Answer any three questions. Please write your name on each answer. Your answers should be in essay form, but they may be illustrated with diagrams or tables. Answers should be direct and clear, and they should refer to experimental evidence and/or clinical relevance as appropriate.

1. Discuss the organisation and function of the peripheral nerve supply to the upper limb.

2. What is known of the regulatory mechanisms that control progression through the cell cycle? Why are these processes of medical interest?

3. Discuss the anatomical, cellular and molecular mechanisms that enable force generated by skeletal muscle contraction to be exerted on elements of the skeleton.

4. How are the cells of the epithelium lining the upper respiratory tract adapted and specialised for their functions? Include in your discussion examples in which cellular dysfunction might lead to disease.

5. How is the limb patterned during development? What experimental models and methods have been valuable for gaining an understanding of the molecular control of this process?

6. Describe how the four-chambered heart forms from the linear heart tube. In what ways might errors in this process lead to abnormal heart development?

7. Compare and contrast the hormones adrenocorticotrophic hormone (ACTH) and cortisol. What are the consequences of dysregulation of these hormones?

8. Outline the development of the trachea and lungs. How are these structures protected from the entry of food during postnatal life?

9. How does our understanding of the embryological development of the kidneys explain the common types of congenital renal malformation?

10. Describe the nerve supply to the lips, tongue and pharynx and comment on their embryonic origins.

11. Describe the anatomy of the nerves and muscles that are responsible for the different types of movement at the hip joint. How are these movements affected by hip fracture?

END OF PAPER