

7. Explain the meaning of the following terms:

- (i) data bank,
- (ii) process control,
- (iii) parity,
- (iv) micro-program,
- (v) double-length working. (4 marks each)

8.

$$A = \begin{pmatrix} 0 & 2 & -1 \\ -3 & 1 & -2 \end{pmatrix}; \quad B = \begin{pmatrix} -2 & -2 & 1 \\ 0 & -1 & 3 \end{pmatrix}; \quad C = \begin{pmatrix} 2 & -3 \\ -1 & 4 \\ 0 & -1 \end{pmatrix}; \quad D = \begin{pmatrix} 0 & -1 \\ 4 & 0 \end{pmatrix}$$

Find:

(a) (i)  $A - B$  (3 marks)

(ii)  $BC$  (4 marks)

(iii)  $(D)^{-1}$  (5 marks)

(b) (i) Why is matrix manipulation so much used in programming? (4 marks)

(ii) Give two examples of the use of matrix manipulation to facilitate problem solving. (4 marks)

9. An invoice is to be prepared by a builder for sending to a client. The builder has used his own labour and that of a number of sub-contractors, e.g. for plumbing and electrical wiring. Each sub-contractor and the builder has incurred costs for labour and materials.

(a) (i) Prepare an invoice, using your own figures, under the heading of 'A. Bloggs & Co.' in a typical invoice format, including all the items detailed above. (Marks will not be awarded or deducted for the correctness of prices of materials or costs of labour.) (10 marks)

(ii) State clearly how each item is dealt with by hand in the course of preparation of the invoice. (5 marks)

(b) If this invoice was to be prepared by a computer, what differences would be necessary in the handling of the data items used in part (a)? (5 marks)

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**L Reisser**



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## **Table of Contents O Level Exam Papers 2**

1. Understanding the eBook O Level Exam Papers 2
  - The Rise of Digital Reading O Level Exam Papers 2
  - Advantages of eBooks Over Traditional Books
2. Identifying O Level Exam Papers 2
  - Exploring Different Genres
  - Considering Fiction vs. Non-Fiction
  - Determining Your Reading Goals
3. Choosing the Right eBook Platform
  - Popular eBook Platforms
  - Features to Look for in an O Level Exam Papers 2
  - User-Friendly Interface
4. Exploring eBook Recommendations from O Level Exam Papers 2
  - Personalized Recommendations
  - O Level Exam Papers 2 User Reviews and Ratings

- O Level Exam Papers 2 and Bestseller Lists
- 5. Accessing O Level Exam Papers 2 Free and Paid eBooks
  - O Level Exam Papers 2 Public Domain eBooks
  - O Level Exam Papers 2 eBook Subscription Services
  - O Level Exam Papers 2 Budget-Friendly Options
- 6. Navigating O Level Exam Papers 2 eBook Formats
  - ePub, PDF, MOBI, and More
  - O Level Exam Papers 2 Compatibility with Devices
  - O Level Exam Papers 2 Enhanced eBook Features
- 7. Enhancing Your Reading Experience
  - Adjustable Fonts and Text Sizes of O Level Exam Papers 2
  - Highlighting and Note-Taking O Level Exam Papers 2
  - Interactive Elements O Level Exam Papers 2
- 8. Staying Engaged with O Level Exam Papers 2
  - Joining Online Reading Communities
  - Participating in Virtual Book Clubs
  - Following Authors and Publishers O Level Exam Papers 2
- 9. Balancing eBooks and Physical Books O Level Exam Papers 2
  - Benefits of a Digital Library
  - Creating a Diverse Reading Collection O Level Exam Papers 2
- 10. Overcoming Reading Challenges
  - Dealing with Digital Eye Strain
  - Minimizing Distractions
  - Managing Screen Time
- 11. Cultivating a Reading Routine O Level Exam Papers 2
  - Setting Reading Goals O Level Exam Papers 2
  - Carving Out Dedicated Reading Time
- 12. Sourcing Reliable Information of O Level Exam Papers 2
  - Fact-Checking eBook Content of O Level Exam Papers 2
  - Distinguishing Credible Sources

13. Promoting Lifelong Learning
  - Utilizing eBooks for Skill Development
  - Exploring Educational eBooks
14. Embracing eBook Trends
  - Integration of Multimedia Elements
  - Interactive and Gamified eBooks

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