

Class – M.Sc. CS-II

Subject – FSQV

Paper – MCS-204

Time Allowed : 3 Hours

Maximum Marks : 100

Note:- Attempt any 5 questions. Each question carries equal marks.

1. (a) What is FOL? Explain the syntax and semantics of FOL.  
(b) Explain the Axiomatic system for FOL.
2. Explain ADT with the help of Data type refinement.
3. (a) Explain mathematical induction with example.  
(b) Explain the following with example
  - (i) Specification languages
  - (ii) Formal specification and Verification. Why it is needed?
4. What is Hoare Logic? Explain its syntax and semantics with complete detail.
5. What are the different techniques for proving non deterministic Program? Explain in detail.
6. Explain Extended Hoare logic in terms of Procedures and concurrency in detail.
7. What are the different phases of model checking verification? Explain in detail.

8. Explain the following terms :

- (a) Deductive verification
- (b) Partial correctness
- (c) Total Correctness
- (d) Communication in terms of Extended Hoare Logic.

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