

# PAST GCE QUESTIONS MEETLEARN.COM

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*2006 Past GCE  
Advanced Level  
Biology Paper 2*

June 2006

1. (a) On the basis of structure only, differentiate between a bacterial cell and a chlorenchyma cell as revealed by the electron microscope.  
(b) How is the light microscope different from an electron microscope?  
(c) Describe the structure of a compact bone in relation to its function as revealed by the light microscope.  
(5, 5, 10 marks)
2. (a) Enzyme activity is influenced by the protein nature of enzymes. Describe four factors which show the influence of protein nature of enzymes on enzyme activity.  
(b) Explain the role of enzymes in cell metabolism. Illustrate your answers with appropriate examples.  
(c) What is the importance of DNA in the production of an enzyme? (8, 8, 4 mks)
3. (a) Describe briefly how human/human related activities affect the following:  
(i) Ozone depletion (ii) Eutrophication (iii) Global deforestation (iv) Over fishing  
(b) How can you ensure that the clean-up campaigns in our cities are more effective? (16, 4 mks)
4. (a) What is meant by: (i) action spectrum (ii) absorption spectrum?  
(b) Discuss how changes in (i) Temperature (ii) Light intensity  
(ii) Carbon dioxide concentration would affect rice production in a one acre plot.  
(c) Differentiate between C3 and C4 plants.
5. (a) Distinguish between Nervous and Hormonal control in a mammal.  
(b) Explain the following  
(i) Nervous transmission across a synapse  
(ii) Role of hormones in the control of the menstrual cycle.
6. (a) What are the characteristics of a respiratory surface?  
(b) Describe the mechanism involved in the ventilation movements of the following animals:  
(i) a bony fish (ii) a young boy of 16 years  
(c) How do the plant structures (i) stomata (ii) Lenticels carry out gaseous exchange in plants.

7. (a) Distinguish between the following pairs of genetic terms

(i) Complete dominance and incomplete dominance, (ii) Sex determination and sex linkage

(b) In rabbits, black fur is dependent on a dominant allele B and brown fur on a recessive allele b. Normal fur length is determined by a dominant allele R and short fur length (rex) by a recessive allele r.

(i) Work out the F<sub>1</sub> and F<sub>2</sub> generations of a cross between a homozygous black with a normal fur length and a brown rex rabbit.

(ii) What proportion of the normal black F<sub>2</sub> rabbits from the cross above may be expected to be homozygous for both gene pairs?

(iii) Work out a test cross of the F<sub>1</sub> (2 mks)

8. Muscle action, ciliary action and amoeboid action are very important processes in the life of a mammal. Discuss how far this statement is true.