

Nucleic acids:

- 1) Draw the structure of DNA and RNA? (4)
- 2) What are the purines and pyrimidines? (3)
- 3) Describe why DNA is such a stable molecule? (3)
- 4) What is the significance of the 5' to 3' direction of nucleotide assembly? (3)
- 5) Why do the 2 DNA strands run anti-parallel to each other? (2)
- 6) If the base sequence on one strand of DNA is TGGAGACT, what is the base sequence on the other strand? (1)
- 7) What is complementary base pairing? Why is it important? Which bases complementarily base pair? (3)
- 8) If 21% of the bases in human DNA are cytosine, calculate what percentage would be adenine? Show your working. (2)
- 9) Describe the role of DNA polymerase? (2)
- 10) What is the role of DNA helicase? (2)
- 11) Describe the semi-conservative method of DNA replication? (5)
- 12) How was the semi-conservative method of DNA replication proved and how did it disprove the conservative method? (6)
- 13) What is the phosphodiester bond and why it is important? (2)
- 14) Suggest different mechanisms by which DNA replication can go wrong? (4)
- 15) What is the difference between nuclear division and cytokinesis? (3)
- 16) What are the four requirements for DNA replication to take place? (4)
- 17) What are the different nitrogenous bases found in DNA and RNA? (2)
- 18) Describe how the structure of DNA protects it from damage from external sources? (3)
- 19) The process of ageing potentially involves inhibitors of DNA polymerase coming into play at an old age. How can this contribute to ageing and increased risk of cancer development? (3)
- 20) Draw the structure of ATP? (3)
- 21) How is the structure of ATP different to DNA? (3)
- 22) Explain how ATP is synthesised including the type of reaction and the enzyme involved? (3)
- 23) How is the energy in ATP released for use by cells and which enzyme is involved? (2)
- 24) Why is ATP a better immediate energy source than glucose? (4)
- 25) State and explain the roles of ATP in living organisms? (5)
- 26) How can ATP make a reaction take place more readily? (1)

27) Why is it that ATP cannot be stored? (2)