

Section B

Answer **two** questions. Up to one additional mark is available for the construction of your answers for each question. Answers must be written within the answer boxes provided.

6. (a) Draw molecular diagrams to show the condensation reaction between two amino acids to form a dipeptide. [4]
- (b) Outline the roles of the different binding sites for tRNA on ribosomes during translation. [4]
- (c) Explain the production of antibodies. [7]
7. (a) Outline how reproductive isolation can occur in an animal population. [3]
- (b) Describe the different cell types in the seminiferous tubules that are involved in the process of spermatogenesis. [4]
- (c) Explain the roles of specific hormones in the menstrual cycle, including positive and negative feedback mechanisms. [8]
8. (a) Cells go through a repeating cycle of events in growth regions such as plant root tips and animal embryos. Outline this cell cycle. [4]
- (b) Draw a labelled diagram of the formation of a chiasma by crossing over. [3]
- (c) Explain the control of gene expression in eukaryotes. [8]



Section B

Answer **one** question. Up to one additional mark is available for the construction of your answer. Write your answers in the boxes provided.

5. DNA research, involving biotechnology, has led to benefits for society but has given rise to some controversy.
- (a) Outline how translation depends on complementary base pairing. [3]
 - (b) Describe the polymerase chain reaction (PCR), including the role of Taq DNA polymerase. [4]
 - (c) Explain benefits and risks of using genetically modified crops for the environment and also for human health. [8]
6. James Beard, a famous chef, once said "Food is our common ground, a universal experience."
- (a) Explain how the small intestine moves, digests and absorbs food. [8]
 - (b) Distinguish between the structures of the different types of fatty acids in food. [4]
 - (c) Outline how leptin controls appetite. [3]



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