

A2 Miscellaneous 3

- 1) Describe how a resting membrane potential is set up and maintained in a neurone? (3)
- 2) Explain the sliding filament theory of muscle contraction? (6)
- 3) The ascending limb of the loop of Henle is damaged. What consequences will this have and why? (3)
- 4) Explain how the nitrogen cycle works? (6)
- 5) Describe the processes of;
 - a. PCR (4)
 - b. Genetic engineering (4)
 - c. DNA sequencing (4)
 - d. Electrophoresis (4)
- 6) How are the following important in the biology of cancer;
 - a. Tumour suppressor genes (2)
 - b. Proto-oncogenes (2)
- 7) What are the hallmark features of all cancers? (3)
- 8) How does RNA interference help to control gene expression? (4)
- 9) Explain the following methods of making ATP;
 - a. Photophosphorylation (4)
 - b. Oxidative phosphorylation (4)
 - c. Substrate level phosphorylation (4)
- 10) How does the structure of ATP make it a good energy molecule? (3)
- 11) Explain how the leaching of fertilisers into water contributes to the death of aquatic organisms? (4)
- 12) How does primary succession take place? (4)
- 13) Describe the process of ultrafiltration? (4)

- 14) What are the sequence of events in the generation of an action potential? (4)
- 15) Why is the action potential 'all or nothing'? (2)
- 16) What is the role of NAD/FAD in aerobic respiration? (2)
- 17) What are the roles of RUBP and rubisco? (2)
- 18) Compare cyclic and non-cyclic photophosphorylation? (4)
- 19) Describe how an anaesthetic is able to block off pain sensation at a synapse? (4)
- 20) What are the roles of synapses? (3)

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