**Lesson Plan**

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| **Name of the Faculty** | **: Surender Soni** |
| **Discipline** | **: MLT** |
| **Year** | **: 1st** |
| **Subject** | **: BIOCHEMISTRY** |

**Lesson Plan Duration : July-2018 to May-2019**

**Work Load (Lecture/Practical) per week (in hours): Lecture= 03, Practical=2**

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| **Week** | |  | **Theory** |  | **Practical** |
|  |  |  |  |  |  |
|  |  | **Lecture** | **Topic** | **Practical** | **Topic** |
|  |  | **Day** | **(including assignment / test)** | **Day** |  |
|  |  | 1 | Introduction to biochemistry |  | General introduction and |
| 1 | | 2 | Definition and importance of biochemistry | 1 | safety measures in clinical |
|  |  | 3 | SI units and their Uses |  | biochemistry laboratory |
|  | 2 | 4 | Volumetric apparatus and their calibration |  |  |
|  | | 5 | Introduction about glassware and plasticware | 2 | Cleaning of Glassware |
|  |  | 6 | Cleaning and care of laboratory glassware |  |  |
|  |  | 7 | Cleaning and care of laboratory plasticware |  | Handling and maintenance |
| 3 | | 8 | Introduction about cleaning agents | 3 |
|  |  |  |  |  | of Balance |
|  |  | 9 | Different cleaning agents |  |
|  |  |  |  |
|  |  |  |  |  |  |
|  |  | 10 | Methods of cleaning |  | Handling and maintenance |
| 4 | | 11 | Methods of storage | 4 |
|  |  |  |  |  | of Centrifuge |
|  |  | 12 | Assignment |  |
|  |  |  |  |
|  |  | 13 | Class Test 1 |  |  |
|  |  | 14 | Introduction about various instruments used |  | Handling and maintenance |
| 5 | | in clinical biochemistry laboratory | 5 |
|  |  |  |  |  | of Colorimeter |
|  |  | 15 | Introduction about principle and working of |  |
|  |  |  |  |
|  |  | analytical balance |  |  |
|  |  |  |  |  |
|  |  | 16 | Electrical/ Electronic balance |  | Handling and maintenance |
|  |  | 17 | Handling and care of balance | 6 |
| 6 | of Glucometer |
|  |  |  |
|  |  |  |  |  |
|  |  | 18 | Introduction about centrifuge |  |
|  |  |  |  |
|  |  | 19 | Principle and working of centrifuge |  | Handling and maintenance |
|  | | 20 | Handling and care of centrifuge | 7 |
|  | 7 |  |  |  | of Ion Selective Electrode |
|  |  | 21 | Introduction about colorimeter |  |
|  |  |  |  |
|  |  | 22 | Principle and working of colorimeter |  | Handling and maintenance |
|  | | 23 | Handling and care of colorimeter | 8 |
|  |  |  |  |  | of Distillation Plant |
|  | 8 | 24 | Introduction about spectrophotometer |  |
|  |  |  |  |
|  |  | 25 | Principle and working of spectrophotometer |  | Collection of capillary |
|  | | 26 | Handling and care of spectrophotometer | 9 |
|  | 9 |  |  |  | blood |
|  |  | 27 | Introduction about Ion-Selective Electrodes |  |
|  |  |  |  |
|  |  | 28 | Principle and working of Ion-Selective |  | Collection of Venous |
| 10 | | Electrodes | 10 |
|  |  |  | blood |
| 29 | Concept of flame photometer |  |
|  |
| 30 | Introduction about glucometer |  |
|  |  |  |
|  | |  |  |  |  |
|  | | 31 | Principle and working of glucometer |  |  |
|  | |  |  |  |
| 11 | |  |  |  |  |
|  | | 32 | Handling and care of glucometer | 11 | Separation of Serum |
|  | | 33 | Principle, working and care of Distillation |  |  |
|  | | Plant |  |  |
|  | |  |  |  |
|  | | 34 | Principle, working and care of deionizer |  |  |
| 12 | | Apparatus |  |  |
|  | |  |  |  |
| 35 | Assignment-2 | 12 | Separation of Plasma |
|  | |  |  |
|  | |  |  |  |  |
|  | | 36 | Class Test 2 |  |  |
|  | | 37 | Introduction about Blood and its fraction |  | Preparation of Protein Free |
| 13 | | 38 | Separation of Serum | 13 |
|  | |  |  |  | Filtrate (PFF) |
|  | | 39 | Separation of Plasma |  |
|  | |  |  |
|  | | 40 | Different Protein Precipitating reagents |  |  |
| 14 | | 41 | Preparation of protein free filtrate (PFF) | 14 | Practical Revision |
|  | | 42 | Collection and preservation of Blood |  |  |
|  | |  |  |  |  |
|  | | 43 | Collection and preservation of Urine |  |  |
|  | | 44 | Collection and preservation of Stool and | 15 | Practical Test |
| 15 | |  | other body fluids |  |  |
|  | | 45 | Assignment & Class Test - 3 |  |  |

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| 16 | 1 | Metabolism of Glucose | 16 | Estimation of blood glucose/sugar (Folin-Wu method) |
| 2 | Principle and methods of estimation |
| 3 | Principle and methods of estimation |
| 17 | 4 | Reference values | 17 | Estimation of blood glucose/sugar (O-toluidine method) |
| 5 | Renal threshold |
| 6 | Importance and Performance of ST/GTT |
| 18 | 7 | Clinical importance of blood sugar, ST/GTT | 18 | Estimation of blood glucose/sugar (enzymatic  method) |
| 8 | Revision |
| 9 | Assignment |
| 19 | 10 | Test | 19 | Performance of ST/GTT |
| 11 | Formation and excretion of urea |
| 12 | Formation and excretion of urea |
| 20 | 13 | Principle and procedures of different methods of urea estimation | 20 | Serum urea estimation |
| 14 | Principle and procedures of different methods of urea estimation |
| 15 | Reference values |
| 21 | 16 | Clinical Importance | 21 | Serum creatnine estimation |
| 17 | Revision |
| 18 | Introduction, principle and procedure of various estimation methods of ceatinine estimation |
| 22 | 19 | Introduction, principle and procedure of various estimation methods of ceatinine estimation | 22 | Serum uric acid estimation |
| 20 | Reference values and Clinical importance |
| 21 | Revision |
| 23 | 22 | Assignment and test of 2nd and 3rd unit | 23 | Plasma and serum protein estimation |
| 23 | Serum proteins Introduction |
| 24 | Different methods of estimation including principles and procedures of serum protein |
| 24 | 25 | Different methods of estimation including principles and procedures of serum protein | 24 | Estimation of electrolyte levels of K+ by colorimetric method |
| 26 | Reference values and Clinical importance |
| 27 | Revision |
| 25 | 28 | Assignment | 25 | Estimation of electrolyte levels of Cl- by colorimetric method |
| 29 | Test |
| 30 | Introduction of Na, K, and Cl |
| 26 | 31 | principles and procedures of estimation of Na+ | 26 | Revision of Practicals |
| 32 | principles and procedures of estimation of K+ |
| 33 | principles and procedures of estimation of, Cl-. |
| 27 | 34 | Reference values and Clinical importance | 27 | Revision of Practicals |
| 35 | Reference values and Clinical importance |
| 36 | Revision |
| 28 | 37 | Assignment and Test | 28 | Revision of Practicals |
| 38 | Introduction uric acid, |
| 39 | principles and procedures of various estimation methods of uric acid estimation |
| 29 | 40 | Reference values Clinical Importance | 29 | Revision of Practicals |
| 41 | Revision |
| 42 | Quality Assurance in Biochemistry |
| 30 | 43 | Internal quality assurance | 30 | Revision of Practicals |
| 44 | External quality assurance |
| 45 | Assignment And Test |