regulation of the centre you mentioned in above (v) a?

……

C. i) Name the components involve in the formation of artrio -ventricular (AV) valves of human heart.

……

……

[See page 5

Do not write in this column

ii) State three processes of cardiac cycle which perform in the human heart during the relaxation of heart.

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……

……

iii) What are the factors responsible for the hypotension in human?

……

……

……

iv) State two consequences of hypertension in human.

……

……

3. A. i) What are the components involve in the formation of human peripheral nervous system?

……

……

……

ii) Place a tick (✓) in the corresponding column to indicate that the following human body functions are increased by the sympathetic or parasympathetic nervous system.

Activity	Sympathetic	Parasympathetic
a. Increases salivary secretion		
b. Dilation of coronary artery		
c. Decreases urine production		
d. Relaxation of intestinal sphincters		

iii) State two target organs of oxytocin.

……

iv) Give three functions performed by human insulin.

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……

v) State two functions of somatostatin (GHIH).

……

……

B. i) What are the main steps of urine formation?

……

……

……

ii) State three nitrogenous wastes found in glomerular filtrate.

……

……

……

iii) In which part of the human nephron the Na^+ and Cl^- get passively reabsorbed?

……

iv) What are the functions of aldosterone in human nephron?

……

……

[See page 6

Do not write in this column

v) a. Name the animal phylum only with the exoskeleton?

……

b. What are the components form the exoskeleton of the animal phylum you mentioned in above (V) a?

……

……

c. State two disadvantages faced by the animals with exoskeleton.

……

……

C. i) What is sarcomere?

……

……

ii) What are the proteins which made the thick and thin filaments of sarcomere?

Thick filament .....

Thin filament .....

iii) State what will happen to the following during the contraction of muscles.

a. H zone .....

b. I band .....

c. A band .....

iv) State the type of each of the following plant movements.

a. *Passiflora* grows with its tendrils

……

b. Daisy flowers open in the light and close in the dark

……

c. Sperms of *Pogonatum* move towards the ovary.

……

v) Name one cell which shows the pseudopodial movement in human.

……

4. A. i) Which part transfer the sperms from epididymis to the urethra in human?

……

ii) What are the hormone involve in the maintenance of corpus luteum?

……

iii) Which is the hormone found in women during the whole period of pregnancy and give functions of that hormone.

……

……

……

iv) Which contraceptive method prevents the implantation only in women?

……

v) What is the test used to identify the pregnancy of a woman?

……

vi) Give two sexually transmitted bacterial diseases.

……

……

[See page 7

Do not write in this column

vii) Give two post fertilization changes in flowering plants.

……

……

B. i) Briefly describe what DNA finger printing is.

……

……

……

……

ii) State two applications of DNA finger printing.

……

……

iii) Name the species of bacteria which can be used to gain the soya beans resistance to glyphosate weedicide.

……

iv). a. What is the genetypic ratio of a dihybrid test cross of traits which are independently assorted?

……

b. If you do not get the ratio mentioned above and gets only two phenotypes, what is the name of this hereditary pattern?

……

v) What is transformation of bacteria?

……

……

C. i) What are the biomes (worldwide group of living organisms) with the grasslands?

……

……

ii) What are the Sri Lankan forest ecosystems consist of lichens and mosses?

……

……

iii) a. What is net primary productivity of an ecosystem?

……

……

b. Name the terrestrial ecosystem with highest net primary productivity in earth.

……

iv) What is link in food chain/food web?

……

v) What is the energy source for generating the biogeochemical cycles?

……

[See page 8

vi) Phagocytosis is one of the non-specific immunity processes. Briefly describe what phagocytosis is.

Do not write in this column

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……
……

vii) Name the antibiotics corresponding to the following activities.

a. Inhibition of bacterial protein synthesis :..... .....

b. Inhibition of synthesis of bacterial cell wall :.....

viii) What are the plant growth substances produced by the micro-organisms living in soil?

……
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[See page 9

மொறட்டுவை பல்கலைக்கழக பொறியியற் பீட தமிழ் மாணவர்கள்
நடாத்தும் க.பொ.த உயர்தர மாணவர்களுக்கான 9 வது
முன்னோடிப் பரீட்சை - 2018

கல்விப் பொதுத் தராதரப் பத்திர (உயர் தர) முன்னோடிப் பரீட்சை - 2018
General Certificate of Education (Adv. Level) Pilot Examination - 2018

உயிரியல் II
Biology II

09 E II

Part B - Essay questions

Instructions :

- Answer four questions only.
- Give clear labelled diagrams when necessary
  (Each question carries 15 marks)

5. Describe the processes of cellular respiration in the skeletal muscles.

6. a. Describe the mechanism of the stomatal movement.
   b. Give a description of the secondary tissues formed in a dicot plant which had undergone secondary growth.

7. a. Describe the structure and functions of human placenta.
   b. Briefly explain the activities of the hormones of menstrual cycle in a human woman after ovulation.

8. a. Briefly explain what is global warming.
   b. Describe the impacts of global warming.
   c. Briefly describe the measures had been taken to prevent the global warming.

9. a. Describe the procedures of the production of commercially used products using the micro-organisms and their metabolic activities.

   b. What are the advantages of using microbial activities than using the chemical processes?

10. Write short notes on the followings.
    a. Respiratory pigments
    b. Agricultural uses of the plant growth substances.
    c. Chromosomes and genes.