

Aga Khan University Examination Board
Notes from E-Marking Centre on SSC II Biology Examination May 2018

Introduction:

This document has been produced for the teachers and candidates of Secondary School Certificate (SSC) Part II (Class X) Biology. It contains comments on candidates' responses to the 2018 SSC-II Examination indicating the quality of the responses and highlighting their relative strengths and weaknesses.

E-Marking Notes:

This includes overall comments on students' performance on every question and some specific examples of students' responses which support the mentioned comments. Please note that the descriptive comments represent an overall perception of the better and weaker responses as gathered from the e-marking session. However, the candidates' responses shared in this document represent some specific example(s) of the mentioned comments.

Teachers and candidates should be aware that examiners may ask questions that address the Student Learning Outcomes (SLOs) in a manner that requires candidates to respond by integrating knowledge, understanding and application skills they have developed during the course of study. Candidates are advised to read and comprehend each question carefully before writing the response to fulfil the demand of the question.

Candidates need to be aware that the marks allocated to the questions are related to the answer space provided on the examination paper as a guide to the length of the required response. A longer response will not in itself lead to higher marks. Candidates need to be familiar with the command words in the SLOs which contain terms commonly used in examination questions. However, candidates should also be aware that not all questions will start with or contain one of the command words. Words such as 'how', 'why' or 'what' may also be used.

General Observations:

Candidates who did not score well were mostly unable to understand the demand of the question; often misinterpreting the command word and the stimulus. Furthermore, understanding of use of scientific terminology and interpretation of unseen diagrams and graphs were also weak. Mentioned below are few concepts that teachers need to focus in classrooms so that the candidates may perform better.

- Relationship of variation to meiosis
- Applications of genetic engineering

However, candidates outshined in some topics; such as the concepts of skeletal system, biotic and abiotic factors and animal associations.

Detailed Comments:

Constructed Response Questions (CRQs)

Question 1a:

Complete the given table by stating the percentage of oxygen and carbon dioxide gas in the exhaled air of human beings.

Gas	Inhaled Air (%)	Exhaled Air (%)
Oxygen	21	
Carbon dioxide	0.04	

Better responses correctly mentioned the percentages of oxygen and carbon dioxide gas in the exhaled air, i.e., 16 in case of oxygen gas and 3 to 4 in case of carbon dioxide gas.

Example:

Gas	Inhaled Air (%)	Exhaled Air (%)
Oxygen	21	16%
Carbon dioxide	0.04	4%

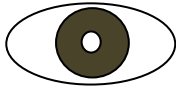
Weaker responses drafted random figures in the percentage of gases in exhaled air, such as in case of oxygen the figures were 0.21, 0.16, 20, 4 and in case of carbon dioxide the figures were 0.04, 0.004, 16, 0.03 etc.

Example:

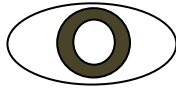
Gas	Inhaled Air (%)	Exhaled Air (%)
Oxygen	21	0.21
Carbon dioxide	0.04	0.04

Question 1b:

The diagrams below show two states of the pupil of a human eye.



A



B

Which diagram, A or B, shows the state of pupil of a person looking at a bright object?
Give a reason to support your answer.

Better responses identified diagram A as the diagram showing the state of pupil looking at a bright object. The reason given in such responses included contraction of iris muscles to decrease the size of the pupil/ contraction of circular muscles and relaxation of radial muscles/ to allow less light to enter the eye/ to save the eye from damage.

Example:

Diagram A shows the state of a person looking at the bright light because of the constriction of the pupil. The radial muscles of the iris relax and the circular muscles contract to enable us to see in the bright light.

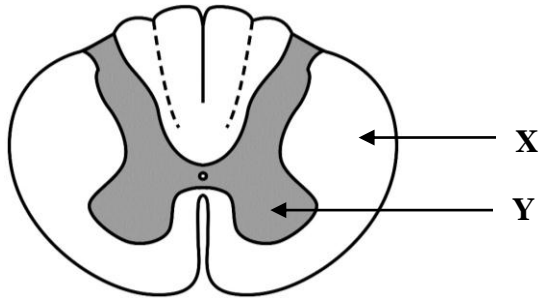
Weaker responses were unable to interpret the given diagram. Such responses identified B and gave vague reasons such as pupil dilates while looking at bright objects, iris muscles move to dilate the pupil, light strikes retina, looking at object becomes easy, elongation of eyeball occurs, circular muscles change their position, pupil relaxes, pupil gets thin due to reflection of light, long sightedness of eye occurs. Some other responses identified the diagram correctly but failed to draft the correct reason. In such cases, the reason mentioned was the contraction of radial muscles and relaxation of circular muscles. A few responses only wrote the relaxation of radial muscles which is not scientifically correct because relaxation of radial muscles is not responsible for the contraction of pupil; rather it happens due to contraction of circular muscles.

Example:

Diagram B shows it because when we look to a bright object our circular muscle relax & radial muscle contract.

Question 2:

The given diagram shows cross-section of the spinal cord of human beings.



- Name the areas, **X** and **Y** in the given diagram.
- Which parts of nerve tissues are present in **X** and **Y**?

Better responses exhibited clear understanding of the diagram of the cross-section of spinal cord by identifying X as white matter and Y as grey matter. Such responses mentioned the composition of X as the presence of myelinated nerve fibers or axons and the composition of Y as of nerve cell bodies/ dendrites/ non-myelinated axons or nerves/ axon terminals.

Example:

a. X is white matter.
Y is grey matter.

b. In X, my myelinated axons are present which make its colour white. while, in Y cell bodies and non-myelinated axons are present which make its colour grey.

Weaker responses identified X and Y as dorsal route, sensory neuron, vertebral column, outer region of spinal cord, muscles, nerve tissue, ligament and ventral route, motor neuron, pituitary gland, interneuron, tissues, mixed nerves, butterfly region, bone marrow respectively. Additionally, in case of composition of X and Y, candidates gave generalised responses such as X and Y are composed of brain tissues, axons, dendrites and cell bodies. Some of the responses were completely irrelevant, e.g., X and Y conduct nerve impulse, they are present in brain, they conduct impulse from brain to spinal cord, the grey color is due to bone marrow, X receives messages while Y transfers messages.

Example:

a. X: ~~R~~ Sensory neuron
Y: ~~or~~ Inter neuron

b. ~~The~~ ~~are~~ / Sensory X and Y are sensory and inter neuron respectively. Sensory neuron interpret the message and send it to inter neuron. It interpret the message and send it motor neuron to perform a particular response.

Question 3a:

Name the type of connective tissue present in the human body that connects:

- i. muscles to bones.
- ii. bones to bones.

Better responses were able to name the connective tissue correctly in each case, i.e., tendons connect muscles to bones, while ligaments connect bones and bones.

Example:

i. Tendons

ii. Ligaments

Weaker responses mostly mentioned cartilage, connective tissue, ligament, fibrous cartilage, osteoblasts, and muscular tissue instead of tendons. Moreover, instead of ligament, candidates wrote tendons, hyaline cartilage, osteoclasts etc.

Example:

i. Muscular connective tissue.

ii. Hard connective tissue

Question 3b:

Mention TWO components of shoulder joint that make the arm of a human being move in all directions.

Better responses revealed candidates' ability to relate the structure of parts of skeleton with their functions. Such responses mentioned the components of shoulder joint as ball/ humerus head and socket/ glenoid cavity.

Example:

The two components of shoulder joint that makes it move in all directions are ball and socket.

Weaker responses mostly wrote the names of bones of the skeletal system such as clavicle, elbow, humerus. Some other responses mentioned the name of joints, e.g., hinge joint, shoulder joint. A few responses gave vague answers such as origin and insertion, biceps and triceps, tendons and ligaments.

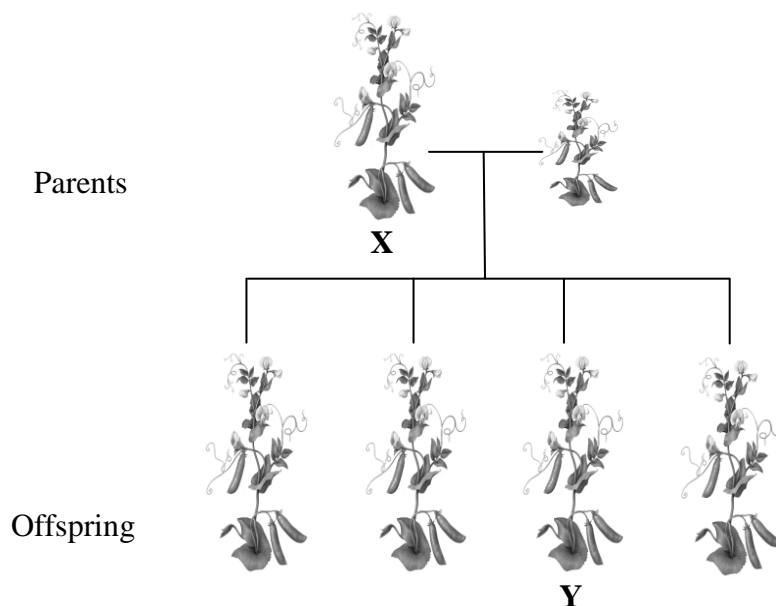
Teachers are advised to focus on the articulation of different components of joints relating with their structure and function.

Example:

● Tendons and skeletal muscles - present at shoulder joint make arm of a human being move in all direction - They both work with coordination of cartilage.

Question 4a:

The given diagram shows a genetic cross between two pea plants of different heights.



Determine the genotype of plant X and Y.

Genotype of X: _____

Genotype of Y: _____

Better responses determined the genotypes of X and Y as homozygous dominant/ TT and heterozygous dominant/ Tt respectively.

Example:

Genotype of X: TT (homozygous tall) T = allele for tallness
Genotype of Y: Tt (heterozygous tall) t = allele for shortness.

Weaker responses either failed to determine the correct genotype or swapped the genotype of X and Y. Some responses wrote irrelevant answers, e.g., genotype of X and Y is dominant, co-dominant, pollination, parent DNA, recessive, daughter DNA, short, homologous. A few responses were confused between phenotype and genotype, thus, they mentioned the phenotype.

Example:

Genotype of X:	Rr.
Genotype of Y:	RR.

Question 4b:

Photosynthesis is the process in which plants, algae and some bacteria use the energy from sunlight to produce glucose from carbon dioxide gas and water.

In plants, carbon dioxide gas enters the cells through stomata. Water enters the roots from the soil and is transported up to the leaves through specialised plant tissues known as xylem vessels.

Identify any TWO biotic and TWO abiotic factors mentioned in the given information.

Biotic Factor	Abiotic Factor

Better responses identified the biotic and abiotic factors correctly. Biotic factors were identified as algae, bacteria, plants while abiotic factors were identified as carbon dioxide gas, soil, water and sunlight.

Example:

Biotic Factor	Abiotic Factor
Plants	Water
Bacteria	Sunlight

Weaker responses showed candidates' carelessness in reading the given stem properly. Such responses either swapped the concept of biotic and abiotic factors or identified only one factor in each case. Some responses wrote full sentences instead of identifying the factor. A few responses identified various structures and molecules present in plants as biotic and abiotic factors such as stomata, xylem cells, glucose, photosynthesis, roots.

Example:

Biotic Factor	Abiotic Factor
Plant	Water
algae	Sunlight

Question 5:

- a. Which TWO events of meiosis lead to variation in living organisms?
- b. How do the events identified in part a lead to variation?

Better responses correctly identified the events of meiosis as recombination/ crossing over and independent assortment. Such responses described the events as recombination or crossing over by pairing up of homologous chromosomes and exchanging their segments lead to a variety of genes/ homologous chromosomes inherited from each parent – pair along their lengths, gene by gene, breaks occur along the chromosomes, and they rejoin, trading some of their genes. The chromosomes now have genes in a unique combination. While independent assortment was described as it occurs by reshuffling of genes into unique combinations which increases the genetic variation in a population/ the chromosomes move randomly to separate poles during meiosis/ each gamete will have one of many different combinations of chromosomes.

Example:

a.	1) Independent assortment in metaphase
	2) crossing over of chromosomes.
b.	Each gene pair segregates independent independently of each other which results in unique pairs and crossing over ^{of genes} lets the transfer of genetic material which results in unique chromosome's strands.

Weaker responses mostly identified gene flow, fertilisation and mutation as the events of meiosis leading to variation. Such responses described the events as changes in DNA, zygote formation, fusion of gametes, division of chromosomes, new polar bodies formation, division of nucleus, trait changes and production of GMOs. Some other responses drafted irrelevant answers which include spermatogenesis, oogenesis, phases of meiosis, continuous and discontinuous variation, genetic diseases, chromosome sets of parents and offspring and natural selection. A few responses described the terms genotype and phenotype as well.

Example:

- a. → Fusion of gametes leads to variation.
→ Haploid no. of chromosomes.
- b. Whenever there is fusion of male and female gametes a zygote is formed which can be different from parent in this way variation leads to variation.

Question 6a:

How has genetic engineering improved the quality and quantity of agricultural yield?

Better responses mentioned the ways through which genetic engineering improved the quality and quantity of agricultural yield. For example, the quality and quantity of agricultural yield is improved by developing pesticide resistant plants/ where plants are not affected by the chemical substances used to kill pests, developing insecticide resistant plants, developing herbicide resistant plants, developing pest/ insect/ herb resistant plants, developing transgenic plants, increasing/ enhancing the nutritional value of seeds or fruits, enhancing/ increasing the size, shape, taste of fruits.

Example:

- i. Genetic engineering introduced transgenic (organism with modify gene) which are having desirable features and they produce more yield.
- ii. Genetic engineering produced plants which are resistance against disease, insect, and pesticides.

Weaker responses mostly ignored the command word used in the question. Such responses focused on general applications of genetic engineering. In such cases, candidates wrote that

genetic engineering improved the quality and quantity of agricultural yield by improving livestock farming, improving chemical fertilisers, breeding different plants, using useful enzymes, using single cell proteins, the process of fermentation, producing plants in bulk, making insecticides, using high quality medicines, providing basic necessities to plants, adding tastier things and introducing new species. Some of the responses elaborated the question by rephrasing it. For instance, due to genetic engineering, agricultural yield is produced in greater quantities, and new methods are developed to improve the quality and quantity of plants.

Example:

- i. Genetic engineering improved the quality and quantity of agricultural yield by growing useful plants.
- ii. By making the new vaccines and insulins which are very useful in a large amount.

Question 6b:

Ali's classmate is suffering from influenza. As a preventive measure, Ali's mother got him vaccinated.

Describe the mode of action of vaccine that prevents Ali from getting influenza.

Better responses described the mode of action of vaccine as follows:

When the vaccine/ antigen is introduced into the body, white blood cells/ B lymphocytes are stimulated/ immune system is stimulated/ immune system detects the antigen. These cells recognise the weakened or dead pathogens in vaccines as enemies and start producing antibodies against them. These antibodies remain in blood and provide protection against pathogens/ if real pathogens enter the body, the already present antibodies kill them.

Example:

Vaccine contains weakened or dead pathogens. When the vaccine is introduced into the bloodstream the white blood cells are stimulated. The B-lymphocytes recognise the pathogens as enemies and start producing antibodies against them. These antibodies protect the body from pathogens. In addition memory cells are released in blood that prevent future infections from the same pathogen. This prevents Ali from getting influenza.

Weaker responses drafted their answers as vaccines are killing agents, they have ability to recover the body cells which were damaged during infection, defend our immune system,

effect bacterial growth, vaccines are bactericidal, vaccines kill antibodies. Some were confused between vaccines and antibodies, vaccines and immunity, antigens and antibodies. A few responses mentioned the history of discovery of vaccines and mode of transmission of influenza.

Example:

- 1) vaccines are composed of pathogens of dead organisms which works as an killing agents.
- 2) vaccines have ability to recover the body cells which were damaged during infections.

Extended Response Questions (ERQs)

The following questions (7 and 8) offered a choice between part **a** and **b**.

In question 7 most candidates chose to attempt part 'a'. This shows their interest and strong understanding of the 'effects of cigarette smoking on the respiratory system and vascular system of human beings.' On the contrary, in question 8, almost equal number of candidates attempted each part.

Question 7a:

Relate the onset of the following diseases of the lungs and the circulatory system with cigarette smoking.

- i. Lung Cancer
- ii. Emphysema
- iii. Atherosclerosis

Better responses exactly followed the command given in the question. In such cases, candidates mentioned the chemical found in cigarette smoke and described how the chemicals are responsible for the disease of the lungs.

Example:

a) Lung Cancer:

The cells in the epithelium lining of the lungs divide at a normal rate to replace the dead cells. But tar which is a chemical in cigarette contain carcinogens (cancer-causing agents). These carcinogens increase the rate of production of new cells. The abnormal production of these new cells at a rapid rate form tumours in the lungs, which eventually causes lung cancer. Lung cancer may also be caused due to passive smoking. Due to lung cancer lungs cannot function properly.

Emphysema:

The irritants present in cigarette disturbs the working of cilia lining. It paralyzes the movement of cilia lining and it is not able to remove dust particles from the incoming air. Moreover these irritants leads to the over-production of mucus in the passage way. This leads to the 'smoker's cough'. When a smoker coughs, the weakened ends of alveoli burst and the surface area for gaseous exchange reduced greatly. The air remains trapped at the ends due to the change in the shape of alveoli because of destruction of ~~some~~ walls of alveoli walls. This situation is called emphysema. At the time when symptoms of emphysema are seen person's 50% to 70% lung tissues are destructed.

Atherosclerosis:

Carbonmono-oxide present in the cigarette increases the rate at which fatty acids are deposited in the blood vessels. These fatty acids can accumulate and can lead to atherosclerosis. Nicotine present in cigarette may form blood clots, and cause a heart-attack or stroke. Atherosclerosis, which is the deposition of fatty substances reduce heart-beat rate and blood pressure by narrowing the lumen of blood vessels.

Weaker responses were unable to understand the question; hence, they randomly described the causes, effects and symptoms of diseases caused by cigarette smoking. Such responses failed to specify the chemical that cause the mentioned disease and relate it with the condition caused. Some other responses described the effects of nicotine, carbon monoxide and tar on the nervous system of human beings. Most of the responses described all the diseases as chronic in which inflammation occurs. A few responses mentioned vague causes and effects such as lung diseases are caused by pollutants, inflammation of bronchioles occur in emphysema, lung diseases are caused by alcohol consumption, cigarette smoking cause kidney failure, atherosclerosis is a blood disorder. A few responses drafted the importance of lungs.

Example:

a- (i) As we know that cigarette smoking are injuries to health. IF a person are smoking a cigarette it cause lung cancer because when the smoke of cigarette enters in lungs it damages the parts of lungs. The smoke of cigarette is harmful for lungs. when a person smokes the he/she will must suffer from a lung cancer. This smoke also enters in oxygenated blood and it can be harm circulatory system.

(ii) Cigarette Smoking also causes Emphysema. The smoke of the cigarette is harmful for normal lungs. when we smoke then we will be suffer from Emphysema. This a dangerous smoke causes different diseases in circulatory system and in lungs.

(iii) Atherosclerosis.
This disease is also caused by cigarette smoking. The harmful smoke of cigarette enters in lungs and also mixed with oxygenated blood which is produced by lungs. This smoke will mixed and cause diseases like Atherosclerosis and other diseases. This smoke will cause coughing and other dangerous diseases. Cigarette is very harmful for every person. This it causes very dangerous diseases.

Question 7b:

In a normal adult, about 120 cm^3 of filtrate is formed in the kidneys every minute. As this filtrate passes through the tubules, selective reabsorption occurs.

- i. What will happen if this amount of filtrate were allowed to pass out as urine?
- ii. Describe the process of filtrate formation in nephrons of the human kidneys.

Better responses correctly mentioned the effects/ consequences of removal of filtrate from the body by stating the removal of useful substances such as glucose, amino acids and water. Furthermore, they also mentioned the dehydration and osmotic imbalance of blood.

In the second part, candidates described the filtrate formation by highlighting the name of process, location of filtration, pathway of blood, filtration of smaller molecules, composition of filtrate, retention of larger molecules, filtration of water/ plasma and role of blood pressure.

(i) Our bodies produce 120 cm^3 of filtrate and this whole filtrate is not passed as urine, some of the useful particles in this filtrate are reabsorbed in the blood for maintaining its concentration. If this amount of filtrate is passed out as urine, body will acknowledge severe dehydration as a lot of useful salts, water will be released as metabolic waste. Cells of the body will dehydrate and will rupture due to severe water loss.

(ii) Nephron is unit of body's urinary system. A nephron contains two parts renal corpuscle and renal tubule. The renal corpuscle contains two parts glomerulus ~~and~~ which is the network of capillaries and Bowman's capsule which encloses glomerulus and is cupped shape. Renal tubule consist of proximal convoluted tubule, a U-shaped structure called Loop of Henle and distal convoluted tubule. From here the urine is transported to collecting

and then ~~duct from there~~ it is passed into the renal pelvis. The first step for urine formation in kidneys is ultra filtration. This process occurs in the renal corpuscle of the nephron. This process is known as ultra filtration because the filter has ~~px~~ very fine pores through which only small particles can filter. The blood comes from the renal artery of the kidney → from there it is passed to the afferent and efferent arterioles. These arterioles take the blood to the glomerulus of the nephron. The pressure in glomerulus is very high because afferent artery is wider than efferent artery. Large molecules such as protein and fats and red blood cells are all filtered off into the blood. Only the small molecules such as urea, urea, uric acid and other salts are passed into the Bowman's capsule. This filtrate is known as glomerular filtrate as now it contains all the metabolic wastes of the body but also contains some useful minerals which are reabsorbed into the blood by renal tubule. From there the urine which is produced, is passed into the collecting duct and then into the renal pelvis from there it is passed into the ureter.

Weaker responses described the complete process of urine formation instead of focusing on the process of filtrate formation. Most of the weaker responses, candidates described the structure of nephron, hormonal control of reabsorption, concentration of urine, composition of urine, process of osmoregulation, tubular secretion. In other cases, candidates described the structure and function of urinary system, convoluted tubules, pituitary gland, and adaptation of nephrons. A few responses used terms like hypothermia for less water intake and hyperthermia for more water intake. In the first part, a few responses wrote that nothing will happen if filtrate is removed from the body, kidneys will perform selective reabsorption.

Example:

Ans- part (B)
When the concentration/amount of water are pass at a normal rate then the urine concentration is become normal.
Filtration process in nephrons:-
Nephrons have one axon and one dendrite. Filtration process in nephrons is that the nephron filtrate the blood to the water and its reabsorb it. The more concentration/amount of water is filtration process to remove their urine is concentrated. But in other hand the less amount of reabsorb and urine concentration become low. The whole process is hormonal.
As we know that kidney filtration process. The kidney process filtration is divide into two condition. In this condition a help to maintain the body level.
① Hypothermic condition. In this condition less water is drink that are not enough to stable the body level. then their urine is less/dilute. Because water is more reabsorb in body.
② Hyperthermic condition:- In this condition more water is store that then the body is less reabsorb of water and more concentrated urine are form.
The whole are Hormonal control.

Question 8a:

Explain the process of vegetative propagation in onion and ginger.

Better responses highlighted the given points while answering the question; description of part involved, characteristic feature of the part involved, formation of roots and formation of shoots.

Example:

a) **Vegetative propagation in bulb of onion:**

The bulb of onion has fleshy leaves which store food ~~when~~ ^{for} the development of new plant. The bulb of onion contains adventitious roots. The base of the adventitious roots turns into the roots of new plant while the upper part turns into a shoot of plants. That's how the bulb of onion produces a new plant by through asexual reproduction (vegetative propagation) which without fusion of any male and female gametes.

b) **Vegetative propagation in rhizome of ginger:**

Ginger is the horizontal rhizome which produces a new plant through vegetative propagation. Ginger has nodes which produces a new shoot and root of a plant. The upper nodes of ginger produces new shoot while the nodes present at the base produces new roots which turns into a new plant without any involvement of fertilization.

Weaker responses were unable to differentiate between the germination of seed and vegetative propagation. In some responses, the process of vegetative propagation of onion and ginger was described under the heading of grafting, cuttings and budding. A few responses discovered a cutting method of onion and ginger. Comparatively very few candidates attempted this question. Such topics could be effectively taught using various diagrams of the structures involved.

Example:

the process of vegetative propagation
in onion
When we grow the onion there are
grow some small stems. we
give a little amount of water for
these stems. In these stems we
separate from each other and we
will grow in different places.

the process of vegetative propagation
in ginger
In ginger the vegetative propagation is
too long. When we grow the seeds
in earlier age there are growing in
a few months we give a little
amount of water then there are
grow small shoots of stems then
we separate from each other and we
underground a new shoots of
ginger stem

Question 8b:

- i. Describe any ONE example of predation.
- ii. Explain any TWO types of symbiotic interactions with an example for each type.

Better responses attempted this question in two ways; both are correct. First one, they named the type of interaction, defined the interaction/ mentioned the outcome of the interaction and stated a relevant example. The second way, they mentioned the name of the type of interaction, the role of/ effect on one partner in each type of interaction, e.g., parasite and the role of/ effect on other partner in each type of the interaction.

Example:

i) Predation: Some consumers which hunt actively on other animals, producers (which are occasionally consumers) are known as predators. The organism/animal upon which a predator hunts is known as prey. Frog eats insects, here frog is predator and insects are the prey (while frog is ^{prey} ~~predator~~ to other higher organisms e.g. birds/Hawk).

ii) Symbiosis is an intimate and long term relationship between two individuals. Following are the two types of symbiosis.

1) MUTUALISM: Mutualism is a symbiotic interaction in which both the organisms get benefitted, and neither one is harmed. For example: Termite eats wood but it is not able to digest it, ~~there~~ there is a protozoan in its intestine which digests/absorbs the cellulose of the wood, so in return termite provides shelter and food to protozoan. Hence in this way both of the organisms get benefitted thus it is referred as mutualism.

2) COMMENSALISM: In this type of symbiotic interaction, one organism is benefitted and the other is neither harmed nor benefitted. For example: A sucker fish is attached to the surface of the shark with the help of its sucker, hence in this way the shark provides easy transport to the sucker fish to the new feeding grounds. Thus in this symbiotic relationship / interaction the sucker fish is benefitted as easy transport given to it while the shark is neither benefitted nor harmed, it stays neutral / no effect, remains ineffective.

Weaker responses either named the interaction incorrectly or swapped the description of interactions. Most of the responses described herbivores, carnivores, omnivores and food chain and food web which were not required. Some gave irrelevant examples. A few responses were quite vague such as those explaining the natural selection, selective breeding and population control. Teachers are recommended to teach such topic using a variety of examples so that the candidates would be able to differentiate among various types of interactions.

Example:

Predation:-

Predator is the one who preys other organism for its survival. There are many examples of predation in our surroundings. The lice in our head hairs are one of the common examples. They live by sucking blood from our head and maintain their survival. Likewise, the insects on the bark of the tree. The bark of the tree is responsible for their survival.

The two types of symbiotic interaction are:-

1) Mutation:-

Mutation is an interaction between two organisms of the same kind that are going through the process of fertilization. When the same kind of organisms are carrying out the process of fertilization mutually, it is called mutation.

The one example of mutation is the ~~reproduction~~ reproduction of the rabbit with another rabbit.

2) Commensalism:-

It is a type of genetic interaction which is between two organisms. In this, two parents fertilize with each other and produce an offspring. They might be of different kinds but look alike. The example for this is of a horse fertilizing with a donkey and producing an offspring, a mule, which is a different species.