

Duration: 3 Hours

Total Marks: 80

- N.B. ➤ Question No 1 is **compulsory** and attempts any **three** out of remaining five questions.
 ➤ Assume **suitable data** wherever required.
 ➤ Figures to the **right** indicate **full marks**.
1. **Solve any Four**
 - (a) What are the various functions of a Computer? 5
 - (b) Explain MIC and GPU in brief . 5
 - (c) State the function of Control unit and Explain Microprogram control unit. 5
 - (d) Elaborate the sequence of events involved in fetch operation with the help of MAR, MBR, PC and IR . 5
 - (e) Explain the various levels of RAIDS. 5
 2. (a) Draw flow chart of Booth's Algorithm and solve $(-6) \times 4$ using Booth's Algorithm. 10
 - (b) Explain Amdahl's Law and Little's Law in the context of computer science performance analysis. Discuss their significance and applications in system design and optimization. Provide examples to illustrate your points. 10
 3. (a) Explain the concept of benchmarks in computer science, with a focus on SPEC benchmarks. Describe their significance, types, and their role in performance analysis. 10
 - (b) Discuss the concept of bus interconnection in computer systems. Provide detailed explanations of the different types of buses, including their characteristics, advantages, and limitations. 10
 4. (a) Draw and explain the block diagram of a simple computer with five functional units. 10
 - (b) Solve 7 divided by 3 using non-restoring method. 10
 5. (a) Write short note on memory hierarchy and explain its significance? 10
 - (b) Describe the concept of a hardwired control unit in computer architecture. Discuss how a hardwired control unit differs from a microprogrammed control unit. 10
 6. (a) Write short note on External Memory. 10
 - (b) Compare and contrast between the types of Flynn's Taxonomy. 10
