

6 Section B

Answer any two questions. You are advised to spend one hour in this section.

Fig. 3 shows an animal cell in prophase of meiosis.

Your answer should be illustrated by large, clearly labelled diagrams, where appropriate.

Your answer must be in continuous prose, where appropriate.

Up to 4 additional marks are awarded for quality of language.

Your answers must be set out in sections (a), (b) etc, as indicated in the question.

P Y

- 10 (a) Describe the fluid-mosaic model of a plasma membrane. [6]

- (b) Discuss the role of cell membrane in the movement of substances by active transport. [6]

- 11 (a) Describe the chemical composition and configuration of enzymes. [8]

- magnification X 2000
(b) Explain how one named factor modifies enzyme structure and/or function. [4]

- (a) On Fig. 3.1 label structures Y and Z. [2]

(a) List the characteristic features of the phylum Filicinophyta. [4]

- (b) Calculate the actual length of chromosome labelled P. [2]
(b) Explain the extent to which Filicinophytes are adapted for terrestrial life style. [4]

Give your answer in micrometers (μm). Show all your working. [8]

- 13 (a) Outline a procedure you would use to produce human insulin by bacteria. [6]

- (b) Discuss the ethical implications of genetic engineering. [6]

[2]

- (c) (i) In the space below, draw a diagram of the same cell in metaphase of meiosis 1. [2]