



**Sets**

**Maths Past Exam Questions**

**Marking Schemes**

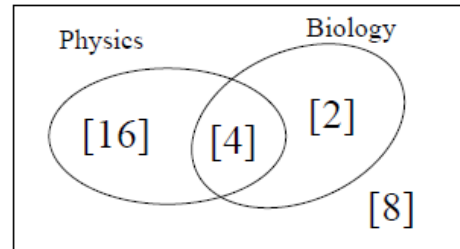
**Higher Level**

2013

Paper 2 – Project Maths – Section A – Q1 B

- (b) In a class of 30 students, 20 study Physics, 6 study Biology and 4 study both Physics and Biology.

- (i) Represent the information on the Venn Diagram.



A student is selected at random from this class.

The events E and F are:

- E: The student studies Physics  
F: The student studies Biology.

- (ii) By calculating probabilities, investigate if the events E and F are independent.

$$P(E \cap F) = \frac{4}{30}$$

$$P(E) \times P(F) = \frac{20}{30} \times \frac{6}{30} = \frac{4}{30}$$

$$P(E \cap F) = P(E) \times P(F) \Rightarrow E \text{ and } F \text{ are independent events}$$