



Q1(A))

- (1) vegetative propagation
- (2) Diffusion
- (3) Vaccine
- (4) arthropoda
- (5) applied biology

(B))

- (1) False
- (2) That periods give relax to our mind after study and reduce the stress. Therefore, we wait for periods of music, P.T., drawing in the classroom.
- (3) Bomb blast is a man made disaster while others are natural disaster.
- (4) AC power
- (5) 1) - b, 2) - d

Q2(A))

- (1) i. After World War II, ever increasing human population and their increasing needs have put burden on limited resources.
 - ii. As a result situations like economic inequality, racial and religious differences, social differences arose which gave rise to instability.
 - iii. This is the reason for increase in human disasters like war, Incidences of terrorism, riots, abduction etc. These are on rise in these days.
- (2) i. Some higher plants, animals and aerobic microbes also perform anaerobic respiration instead of aerobic respiration if there is depletion in oxygen level in the surrounding.
 - ii. Example: Seeds perform anaerobic respiration if the soil is submerged under water during germination.
 - iii. Similarly, our muscle cells also perform anaerobic respiration while performing the exercise.
 - iv. Due to this, less amount of energy is produced in our body and lactic acid accumulates due to which we feel tired.
- (3) i. Human have two types sex-chromosomes- X & Y. In males XY & in females, XX.
 - ii. Due to this, men produce two types of sperms- X-containing and Y-containing sperm. However, in women, only X-containing egg cells are produced.
 - iii. Due to this, during fertilization of egg cell, if X-containing sperm fuses, it forms female child and if Y-containing sperm fuses, it forms male child.
 - iv. Thus, "A couple shall have a male child or female child totally depends upon husband" is true statement.

(B))

- (1) i. It is the diagram of cytokinesis.
 - ii. This is the second and last step of mitotic cell division.
 - iii. During cytokinesis, the cytoplasm of the mother cell divides into two new daughter cells.
 - iv. In this process, a notch is formed at the equatorial plane of the cell which deepens gradually and thereby two new cells are formed. However, in case of plant cells, instead of the notch, a cell plate is formed exactly along midline of the cell and thus cytokinesis is completed.
- (2) i. It is the branch of agriculture concerned with animals that are raised for meat, fibre, milk, eggs or other

produces.

- ii. It helps to improve both, the quantity and quality of animal products. Two main methods as artificial insemination and embryo transfer are used in animal husbandry.
- iii. Ex. Milk, meat, wool, etc. Similarly, animals with more strength have been developed for hard work. In India, animal husbandry is praised for milk and meat production and in farming operations

- (3)** i. Cancerous ulceration occurs due to higher radiation of X-rays.
- ii. Tissues in the body are destroyed.
 - iii. Genetic changes occur.
 - iv. Vision is adversely affected.

(4) Applied Microbiology:

- i. Branch of biology in which study of the enzymes related to some prokaryotes and eukaryotic microbes, proteins, applied genitive, molecular biology etc. is performed.
- ii. This study is used for the society and various products like food, medicines.

Industrial Microbiology:

- i. This science is related to commercial use of microbes in which various economic social and environment related process and products are product.
- ii. Various microbial processes useful for this purpose are carried out.

- (5)** 1. Bandage strips of different sizes
- 2. Wound gauze
 - 3. Triangular and circular bandage
 - 4. Medicated cotton

Q3)

- (1)** traditional, functional, specific conditions, organ and body, Awareness, voluntarily donating
- (2)** i. In case of females, occurrence of menstrual cycle is related with the reproductive and overall health.
- ii. Now a day, women are working at par with men. Due to this, they have to stay outdoors for whole day.
 - iii. Bleeding occurs during menstrual cycle. Due to this, private organs (genitals) need to be maintained clean time to time, otherwise, problems regarding reproductive health may arise.
 - iv. Some problems regarding reproductive health may arise in men too. Hence, it is essential to maintain the cleanliness of their genitals.
 - v. Besides that, one should be careful about sexual relationship. This should not be done or experimented in younger age. For this, proper age should be attained first.
- (3)** i. After complete oxidation of a glucose molecule, 38 number of ATP molecules are formed.
- ii. Aerobic respiration is one in which molecular oxygen is used for the complete oxidation of glucose to yield CO_2 , H_2O and 38 ATP molecules.
 - iii. Aerobic respiration takes place in three stages-Glycolysis.
 - iv. Kerb's cycle and Electron transport system.
- (4)** (a) The potential energy of all the water above the point B will be converted to kinetic energy.
- (b) As height increases, potential energy increases. Thus at point A, potential energy of water will be maximum. If a canal/penstock carrying water from dam starts at point A, this maximum potential energy will be converted into kinetic energy due to which turbines will rotate with more speed. Thus, more electrical energy will be generated.
- (c) If a canal/penstock carrying water from dam starts at point C, this minimum potential energy will be converted into kinetic energy due to which turbines will rotate with less speed. Thus, less electrical energy will be generated.
- (5)** (1) United Nations.
- (2) Disaster cannot be predicted because it occurs suddenly.
 - (3) Various areas of life like economic,socila,cultural,political, law and administration are affected by disaster.
- (6)** i. Degenerated or underdeveloped useless organs of organisms are called as vestigial organs.
- ii. Mostly, a specific structure in the body is useful under certain situation. However, same structure under different situation may become useless or even harmful.
 - iii. Such organ, though non-functional in certain organism, it may be functional in other organisms i.e. it is not

vestigial in other organisms.

iv. For example, Appendix, which is useless to human, is useful and fully functional organ in ruminants.

v. Similarly, muscles of ear pinna, which are useless to human, are useful in monkeys for movement of ear pinna.

vi. Various vestigial organs like tail-bone (coccyx), wisdom teeth, and body hairs are present in body of human being. Therefore, Study of fossils is an important aspect of study of evolution.

(7) i. Starfish.

ii. Cockroach, sparrow and frog cannot perform regeneration.

iii. Only echinoderms show power of regeneration. So only starfish can regenerate its broken part.

(8) (1) i. I will try to start healthy communication with the child and his parents.

ii. I will explain them about the ill effects and carcinogenic effects of tobacco on mouth and lungs and its physiological implications.

iii. I will tell them about various organizations that are working towards tobacco free society like WHO, TATA trust and will help the child to get treated for addiction.

(2) i. We can use it as playground for children, with proper trees and benches it can also help people to come and relax for some time during daytime. ii. I can also use it as a free area for gardening for those people who love gardening, but don't have space.

iii. Free space can also be used for laughter clubs, yoga etc.

Q4)

(1) i. mRNA is transcribed from DNA by the process of transcription.

ii. The code for each amino acid consists of three nucleotides. It is called as 'triplet codon'.

iii. During Translocation, the movement occurs of Ribosome over mRNA.

iv. tRNA binds to mRNA by complementary sequence of codon called as anti-codon.

v. Amino acids are bonded together by peptide bonds.

(2) i. Many couples cannot have children due to various reasons. In case of women, irregularity in menstrual cycle, difficulties in oocyte production, obstacles in the oviduct, difficulties in implantation in uterus and many other reasons are responsible for this.

ii. Absence of sperms in the semen, slow movement of sperms, abnormalities in the sperms is the reasons in case of males.

iii. But now with the help of advanced medical techniques like IVF, surrogacy, and sperm bank the childless couples can have a child.

iv. If there is problem regarding the implantation of embryo in uterus, then oocyte from real mother is taken out and fuses with sperms of her husband in a test tube. The fertilized zygote is then implanted in another woman called surrogate mother for further development. This is a technique of surrogacy.

v. When there are problems like less sperm count or obstacles in oviduct then IVF technique is used in which fertilization is done in test-tube. This fertilized zygote is then implanted in uterus of women (mother) for further growth.

vi. In case when there is less sperm count in man then the sperms are taken from sperm bank which is a place where donor donates his sperms and such sperms are kept stored.

All the Best