

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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