



Q.B. : (1) Question No. 1 is compulsory.

(2) Attempt any four questions out of remaining six questions.

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| 1. | (a) Draw and explain block diagram of Micro Total Analysis system. | 5 |
| | (b) Differentiate between dry and wet etching. | 5 |
| | (c) Give advantages of Nano drug delivery system with one example. | 5 |
| | (d) Why Si is preferred material for MEMS ? | 5 |
| 2. | (a) Explain process steps involved in bulk micromachining with example. | 10 |
| | (b) What is CVD ? Explain any two types of CVD in detail. | 10 |
| 3. | (a) Discuss anisotropic etching in detail. | 10 |
| | (b) What is doping ? Explain in detail. | 10 |
| 4. | (a) What is PCR ? Give all process steps with neat sketches. | 10 |
| | (b) Explain technique of nanolithography in detail. | 10 |
| 5. | (a) What is Biosensor ? Explain any one with diagram. | 10 |
| | (b) What is microneedle ? Give advantages. Discuss all fabrication steps. | 10 |
| 6. | (a) Differentiate between IC and MEMS packaging. | 10 |
| | (b) Explain Photolithography with neat diagrams. | 10 |
| 7. | Write short notes on following (any three) :- | 20 |
| | (a) Molding | |
| | (b) μ -TAB Detection technique | |
| | (c) Microcontact printing | |
| | (d) Implantable device. | |