Section III

20 marks
Attempt either Question 24 or Question 25
Allow about 35 minutes for this section

Answer the question in a SEPARATE writing booklet. Extra writing booklets are available.

If you include diagrams in your answer, ensure that they are clearly labelled.

Marks

Question 24 — Evolution of Programming Languages (20 marks)

(a) A need for greater productivity has influenced the development of different paradigms.

   (i) Discuss the main influences on a programmer's productivity. **4**

   (ii) Discuss other factors that have influenced the development of paradigms. **4**

(b) Inheritance, encapsulation and polymorphism are all aspects of object-oriented programming languages. Define each of these aspects and explain how they improve the reusability and maintainability of code. **6**

(c) A programmer has been asked to develop a system for a doctor to help in the selection of antibiotic medicines for hospital patients who have certain bacterial infections. The system uses data about the bacteria, patient history, symptoms and laboratory test results to suggest the type and dosage of antibiotic. **6**

Recommend the most appropriate paradigm for the solution of this problem. Explain why the other paradigms would be less appropriate.

OR