Year 11 Human Biology ATAR

DNA and Cell Reproduction Test Revision

Multiple choice: 10 questions – 10 marks

Short answer: 5 questions – 38 marks

Extended response: 1 questions – 12 marks

DNA

* Structure of DNA
  + Nitrogenous bases
  + Base pairing rule
  + Sugar & phosphate molecules
  + Mitochondrial & nuclear DNA – structure & function

Epigenetics

* Definition
* Ethylation and methylation
  + Turning on and turning off of bases
* Examples:
* Causes: epigenetic factors such as chemicals, radiation, diet...

Replication

* Location, timing and purpose of replication
* Enzymes involved in separating and attaching bases
* Full step by step description

Protein Synthesis

* Transcription & Translation
* Definition, location and description of the processes
* mRNA, and tRNA – structure & function
* triplets, codons & anticodons (description & location)
* Amino acids – definition and purpose
* Packaging of protein in Golgi body until it leaves cell in a vesicle
* Lipid and carbohydrate synthesis

Cell Reproduction

* Mitosis & Meiosis
  + Definition and purpose
  + Description of all stages
  + Ability to recognise stages and place in order
  + Haploid & diploid cells - definition
  + Location / cell type where they occur
  + Compare and contrast
    - # cells, identical/unique...
  + Interphase and cytokinesis as separate processes
* Variation
  + Crossing over, independent assortment, random fertilisation, non-disjunction
  + Cancerous cells
    - Benign & malignant
    - Lifestyle choices
* Stem cells
  + Types of stem cells
  + Potency – toti, pleuri & multi
  + Adult vs embryonic
  + Sources & locations
  + Potential uses for stem cells