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BS **MLT**

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* **Question 1 :- *Define the Following Terms with Examples :-***
* ***A :- Atrophy :-***

Atrophy is the general physiological process of reabsorption and breakdown of tissues , involving apoptosis. When it occurs as a result of disease or loss of trophic support because of other diseases , it is termed pathological Atrophy although it can be a part of normal body development and homeostasis as well.

* **Examples :- *Physiologic atrophy*** :-

*Fetal organs* like notochord and thyroglossal duct

* Uterus after parturition
* **Pathologic atrophy Example :-**
* Senile atrophy – heart
* Loss of endocrine stimulation – vaginal , endometrial and breast atrophy after menopause.
* **B :- *Hypertrophy :-***

Hypertrophy is the increase in the volume of an organ or tissue due to the enlargement of its component cells . It is distinguished from hyperplasia in which the cells remain approximately the same size but increase in number.

* **Example**  of physiological **hypertrophy** is in skeletal muscle with sustained weight bearing exercise.
* **Example** of pathologic **hypertrophy** is in cardiac muscle as a result of hypertension
* **C :- *Hyperplasia :-***

Hyperplasia is may be defined as the abnormal proliferation of endometrial cells usually caused by estrogens unopposed by the action of progesterone .

* ***Examples :-***
* **Physiologic hyperplasia :-** Occurs due to a normal stressor . Increase in the size of the breasts during pregnancy . Increase in thickness of endometrium during menstrual cycle .
* **Pathologic Hyperplasia :-**  Occurs due to an abnormal stressor .
* **D :- Metaplasia :-**
* The transformation of one tissue into another is called metaplasia.
* It maybe defined as abnormal replacement of cells of one type by cells of another.
* **Examples :-**
* With continued smoke exposure , cilliated columnar cells are changed to stratified squamous cells.
* Cervical cells change when exposed to STDs or HPV.
* **Ans 3 :-**
* **Free Radical :-** Free Radicals are molecules with odd number of electrons and a high instability . They are also produced in the catalytic action of a variety of cellular enzymes and electron transport processes and are implicated in a number of physiologic and pathologic processes .
* **Effect of ROS on the Cell :-**

Effect of ROS on cell metabolism are well documented in a variety of species . These include not only roles in apoptosis but also positive effects such as the induction of host defence genes and mobilization of ion transport systems. This implicates them in control of cellular functions.

* **Ans 4 :- *Differences Between Apoptosis and Necrosis :-***
* **Apoptosis :-**
* Apoptosis is programme cell death
* Occurs through shrinking of cytoplasm followed by the condensation of the nucleus .
* A naturally occurring physiological process
* Prelytic DNA fragmentation occurs
* Involved in controlling the cell number in the body.
* **Necrosis :-**
* Necrosis is the premature death
* Occurs through swelling of cytoplasm along with mitochondria followed by cell lysis
* A Pathological process caused by external agents like toxins trauma etc
* Postlytic DNA digestion occurs
* Involved in the induction of immune system and defending the body from pathogens.

of cells and living tissue.

* **Ans 5 :- Air Embolism :-**

Air Embolism also known as a gas embolism .

It is a blood vessel blockage caused by one or more bubbles of air or other gas in the circulatory system.

Air Embolism may also occur in the xylem of vascular plants , especially when suffering from water stress . Air can be introduced into the circulation during surgical procedures

**For Example :-** Lung over-expansion injury , decompression and a few other causes.

Divers can suffer from arterial gas Embolisms as a consequence of lung over expansion injury. Breathing gas introduced into the venous system of the lungs due to pulmonary barotrauma will not be trapped in the alveolar capillaries and well consequently be circulated to the rest of the body through the systemic arteries with a high risk of embolism .

The First aid treatment is to administer oxygen at the highest practicable concentration treat for shock and transport to a hospital where therapeutic recompression and hyperbaric oxygen therapy are the definitive treatment .

* **Ans 2 :- Calcium ions influx affects the cell**
* Action potential open voltage seitive calcium and excitable cell leading to an influx
* of calcium ion.it may also survive to study pathological process such as cell death
* during ischemea or aimer trophic sclerosis where increase in calcium influx.
* calcium influx effect in cell
* **Calcium influx affect in cell :-**

* Cell Type > Effects
* Endothelial > increase vasodilation
* Myocytes > contraction
* Secretary cell > increase secretion
* Various > activation of kinase C
* The central role of plasma membrane damaged in the genesis of

irreversible cell injury used to divide to postulated role for the calcium ions

into two major mechanism.

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