



QUESTION WORKBOOK

Gametes and fertilisation: from two cells to a blastocyst

Cell cycles, reproduction and development · Unit B06

Edexcel A Topic 3

8 questions · 25 marks

PRINT EDITION

SECTION A · Short, 1 to 2 marks

- A1** State where in the human reproductive system fertilisation takes place, and where implantation takes place. [2]

SECTION B · Standard, 3 to 5 marks

- B1** Describe the events that take place from the moment a sperm reaches the zona pellucida to the moment the two nuclei fuse. [4]

- B2** Compare the production of sperm in the testis with the production of eggs in the ovary. [4]

B3 Explain how the cortical reaction prevents more than one sperm from fertilising an egg. [3]

B4 Explain why an embryo formed when two sperm fuse with the same egg does not develop. [3]

B5 The mid-piece of a sperm cell contains many mitochondria. Suggest why a sperm cell that must travel a greater distance to reach an egg would be expected to contain more of them. [3]

B6 Outline what happens to a human zygote between fertilisation and implantation. [3]

- B7** A human egg is a sphere of diameter $110\ \mu\text{m}$. Calculate its volume, using $V = \frac{4}{3}\pi r^3$. Give your answer in μm^3 to two significant figures. [3]