

**Combined Miscellaneous 1**

- 1) With the help of a diagram, explain what happens in a neuromuscular junction? (3)
- 2) Describe the role of the loop of Henle and how it is adapted for this role? (4)
- 3) What is the role of histamine and cytokines? (3)
- 4) Describe the semi-conservative method of DNA replication? (3)
- 5) Describe what happens during interphase? (3)
- 6) Describe how sugars are made in the Calvin Cycle? (4)
- 7) Why is ATP a good energy currency? (3)
- 8) What are the differences between fast and slow twitch muscle fibres? (4)
- 9) Describe the following processes;
  - a. Nitrogen cycle (4)
  - b. Primary succession (4)
  - c. Eutrophication (4)
- 10) What are the different types of mutations and why do they have differing effects? (6)
- 11) Describe the process of substrate level phosphorylation? (8)
- 12) Describe the mass flow of water in plants? (4)
- 13) What are the differences in structure between arteries, veins and capillaries? (3)
- 14) How is tissue fluid formed and drained? (4)
- 15) What are micelles and why are they important? (2)
- 16) Describe how gas exchange takes place in;
  - a. Insects (3)
  - b. Fish (3)
  - c. Humans (3)
- 17) What is co-transport and give an example? (2)
- 18) Describe how an action potential is formed and propagated? (4)

- 19) What are the roles of synapses? (3)
- 20) An ECG shows an absent P wave. What is this likely to indicate and why? (2)
- 21) Describe the cardiac cycle and explain the roles of the SAN, AVN and Bundle of His? (4)
- 22) Explain the mechanism of action of adrenaline? (4)
- 23) A person suffers from Multiple Sclerosis; what effects is this likely to have and why? (2)
- 24) What is osmoregulation and how does it work? (4)
- 25) Describe the processes of transcription and translation? (6)
- 26) What are the differences between cyclic and non-cyclic photophosphorylation? (4)
- 27) What are the roles of baroreceptors and chemoreceptors and where are they found? (3)
- 28) Explain how amylopectins and cellulose are different? (3)
- 29) What are monoclonal antibodies and why are they useful? (2)
- 30) Draw, label and describe the structure of an antibody molecule? (4)

**Total: /122**