

## DAFTAR ISI

|                                                                       | <b>Halaman</b> |
|-----------------------------------------------------------------------|----------------|
| Kata Pengantar .....                                                  | iii            |
| Daftar Riwayat Hidup .....                                            | iv             |
| Tata Tertib di Laboratorium .....                                     | v              |
| Daftar Nama Asisten .....                                             | x              |
| Halaman Pengesahan .....                                              | xi             |
| Daftar Isi .....                                                      | xii            |
| Daftar Tabel .....                                                    | xiii           |
| Daftar Gambar .....                                                   | xiv            |
| I. Laboratorium .....                                                 | 1              |
| II. Mengenal Bahan Kimia dan Simbol Berbahaya .....                   | 4              |
| III. Struktur Organisasi Laboratorium .....                           | 8              |
| IV. Apa itu Ilmu Kimia .....                                          | 9              |
| V. Ilmu Kimia di Bidang Pertanian .....                               | 28             |
| VI. Pengenalan alat-alat Laboratorium .....                           | 32             |
| VII. Pengenalan Bahan-bahan kimia .....                               | 83             |
| VIII. Prosedur Pengukuran pH Tanah di Lapangan .....                  | 100            |
| IX. Prosedur Pengukuran pH Tanah di Laboratorium. ....                | 109            |
| X. Prosedur Penetapan Bahan Organik Tanah.....                        | 117            |
| XI. Prosedur Penetapan N di Laboratorium .....                        | 130            |
| XII. Prosedur Penetapan P di Laboratorium .....                       | 139            |
| XIII. Prosedur Penetapan K di Laboratorium .....                      | 150            |
| XIV. Prosedur Penetapan Ca di Laboratorium .....                      | 158            |
| XV. Prosedur Penetapan Mg di Laboratorium .....                       | 166            |
| XVI. Prosedur Penetapan Na di Laboratorium .....                      | 173            |
| XVII. Prosedur Penetapan Contoh Tanah Terusik dan Tidak Terusik ..... | 183            |
| POTO-POTO .....                                                       | 126            |
| Lampiran .....                                                        | 192            |

## DAFTAR TABEL

|                                                | <b>Halaman</b> |
|------------------------------------------------|----------------|
| 1. Spesifikasi alat-alat di Laboratorium ..... | 58             |
| 2. Nilai pH Tanah di Lapangan.....             | 106            |

## DAFTAR GAMBAR

|                                                         | <b>Halaman</b> |
|---------------------------------------------------------|----------------|
| 1. Bahan kimia di Laboratorium .....                    | 1              |
| 2. Lambang/Symbol bahan kimia .....                     | 2              |
| 3. Perintis Kimia Modern (Robert Boyle) .....           | 9              |
| 4. Struktur, komposisi dan perubahan bentuk unsur ..... | 10             |
| 5. Cabang ilmu kimia .....                              | 11             |
| 6. Proses pembuatan bahan berbahaya .....               | 29             |
| 7. Cawan Petri .....                                    | 37             |
| 8. Gelas Ukur .....                                     | 37             |
| 9. Erlenmeyer .....                                     | 38             |
| 10. Tabung Reaksi .....                                 | 38             |
| 11. Bunsen .....                                        | 39             |
| 12. Batang Pengaduk .....                               | 39             |
| 13. Indikator Universal .....                           | 40             |
| 14. Penjepit Tabung Reaksi .....                        | 40             |
| 15. Pipet Tetes .....                                   | 41             |
| 16. Spatula Plastic .....                               | 41             |
| 17. Spatula Logam .....                                 | 42             |
| 18. Kaca Arloji .....                                   | 42             |
| 19. Pipet Berukuran .....                               | 43             |
| 20. Klem Buret .....                                    | 43             |
| 21. Klem Bosshead .....                                 | 44             |
| 22. Spectronik 20 .....                                 | 44             |
| 23. Chromatography .....                                | 45             |
| 24. Statif .....                                        | 45             |
| 25. Kaca Pembesar .....                                 | 46             |
| 26. Mortar .....                                        | 46             |

|                                  |     |
|----------------------------------|-----|
| 27. Kondensor .....              | 47  |
| 28. Labu Destilasi .....         | 47  |
| 29. Pipa Kapiler .....           | 48  |
| 30. Volume Trik .....            | 48  |
| 31. Rak Tabung Reaksi .....      | 49  |
| 32. Sentrifuge .....             | 49  |
| 33. Bola Hisap .....             | 50  |
| 34. Beaker Glass .....           | 50  |
| 35. Magnetic Stirrer .....       | 51  |
| 36. Corong Gelas .....           | 51  |
| 37. Spektrophotometer .....      | 52  |
| 38. Tutup Karet .....            | 52  |
| 39. Amperemeter .....            | 53  |
| 40. Mesin Pengocok (Mixer) ..... | 53  |
| 41. Kertas Saring .....          | 54  |
| 42. Flamephotometer .....        | 54  |
| 43. Burrete .....                | 55  |
| 44. Oven .....                   | 55  |
| 45. Lemari Asam .....            | 56  |
| 46. Autoclave .....              | 56  |
| 47. Botol Timbang .....          | 57  |
| 48. Neraca Analitik .....        | 57  |
| 49. Laminar .....                | 58  |
| 50. pH Meter .....               | 58  |
| 51. Siklus Nitrogen .....        | 133 |
| 52. Phosphate ion .....          | 141 |
| 53. Phosphat di tanah .....      | 144 |
| 54. Bubuk Kalsium .....          | 159 |
| 55. Gambar lambang Mg .....      | 167 |
| 56. Lambang Natrium .....        | 175 |