DEPARTMENT FOR CURRICULUM,
LIFELONG LEARNING AND EMPLOYABILITY
Directorate for Learning and Assessment Programmes
Educational Assessment Unit

Track 3

Annual Examinations for Secondary Schools 2022

YEAR 11 BIOLOGY MARKING SCHEME

Q. No.	Suggested answer	Mark/s	Additional comments
1	Ferns/pteridophyta Angiosperms spermatophyta Coelenterata/Cnidaria Mollusca Vertebrata	1 1 1 1 1	
		T:5	
2a	Stomata/stoma	1	
b	Xylem tissue	1	
c	Most transpiration occurs from the lower epidermal surface of the leaf.	2	
d i	Different plants may have different number of stomata on their leaves.	1	
d ii	The number of stomata will differ with a change in surface area.	1	
		T:6	
3a	Active transport is the movement of particles against a concentration gradient/from a low solute concentration to a high solute concentration Across a selectively permeable/semi-permeable membrane With the use of energy.	1 1 1	
b	osmosis	1	
c i	The cell wall detaches from the cell membrane. The cytoplasm reduces in volume/ becomes more concentrated. The permanent vacuole shrinks.	1 1 1	
c ii	This will stop any changes in concentration of the cytoplasm of the muscle cells.	2	
		T: 9	
4a	Volume of water Burning foodstuff at the same distance from boiling tube. Mass of foodstuff burnt	1 1	Any two
b	To make sure of uniformity of the temperature in the volume of water.	2	
c	The energy content of the peanut is higher than the energy content of the broad bean.	2	

d	Repeated readings give more reliable results to compensate for sources of error.	1 1	
e i	Heat may be lost to the surroundings rather than to heat the water.	2	
e ii	Using a calorimeter/ funnelling heat onto boiling tube.	1	
		T: 11	
5a	Any food chain with 4 trophic levels.	2	
b	Tuna/shark/spearfish	1	
c i	Have five or more paired jointed limbs.	1	
c ii	The feeding habits are different. Copepods are herbivores/primary consumers while amphipods are carnivores/ secondary consumers	1 1	
d i		1	Any one
d ii	More shrimps means less phytoplankton But more copepods, mackerel and tuna.	1 1	
		T: 9	
6a	This is respiration in the absence of oxygen.	2	
b	Changes in temperature and pH affect the rate of reaction of the enzymes of the microbes. Specific temperature and pH may inactivate/denature enzymes	2 1	
c	It is commonly **used** in rural areas as cooking gas. It can be **used** for the production of electricity. It can be **used** in instruments **used** for water heating, space (room) heating etc. It can replace compressed natural gas for **use** in vehicles. It can displace carbon dioxide in on-site CHP plants.	1 1	Any two
		T:7	
7a	Ultrafiltration - A Selective reabsorption of glucose - B	1 1	
b	Urea	1	
c i	Loop of Henle' Collecting duct	1 1	Do not accept letters instead of names
c ii	The diuretic reduces the amount of ADH released by the pituitary. ADH acts on the collecting duct reducing the amount of water reabsorbed. More urine is produced.	1 1 1	
		T: 8	

Q. No.	Suggested answer	Mark/s	Additional comments
	Section B		
1a i	Pollen	1	
a ii	Arthropod	1	
a iii	Nectar	1	
b	Carpel	1	
c	These are insect pollinated flowers. These flowers are usually large and not inconspicuous. The petals of these flowers are usually colourful and not brownish.	1 1 1	
d	This decreases the chance of self-pollination and so increases variation in the species.	1 1	
e	Mimicry as a form of protection against predators. Mimicry to attract/catch prey.	1	Any one
f	The pollen germinates a pollen tube. The pollen tube grows downwards towards the ovary of the flower. The pollen nuclei move downwards and enter the ovule through the micropyle. The pollen nucleus fuses with the flower ovule nucleus.	1 1 1 1 1	
		T: 15	
2a i	incorrect	1	
a ii	The amoeba contains a nucleus and is therefore an eukaryote.	1	
a iii	The first letter of the second word of the binomial name (species name) should be written in small (lower script) letter (h)	1	Accept the full binomial name correctly written.
b i	In phagocytosis the cell produces pseudopodia That surround the virus (food) The virus enters the cell enclosed in a vesicle.	1 1 1	Accept any reference to correct description. The term virus does not need to be included in the description.
b ii	Once inside the host cell, the virus releases its DNA/RNA . The viral genetic material enters the cell's nucleus. Many new viral genetic material is produced. The new viral genetic material synthesises viral proteins. New viruses are released when the cell bursts.	1 ½ ½ 1 1	
c i	A parasite is an organism living on another organism for food and shelter Harming the host in the process.	1 1	
c ii	Absorbs water from the digestive tract.	1	
c iii	Diarrhoea, watery faeces, mucus faeces, loose stools	1	Any one or equivalent

d	Cell are identical	1	
		T: 15	
3a	The atrial walls are thin As they receive blood from veins As this is venous blood, then pressure of the blood entering the atria is low. Ventricles are thick walled and they send blood at high pressure to the arteries.	1 1 1 1 1	
b	Sucrose is the product of excess glucose produced by photosynthesis. Photosynthesis occurs in cells containing chloroplasts/chlorophyll. These are not found in roots but in areas of the plant exposed to sunlight such as leaves or stems. Sucrose is carried from the photosynthesising parts to the non -photosynthesising areas of the plant such as roots and flower.	1 1 1 1 1	
c	A reflex is an automatic nervous reaction that is not consciously controlled. The reflex is caused by the transmission of impulses along a nervous pathway called reflex arc. This occurs from the region of the stimulus to the spinal cord and back to the effector region and not to the brain.	1 1 1 1 1	
		T: 15	
4a	Title/axes Plotting of points Correct scale Legend/key	1 2 2 1	Do not award marks when graph is drawn on inverted axes.
b	In both cases, the number of germinating seeds first increases and then remains constant. More seeds germinate in salt water than in distilled water. The increase in germinating seeds takes longer in salt water (up to 40 days) than in distilled water (up to 32 days).	1 1 1	
c i	Seedlings of pot A grow towards the unilateral light. Seedlings of pot B grow upwards.	1 1	Accept turn toward light Accept grow straight
c ii	The growth hormone auxin/ IAA/ Indole acetic acid	1	Any one
c iii	The growth hormone is found in higher concentrations in the shaded part of the plant. This causes more growth of the stem in the shaded area, making the plant bend towards the unilateral light source.	1 1 1	
		T:15	

5a	It absorbs and utilises the energy from the sun.	2	
b i	The energy of the sun's rays is converted to chemical energy That provides fuel/food for the cellular reactions of the plant.	1 1	
b ii	Some of this energy is passed on from one trophic level to the next in food webs/relationships.	1 1	
c	The exoskeleton decreases the loss of water from its body Allowing for survival on land/ stops it from becoming dehydrated.	1 1	Accept also functions of protection and support.
d i	epidermis	1	
d ii	The epidermis is a waterproof layer that reduces loss of water from the body	1	
d iii	C, H, O, N	1	All four elements must be given to award mark
d iv	Hair erector muscle which contracts or relaxes to raise or lower the hair thus trapping more or less air next to the skin. Blood vessels which dilate or constrict to increase or reduce blood flow close to skin surface thus increasing or reducing heat loss from the skin. Sweat glands that produce sweat to increase heat loss thus lowering temperature	1 2 1	
		T:15	