Sri Lankan Biology Olympaid 2012

Instructions:
This paper contains two parts, A and B.
Part A, 40 multiple choice questions, Total Marks 40.
Part B, 20 short answer questions, Total Marks 60.

Answer All Questions Time: 2 hours

Part A – Multiple Choice Questions

(1) Given below are some characteristic features associated with life. Which of these features **cannot** be observed within one individual organism?
1. Irritability
2. Evolution
3. Reproduction
4. Heredity
5. Adaptation

(2) While fats and oils are insoluble in water soaps manufactured using oils are soluble in water. Which of the following is the major reason for this change of property?
1. Low molecular weight of the lipid molecules found in soap.
2. Shorter length of hydrocarbon chains.
3. Increased polarity of lipid molecules.
4. Presence of free glycerol in soap.
5. Fully saturated carbon-carbon bonds of the lipid molecules.

(3). Most animal cells have carbohydrate chains attached to the lipid and protein molecules of the cell membrane. Which of the following can be an important function of these carbohydrates ?
1. Use as a respiratory substrate.
2. Binding the membranes of adjoining cells.
3. Maintaining antigenic identity of the cells.
4. Giving mechanical strength to the cell membrane.
5. Facilitating transport of molecules across cell membrane.

(4) Which of the following is **not** a common function of the Golgi complex?
1. Receiving proteins made by the endoplasmic reticulum.
2. Making lysosomes.
3. Chemical modification of protein molecules.
4. Making ribosomes.
5. Transport of vescicles.

(5) Which of the following is **incorrect** regarding activation energy of a reaction?
1. Activation energy is the energy supplied by an enzyme to the substrate in order to carry out a reaction.
2. Activation energy is released as a result of a reaction.
3. Supply of activation energy is needed for any reaction to take place.
4. Amount of activation energy of a reaction is altered by an enzyme.
5. For some reactions activation energy can be supplied by heat.

(6) Which of the following is **incorrect** regarding cyclic phosphorylation?
1. It occurs in all chloroplasts.
2. It does not occur in Cyanobacteria.
3. It is associated with photosystem I of photosynthesis.
4. It is believed to have evolved before non cyclic phosphorylation.
5. It is the only method of ATP synthesis in chloroplasts of bundle sheath cells of C4 plants.

(7). Which of the following statements regarding the events taking place at prophase 1 of meiosis is **incorrect**?
1. Chromosomes become clearly visible under microscope after staining.
2. A bivalent consisting of four DNA molecules bound by protein is formed.
3. Crossing over takes place between homologous chromosomes.
4. Chromosomes move towards the center of nucleus and arrange in a plane
5. In animal cells two poles are established at opposite sides of the nucleus by centrioles.

(8) Which of the following person-description combination is **incorrect**?
1. Whittaker - Taxonomist who introduced kingdom protista into classification.
2. Linnaeus - Person who introduced hierarchical system of classification.
3. Haeckel - Person who introduced the taxon Phylum into taxonomy.
4. Woose - Taxonomist who introduced kingdom Monera into classification.
5. Theoprastus - First person to classify plants into trees, herbs and shrubs.

(9) Which of the following is **not** a feature of Ascomycota ?
1. Asexual spores are produced on conidiophores.
2. Most species produce sexual spores in a fruit body.
3. Most species show heterothallism
4. Dominant vegetative phase is dicaryotic
5. Fungal hyphae are septate

(10) Which of the following features is **not** true for Gymnosperms ?
1. They are distributed in temperate countries as well as in tropical countries.
2. Trees of all species are unisexual.
3. Megasporophyll bears several ovules.
4. Megasporangium encloses only one female gametophyte.
5. Female gametophyte bears several archegonia.

(11) Which of the following animals has a closed circulatory system without a heart?
1. Sea urchin 2. *Fasciola* 3. *Chiton* 4. Millipede 5. Earthworm

(12) Which one of the following animals has the most well developed auditory organs?
1. Crow 2. Crocodile 3. Bat 4. Rat 5. Snake

(13) Which of the following groups of animals showed segmentation first in the evolutionary history?
1. Cartilaginous fish 2. Shrimps
3. Dinosaurs 4. Scorpions 5. Leeches

(14) Pressure potential (ψp) and solute potential (ψs) values in xylem of the shoot and leaf mesophyll cells are given in following table in kilo pascals (kPa). Which Combination would represent the movement of water from shoot xylem to leaf mesophyll cells?

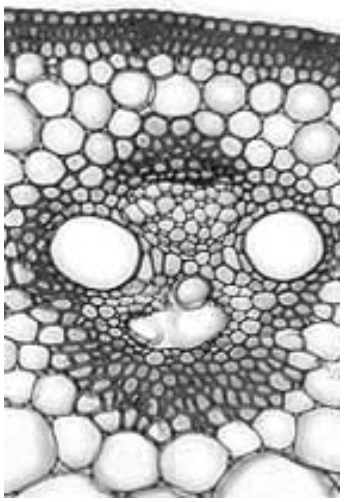
	Shoot xylem		Leaf mesophyll	
	ψp	ψs	ψp	ψs
1.	80	–1200	100	–1100
2.	150	–1250	200	–1200
3.	–20	–1120	150	–1200
4.	70	–1120	75	–1200
5.	–65	–1050	75	–1100

(15) H1 and H2 are two plant growth substances. Following observations were made when these substances were added to a tissue culture medium.
When both H1 and H2 were added they induced callus formation
When only H1 was added adventitious roots were formed on the explants
When only H2 was added no callus formation occurred.
Based on this information H1 and H2 are:

	H1	H2
1	Auxin	Gibberelin
2	Auxin	Cytokinin
3	Cytokinin	Auxin
4	Gibberelin	Auxin
5.	Cytokinin	Gibberelin

(16) Compared to a normal day, in a hot sunny day photorespiration would
1. Increase in rice, decrease in maize
2. Increase in maize, decrease in rice
3. Increase in rice, little effect on maize
4. Increase in maize, little effect on rice
5. Increase in both species

(17) This question is based on following terms and the photomicrograph illustrated here.



a. exarch b. endarch c. collateral d. radial e. open f. closed
Most appropriate way of describing this tissue would be:
1. a, c, e 2. b, c, e 3. b, c, f 4. a, d, f 5. b, d, e

(18) Which of the following substances is unlikely to be transported through phloem?
1.Cytokinin 2. Vitamins 3. Amino acids 4. Weedicides 5. Mineral ions

(19) Which of the following statements regarding the reproduction of Angiosperms is incorrect?
1. Stamens are microsporophylls with four microsporangia.
2. A pollen grain contains two cells at the time of release from sporangium.
3. Female gametophyte may contain several gametes.
4. Male gametes are represented by two nuclei.
5. Some plants produce fertile seeds without fertilization.

(20) Skeletal tissues of animals are **not** associated with which of the following?
1. Conservation of water 2. Endocrine activity 3. Storage
4. Production of leucocytes 5. Homoeostasis

(21) Which of the following are not present in the hypodermis of man?
a. Hair papillae b. Free nerve endings c. Sweat glands d. Meissner corpuscIls
e. Elastin fibres

1. a and c only 2. a, c and d only 3. a, c and e only
4. b and e only 5. a, b. c and e only

(22) Which of the following combinations with respect to human eye is correct?
1. Rods - photopsin - night vision
2. Cones - rhodopsin - color vision
3. Short sightedness - elongation of eye ball - spectacles with convex lenses
4. Far sightedness - shortened eye ball - spectacles with concave lenses
5. Retina - fovea - absence of rods

(23) All structures in which of the following groups produce hormones?
1. Pineal body, hypothalamus, posterior pituitary
2. Kidney, juxta-medullary complex, Acini of pancreas
3. Jejunum, duodenum, stomach
4. Foetus, placenta, corpus luteum
5. Anterior pituitary, testes, medulla oblongata.

(24). In a normal healthy adult man, the amount of water reabsorbed in the kidney as a % of the amount filtered is about

1. 99% 2. 80% 3. 50% 4. 20% 5. 1%

(25) Which of the following statements regarding the transport of respiratory gasses in humans is correct?
1. Nearly half of the oxygen that blood is transported combines with hemoglobin in red blood cells.
2. A single red blood cell can carry a maximum of 4 oxygen molecules.
3. Both oxygen and carbon dioxide are equally soluble in blood.
4. The most important carbon dioxide transport mechanism involves the formation of bicarbonate ions.
5. The majority of carbon dioxide in the blood is carried by erythrocytes.

(26) What is the probability of getting a progeny with all the four dominant characters from the following cross ? Assume that A B C D genes are independently segregated.
AaBbCCDd x aabbccdd

1. 0.75 2. 0.625 3. 0.5 4. 0.25 5. 0.125

(27) In a plant species two pureline varieties, both producing white flowers, when crossed the progeny produces purple flowers. When these progeny plants are backcrossed purple flowered plants and white flowered plants are produced in equal numbers in the progeny. Assume that purple flower is dominant to white flower. Which of the following statements regarding this inheritance is correct?
1. This is a case of recessive epistasis.
2. This is a case of dominant epistasis.
3. Purple color may be a recessive character.
4. This can be explained by multiple allelism.
5. Two linked genes may be involved in determining the flower colour.

(28) Which of the following statements regarding protein synthesis is **incorrect** ?
1. Some RNA molecules are not translated by ribosomes
2. Major function of RNA polymerase enzyme is to produce mRNA.
3. There are 20 different tRNA types.
4. All 64 codons in the genetic code means aminoacids.
5. Two subunits of a ribosome remain separate when they are not used in protein synthesis.

(29) In a population of a plant breeding randomly 91% of the plants have red flowers while 9% have white flowers. What proportion of red flowered plants would be true breeding with respect to flower colour ? Assume that red flower is dominant to white flower.
1. All 2. 0.91 3. 0.54 4. 0.42 5. 0.21

(30) Which of the following statements is **incorrect** regarding agarose gel electrophoresis?
1. During electrophoresis the DNA moves towards +ve electrode.
2. Rate of movement of DNA depends on the voltage applied.
3. After electrophoresis the DNA bands can be seen under visible light.
4. The technique can be used to determine molecular weight of DNA molecules.
5. After electrophoresis the DNA bands can be transferred into filter paper.

(31) When genes are cloned in *E.coli* using plasmids, very often antibiotic resistant genes are also cloned along with the gene to be cloned. Which of the following statements is correct regarding the use of these genes?
1. All bacterial plasmids contain genes for antibiotic resistance.
2. *E.coli* bacterial cells cannot grow without antibiotic resistant genes.
3. Antibiotics are used in the process of transformation of *E.coli* cells.
4. Antibiotic resistance genes are needed for replication of plasmids.
5. Antibiotic resistance genes help to isolate successfully cloned bacterial cells from others.

(32) Which of the following statements is **incorrect** regarding *E. coli*?
1. *E. coli* provides vitamin K for humans
2. *E. coli* count is a good indicator for sanitation of water
3. *E. coli* never causes disease
4. *E. coli* normally exhibits mutualistic relationship with humans
5. *E. coli* does not produce endospores.

(33) Which of the following statements is **incorrect**?
1. HIV virus replicates through a DNA intermediate.
2. Cell wall of Archae bacteria is more resistant to environmental damages than that of other bacteria.
3. Endotoxins are usually much more potent than exotoxins.
4. *Candida albicans* is a fungus in the normal microbiota of human body.
5. Artificially acquired passive immunity can be used in treatment for rabies infection.

(34) Which of the following organism-use is **incorrect**?
1. *Gluconobacter* – production of vinegar
2. *Thiobacillus* – recovery of copper from metal ore
3. *Methanococcus* – production of biogas
4. *Aspergillus* - production of cheese
5. *Salmonella* – production of antibiotics

(35) Which one of the following biomes may have the shortest food chains?

1. Desert
2. Savanna
3. Taiga
4. Tundra
5. Chaparral

(36) Which of the following is least responsible for a species to become rare?

1. Low population size
2. High ability to disperse
3. Highly specialized food habits
4. Narrow distributional range
5. Low competitive ability

(37) Which of the following pairs indicates the appropriate combination?

1. Water vapour – Hydrosphere
2. Microscopic particles – Mesosphere
3. Ozone layer – Thermosphere
4. Microbes – Troposphere
5. Birds – Stratosphere

(38) If the Net Primary Productivity of an ecosystem with 4 trophic levels is 9000 KJ m^{-2} $year^{-1}$ and the amount used for respiration by primary producers is 860 KJ m^{-2} $year^{-1}$, the gross primary productivity of this ecosysytem is

1. 9000 - 860 KJ m^{-2} $year^{-1}$
2. 9000 + 860 KJ m^{-2} $year^{-1}$
3. 9000 – 4(860) 860 KJ m^{-2} $year^{-1}$
4. 9000 + 4(860) 860 KJ m^{-2} $year^{-1}$
5. 9000 - 3(860)· 860 KJ m^{-2} $year^{-1}$

(39). Which one of the following statements regarding the skeleton of man is correct?

1. Appendicular skeleton contains 58 phalanges.
2. There are 11 pairs of ribs.
3. Total number of bones in appendicular skeleton is 124.
4. Axial skeleton consists of 40 pairs of bones.
5. There are 8 cranial bones.

(40) Which of the following statements regarding chaparrals is correct?

1. They are found in equatorial regions
2. They have long rainy seasons and short dry seasons
3. Day-time temperature may exceed 45^{o}C.
4. Annual rainfall is less than 40 cm.
5. Plants shed their leaves during the winter season.

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Answer Sheet

Please handover this part to the Invigilator.
Only Part A is allowed to move out of the examination hall.

Part A - Multiple Choice Questions

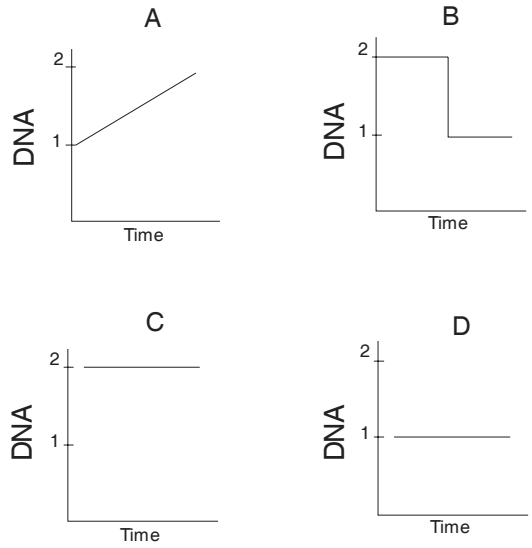
Mark the correct response with a cross (x)

1.	(1)	(2)	(3)	(4)	(5)	21.	(1)	(2)	(3)	(4)	(5)
2.	(1)	(2)	(3)	(4)	(5)	22.	(1)	(2)	(3)	(4)	(5)
3.	(1)	(2)	(3)	(4)	(5)	23.	(1)	(2)	(3)	(4)	(5)
4.	(1)	(2)	(3)	(4)	(5)	24.	(1)	(2)	(3)	(4)	(5)
5.	(1)	(2)	(3)	(4)	(5)	25.	(1)	(2)	(3)	(4)	(5)
6.	(1)	(2)	(3)	(4)	(5)	26.	(1)	(2)	(3)	(4)	(5)
7.	(1)	(2)	(3)	(4)	(5)	27.	(1)	(2)	(3)	(4)	(5)
8.	(1)	(2)	(3)	(4)	(5)	28.	(1)	(2)	(3)	(4)	(5)
9.	(1)	(2)	(3)	(4)	(5)	29.	(1)	(2)	(3)	(4)	(5)
10.	(1)	(2)	(3)	(4)	(5)	30.	(1)	(2)	(3)	(4)	(5)
11.	(1)	(2)	(3)	(4)	(5)	31.	(1)	(2)	(3)	(4)	(5)
12.	(1)	(2)	(3)	(4)	(5)	32.	(1)	(2)	(3)	(4)	(5)
13.	(1)	(2)	(3)	(4)	(5)	33.	(1)	(2)	(3)	(4)	(5)
14.	(1)	(2)	(3)	(4)	(5)	34.	(1)	(2)	(3)	(4)	(5)
15.	(1)	(2)	(3)	(4)	(5)	35.	(1)	(2)	(3)	(4)	(5)
16.	(1)	(2)	(3)	(4)	(5)	36.	(1)	(2)	(3)	(4)	(5)
17.	(1)	(2)	(3)	(4)	(5)	37.	(1)	(2)	(3)	(4)	(5)
18.	(1)	(2)	(3)	(4)	(5)	38.	(1)	(2)	(3)	(4)	(5)
19.	(1)	(2)	(3)	(4)	(5)	39.	(1)	(2)	(3)	(4)	(5)
20.	(1)	(2)	(3)	(4)	(5)	40.	(1)	(2)	(3)	(4)	(5)

Part B – Short Answer Questions

Please answer in the spaces provided. Please use given letters, numbers or symbols only.

(1) Diagrams A,B,C and D given below represents how the amount of DNA in a cell changes at four different stages of the cell cycle. Indicate whether each of the following statements is correct or incorrect using ✓ or x marks.



1. Diagram A represents G1 phase of cell cycle.	
2. Diagram B represents mitosis.	
3. Stage shown in C is commonly observed in root tips.	
4. Metabolic activities of the cell do not take place in stage shown by D.	
5. Some cells remain constantly in stage C.	

(2) Indicate whether each of the following statements is correct or incorrect using ✓ or x marks.

1. Respiratory oxidation of carbohydrates, fats and oils and proteins takes place through Krebs cycle.	
2. Fats and oils are more efficient energy storage substances than carbohydrates and proteins	
3. Acetyl coenzyme A is an intermediate in the oxidation of carbohydrates as well as fats and oils	
4. Pyruvate is an important end product of carbohydrate break down outside mitochondria	
5. Substrate level phosphorylation of carbohydrates takes place outside mitochondria	

(3) Given below are some enzymes labeled A –F. Select the appropriate enzyme that fits the descriptions 1-6. by putting ✓ mark in the appropirate cage.

Enzyme	1. Produce O_2	2. Produce CO_2	3. Produce maltose	4. Produce galactose	5. Produce glycerol	6. Uses CO_2
1. Amylase						
2. Lactase						
3. Catalase						
4. Pyruvate decarboxylase						
5. Lipase						
6. PEP carboxylase						

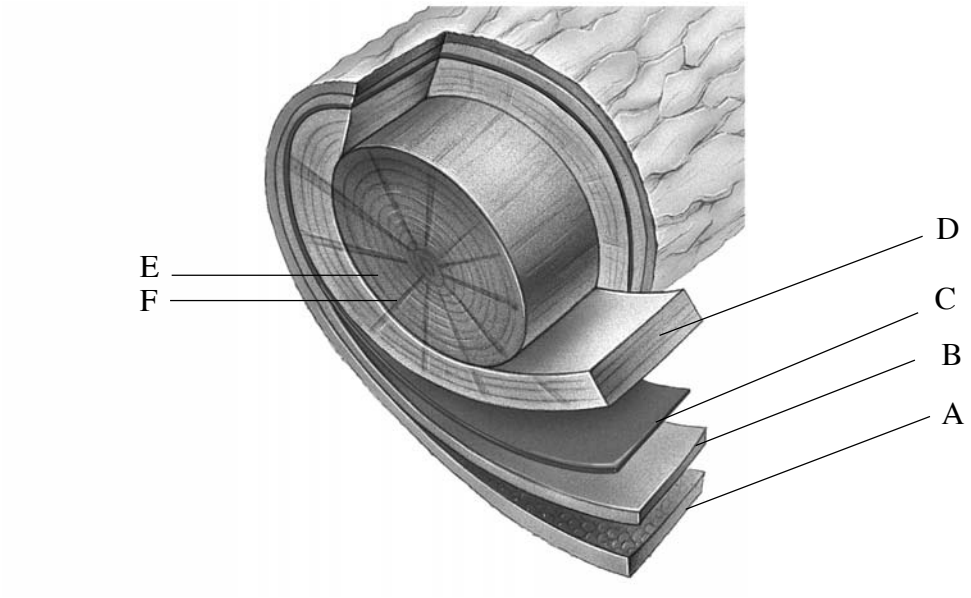
(4) Given below are some features labeled 1-9 associated with Protista. Select features that are present in each of the Phyla by putting a ✓ mark in the appropriate cage.

Feature	Rhizopoda	Phaeophyta	Chlorophyta
1. Food stored as starch			
2. Manitol present in cells			
3. No cell walls			
4. Alginic acid present			
5. No flagella or cilia			
6. Flagellated cells may be produced			
7. No food storage			
8. Chlorophyll c present			
9. Chlorophyll b present			

(5) Some locomotory structures found among organisms and few taxa are given in the following table. Indicate which of these locomotory structures are used by mature organisms of a particular taxon by putting a ✓ mark in the relevant cage.

Locomotory structure	Mollusca	Chlorophyta	Rhizopoda	Ciliophora
1. Flagella				
2. Cilia				
3. Pseudopodia				
4. Muscles				
5. Parapodia				

(6) Answer questions based on this cross section of a secondary stem of a tree. Put ✓ mark to indicate presence of a features in each of the labeled structures.



	A	B	C	D	E	F
1. Most cells are dead						
2. Water conducting cells						
3. Suberized cells						
4. Lignified cells.						
5. Cells divide by mitosis						

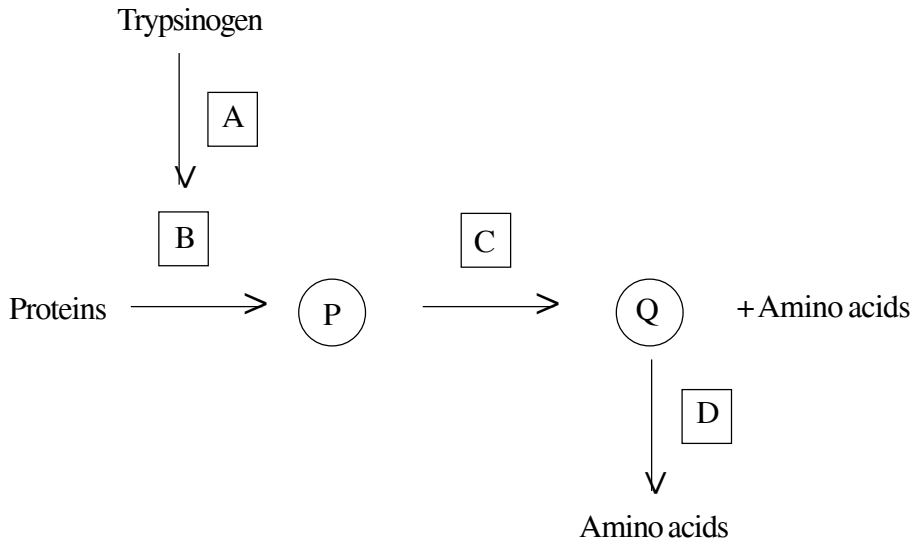
(7) Fill the following table on the characteristics of C3 and C4 plants.
Compared with C3 plants indicate whether C4 Plants have higher (↑) lower (↓) or similar (=) rates with respect to following characteristics. Put mark ↑ ↓ or = in the following boxes.

1. Photorespiration rate	
2. Maximum light intensity for photosynthesis	
3. Productivity	
4. Number of CO2 acceptors	
5. Oxygen concentration in leaf mesophyll cells	

(8) Select two correct functions of each the following structures from the list given below, and write two appropriate letters in the table.
Functions
a. Excretion b. Protection c. Temperature regulation
d water proofing e. Storage f. Endocrine functions

Structures	Functions	
	1	2
1. Sweat glands		
2. Sebaceous glands		
3. Epidermis of the skin		

(9) (a) Process of digestion of proteins in man is shown in the following flow chart. The boxes indicate enzymes and circles indicate intermediate compounds.



Select the correct compound/ Enzyme by putting a ✓ mark in the appropriate cage.

Compound/ enzyme	A	B	C	D	P	Q
1. Amino peptidase						
2. Dipeptidase						
3. Dipeptide						
4. Enterokinase						
5. Small polypeptides						
6. Trypsin						

(b) Select digestive juice containing these enzymes by putting a ✓ mark in the appropriate cage.

Digestive juice	A	B	C	D
1. Gastric juice				
2. Pancreatic juice				
3. Intestinal juice				

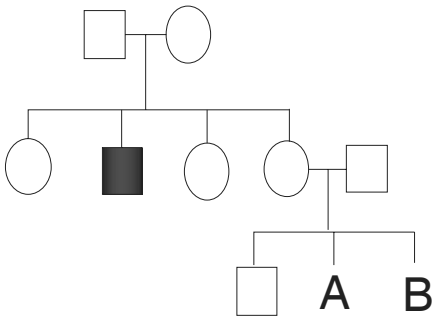
(10) Five vitamins and three activities of man for which vitamins are required are given in the following table. When a vitamin is required for a particular activity indicate it by putting a ✓ mark in the relevant cage.

Activity	Vitamin A	Vitamin B_2	Vitamin B_1	Vitamin B_6	Biotin
1. Maintenance of healthy eyes					
2. Carbohydrate metabolism					
3. Fat metabolism					

(11) Indicate whether the following statements regarding the human reproductive system are correct or incorrect by putting against it a ✓ mark or X mark respectively.

1. Testosterone in secreted by sertoli cells, which are also known as interstitial cells	
2. During spermatogenesis, the 1st meiotic division takes place in spermatogonia and 2nd meiotic division takes place in secondary sperm cells	
3. Acrosome in a modified peroxysome	
4. Cowper's glands are located anterior to the rectum on either side of urethra at the level of prostate gland.	
5. In the ovary, mature ovarian follicles are located in the cortex and immature follicles are located in the medulla	
6. Lining of the vagina contains numerous epidermal glands in the adult women	

(12) The diagram given below shows a pedigree of a family with a haemophiliac man. Indicate whether each of the following statements is correct or incorrect using ✓ or x marks respectively.



1. If the person labeled as A is a male probability of him being a haemophiliac is 0.5	
2. If the person labeled as B is a female probability of she being a carrier is 0.25	
3. If the person labeled as B is a female, she may get a haemophiliac son after the marriage with a healthy man	
4. Neither A nor B may carry haemophiliac allele	
5. Haemophiliac male shown in the pedigree may have got the haemophiliac allele from his father	

(13) The nucleotide sequence of a part of a gene is represented below. Note that sequence of only one of the two strands is shown. mRNA and the protein synthesized by this gene are also given below the DNA. Nucleotide sequence of a mutant form of the gene also given.

DNA…. 5'….. ATG GCT GGC AAT CAA CTA TAT TAT… 3'

mRNA…. 5'….. AUG GCA GGC AAU CAA CUA UAU UAU.. 3'

protein… Met- Ala- Gly- Asn- Gln- Leu- Tyr- Cys….

mutant gene…. 5'….. ATG GCT GGA ATC AAC TAT ATT AT… 3'

Indicate whether each of the following statements is correct or incorrect using ✓or x marks.

1. The DNA strand shown is the one used as the template by RNA polymerase enzyme.	
2. Complimentary DNA strand can also produce a mRNA molecule.	
3. The mutation can be described as a point mutation.	
4. Mutant gene will not produce a protein	
5. Mutant gene will produce a protein with a different primary structure	

(14) Given below are some important achievements in biology and the names of scientists who were involved in them. Match each name of the scientists with the appropriate achievement using the letters given.

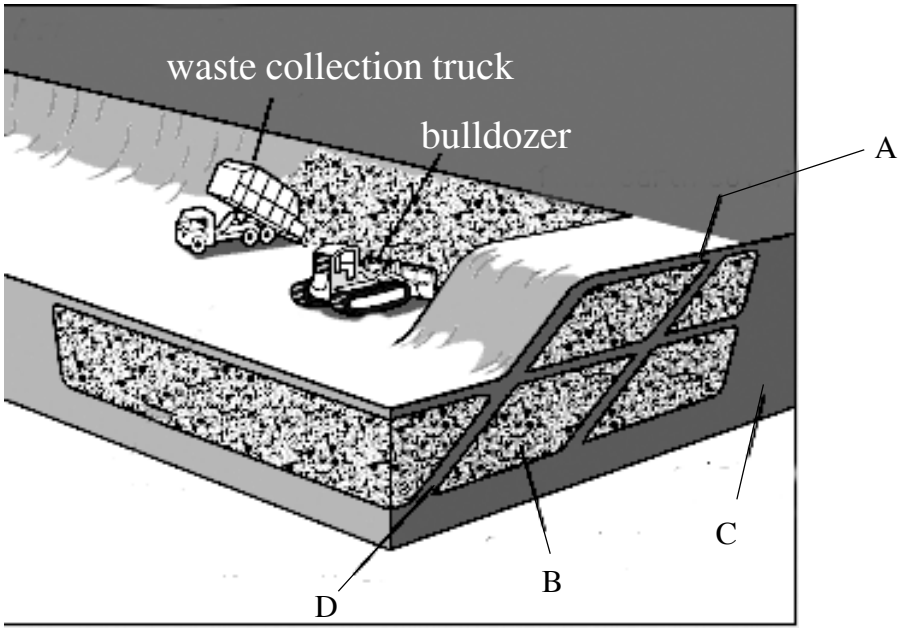
(A) Watson (B) Johansen (C) Southern (D) Wallace (E) Morgan

1. Developed blotting technique for DNA.	
2. Prepared genetic maps of chromosomes.	
3. Developed the theory of Natural selection.	
4. Discovered the structure of DNA.	
5. Gave the name genes to hereditary units discovered by Mendel.	

(15) Several internal and external factors affect food spoilage by microorganisms. Any factor that influences growth and activity of microorganisms influence food spoilage. Put a tick (✓) mark to indicate the type of microorganism that is likely to grow in following food types under normal conditions.

	biscuits	beef	salted food	sugary food	Lime juice
Bacteria					
Mold/ Yeast					
Virus					

(16) This question is based on the sanitary land fill illustrated in the diagram.



Select key places that occur following activities by putting a ✓ mark in the relevant cage

	A	B	C	D
1, Anaerobic decomposition of waste				
2. Materials preventing bad odor				
3. Materials preventing attraction of animals.				
4. Area where pollutants are leached				

(17) (i) In the Nitrogen cycle N is converted to different chemical forms in the soil, by the nitrogen fixing bacteria, nitrifying bacteria and denitrifying bacteria. These bacterial processes can be respectively described as :

a. Reduction, oxidation, oxidation

b. Reduction, oxidation, reduction

c. Reduction, reduction, oxidation

d. Oxidation, oxidation and reduction

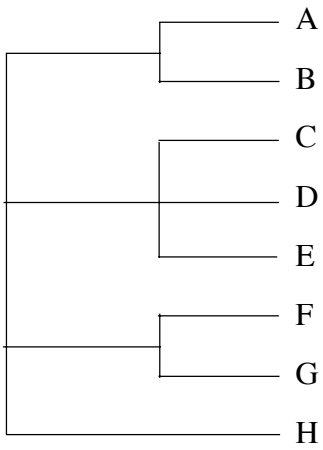
Put a tick mark (✓) in the appropriate box to indicate correct response.

a.	b.	c.	d.

(ii) Which of the following bacteria will not improve soil fertility? Put a tick mark (✓) in the appropriate box.

Nitrogen fixing bacteria	
Nitrifying bacteria	
Denitrifying bacteria	

(18) IUCN red data classification system is given here.
Fill in the following table.



Threat level prefix and Organism	Put ✓ mark to indicate the appropriate threat category.			
	Extinct	Threatened	Low Risk	Other
C - *Dermochelys coreacea*				
D - *Caretta caretta*				
B - *Alphonsea hortensis*				
A - Woolly mammoth				
G - *Crocodylus palustris*				
H - *Oecophylla smaragdina*				
F - *Melanochelus trijuga*				
E - *Elephas maximus*				

(19) Symbiotic associations can be beneficial to both organisms or it can be beneficial to one organism, or it can be harmful to one organism. Indicate whether following Symbiotic relationships are beneficial (+), harmful (-) or do not affect (0) each of the following organism. Put either +, - or 0 in cages in front of each organism.

	Organism 1		Organism 2	
1.	*Rhizobium*		Soya Bean plant root	
2.	*Dendrobium* Orchid		*Dipterocarpus* plant	
3.	Green Algae		Ascomycota fungi	
4.	*Clostridium tetani*		Human	
5.	Sea Anemone		Hermit Crab	
6.	*Loranthus*		Mango tree	

(20) Fill in the following table to show some features of terrestrial ecosystems of Sri Lanka by putting a ✓ mark in the relevant cages.

	Tropical Rain Forest	Montane Forest	Dry Mixed Evergreen Forest	Thorn Forests/ Shrubs	Savannas
1. Evergreen plants present					
2. Xerophytes are present					
3. Epiphytes are common					
4. Trees usually have smooth barks					
5. Continuous canopy					
6. Occurrence of frequent fires					