

LIST OF ELECTIVES - DEPARTMENT OF BIOCHEMISTRY

SI NO	Title of elective	No: of students per session	Faculty
1	Monoclonal gammopathy reported in the previous two years	2	Dr Sajeevan K C
2	Different types of jaundice reported in the previous one month	2	Dr Sindhu P S
3	Sickle cell disease and trait – reported in the previous two years	2	Dr Lavanya Madhavan
4	Renal disorders: Laboratory perspective with clinical correlations	2	Dr Nasid P M
5	Investigating different types of jaundice: Laboratory perspective with clinical correlations	2	Dr Angel Abraham
6	Investigating Thyroid disorders: Laboratory perspective with clinical correlations	2	Dr Arun Babu N B
7	Electrolyte disorders: Laboratory perspective with Clinical correlations in diagnosis and management (Sodium)	2	Dr Reshma Pushparajan
8	Electrolyte disorders: Laboratory perspective with Clinical correlations in diagnosis and management (Potassium)	2	Dr Nimmy Maria James
9	Diagnosis of Malignancies: by Tumor markers	2	Dr Anju V
10	Unravelling dyslipidemia: Role of laboratory	2	Dr Deepa Maria K V

BIOCH1

Name of Block	Block I
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Name of Elective	1. Monoclonal gammopathy reported in the previous two years
Location of hospital lab/research facility	Department of Biochemistry & Biochemistry section of Central Laboratory
Name of internal preceptor(s)	Dr Sajeevan K C
Name of external preceptor(s) if applicable	Nil
Learning objectives of electives	To understand 1. What is monoclonal gammopathy ? 2. Diagnostic criteria for Multiple Myeloma 3. Collect retrospective data of SPE for the diagnosis of MM 4. Role of Serum Protein Electrophoresis (SPE) and Urine Protein Electrophoresis (UPE) in the diagnosis of multiple myeloma 5. Interpretation of Electrophoretogram- SPE & UPE
Number of students that can be accommodated in this elective	Two
Prerequisites for elective	<ol style="list-style-type: none"> 1. Basic concepts of monoclonal gammopathy and multiple myeloma 2. Basic knowledge about Serum Protein Electrophoresis and Urine Protein Electrophoresis (UPE) 3. Clinical features and Management of MM
Learning resources for students	<ol style="list-style-type: none"> 1. Harrison's Principles of Internal Medicine (20th or 21st edn) 2. Tietz text book of laboratory Medicine 3. Practical Clinical Biochemistry Harold Varley
List of activities of student participation	<ol style="list-style-type: none"> 1. Discussion with preceptor 2. Collect retrospective data of SPE for the diagnosis of MM – enter in excel sheet – export to SPSS – Find out the prevalence of MM 3. Observe and perform the procedure of Electrophoresis – SPE 4. Interpretation of electrophoretogram (SPE & UPE) (paste the images of two cases) 5. Presentation : An overview of Multiple Myeloma

	with results and discussion
Portfolio entries required	1.Documentation with reflective writing, 2.Recording of case/ cases of Multiple Myeloma (clinical features plus lab investigations) 3.Details about data collection and analysis
Log book entry required	1.Basic concepts of Multiple myeloma 2.Data – master sheet – Results
Assessment	Formative: 1.Attendance 2.Daily participation in departmental academic activity 3.Performance of assigned tasks (DOPS) related to SPE and UPE 4.Presentation of worked up case in department (mini CEX) 2 cases 5.360 degree assessment
Other comments	The learner is expected to spend at least 3 hours in Department /laboratory 75% attendance is mandatory for successful completion of the elective

BIOCH2

Name of Block	Block I
Name of Elective	2. Different types of jaundice in adults reported in the previous one month
Location of hospital lab/research facility	Dept of Biochemistry & Biochemistry section of Central Laboratory
Name of internal preceptor(s)	Dr Sindhu. P S
Name of external preceptor(s) if applicable	Nil
Learning objectives of electives	1. .Classification of Liver Function Tests in blood and Urine 2. Utility of LFT in diagnosing different types of Jaundice and other liver disorders

	<p>3. De Ritis ratio and A/G : Clinical application</p> <p>4. Enter data (LFT)</p> <ul style="list-style-type: none"> – classify jaundice based on the interpretation liver function tests into hepatic, obstructive and hemolytic – enter different variables of LFT in excel sheet – interpret the data and classify the jaundice - export to SPSS and find out the prevalence of each type of jaundice
Number of students that can be accommodated in this elective	Two
Prerequisites for elective	<p>Basic knowledge about</p> <ol style="list-style-type: none"> 1..Functions of Liver 2.Different types of tests used to assess function of liver in order to diagnose different types of liver disorders
Learning resources for students	<ol style="list-style-type: none"> 1. Tietz text book of laboratory Medicine 2. Harrison’s Principles of Internal Medicine 3.. Park’s Text book of preventive and social Medicine 26th edn
List of activities of student participation	<ol style="list-style-type: none"> 1. Work with preceptors 2. Collect data (Two case histories each with clinical details and laboratory findings for obstructive ,hemolytic , hepatic jaundice and haemolytic jaundice) 3. De Ritis ratio and A/G ratio :Essential details related to these ratio; Clinical utilities of these ratios by quoting report from two cases for each parameter
Portfolio entries required	<p>Documentation with reflective writing,</p> <ol style="list-style-type: none"> 1. Documentation of different types of jaundice cases with laboratory data and their interpretation including A/G ratio and De Ritis ratio
Log book entry required	<ol style="list-style-type: none"> 1. Date wise LFT data collection along with clinical details (6 cases) 2. Calculating AG ratio and De Ritis ratio of 6 cases and their interpretation 3. Reflective writing related to the understanding of LFT in diagnosing different types of liver disorders 4. Master sheet of data collection – results (Charts and Graphs)
Assessment	<p>Formative:</p> <ol style="list-style-type: none"> 1. Attendance 2. Daily participation in departmental and laboratory activity 3. Performance of assigned tasks per day 4. Presentation of worked up cases in department

	5. 360 degree assessment
Other comments	The learner is expected to spend at least 3 hours in a day in laboratory and department 75% attendance is mandatory for successful completion of the elective

BIOCH3

Name of Block	Block I
Name of Elective	3. Sickle cell disease and trait reported in the previous 2 years
Location of hospital lab/research facility	Dept of Biochemistry & Biochemistry section of Central Laboratory
Name of internal preceptor(s)	Dr Lavanya Madhavan
Name of external preceptor(s) if applicable	
Learning objectives of electives	To know 1.Prevalence of Sickle cell disease in Kerala , India 2. Classification of Hemoglobinopathies, 3.Collect retrospective data of Hb Electrophoresis (Hb EP) for the diagnosis of Sickle cell disorders – enter in excel sheet – export to SPSS – Find out the prevalence of Sickle cell disease 4. Role Hb Electrophoresis in diagnosing HbS 5. Interpretation of Electrophoretogram (Hb EP)
Number of students that can be accommodated in this elective	Two
Prerequisites for elective	Basic knowledge about 1..Sickle cell diseases 3. Hb electrophoresis
Learning resources for students	3. Tietz text book of laboratory Medicine 4. Harrison’s Principles of Internal Medicine 5. Pathology Robbins
List of activities of student participation	1. Discussion with preceptor 2. Collect retrospective data of Hb Electrophoresis for the diagnosis of Sickle cell disorder – enter in excel sheet – export to SPSS – Find

	<p>out the prevalence of Sickle cell disorder</p> <p>3.Observe and perform the procedure of Hb Electrophoresis</p> <p>4.Interpretation of electrophoretogram (paste the images of two cases)</p> <p>5.Presentation</p> <p>- Results and discussion</p>
Portfolio entries required	<p>1.Documentation with reflective writing,</p> <p>2.Recording of cases of Sickle cell disorder</p> <p>3.Details about data collection and analysis</p>
Log book entry required	<p>1.Basic concepts of Sickle cell disorders</p> <p>2.Data – master sheet – Results</p>
Assessment	<p>Formative:</p> <p>6. Attendance</p> <p>7. Daily participation in departmental and laboratory activity</p> <p>8. Performance of assigned tasks per day</p> <p>9. Presentation of worked up cases in department</p> <p>10. 360 degree assessment</p>
Other comments	<p>The learner is expected to spend at least 3 hours in a day in laboratory and department</p> <p>75% attendance is mandatory for successful completion of the elective</p>

BIOCH4

Name of Block	Block I
Name of Elective	7. Renal disorders: Laboratory perspective with Clinical correlations
Location of hospital lab/research facility	Dept of Biochemistry & Biochemistry section of Central Laboratory
Name of internal preceptor(s)	Dr Nasid. P M
Name of external preceptor(s) if applicable	Nil
Learning objectives of electives	<p>1. Classification of Renal Function Tests</p> <p>2. Enlist different renal disorders</p> <p>3.Utility of RFT in diagnosing various kidney dysfunctions</p>
Number of students that	Two

can be accommodated in this elective	
Prerequisites for elective	Basic knowledge of : 1. Renal function tests and their interpretation 2. Different types of kidney diseases 3. Knowledge of Estimated GFR - using formulas (Cockcroft - Gault , MDRD) 4. Protein Creatinine ratio(PCR)
Learning resources for students	4. Tietz text book of laboratory Medicine 5. Harrison's Principles of Internal Medicine
List of activities of student participation	1. Work with preceptors 2. Collect data(Two case histories each with clinical details and laboratory findings for Chronic Kidney disease, Nephrotic syndrome, Nephritis) 3. Calculate Estimated GFR of 10 cases of renal disorders using Cockcroft - Gault , MDRD formula 4. Calculate Protein Creatinine ratio(PCR) and mention the significance in the management of Kidney diseases
Portfolio entries required	Documentation with reflective writing, 2. Documentation of clinical details and laboratory findings for Chronic Kidney disease, Nephrotic syndrome, Nephritis 3. Calculation of Estimated GFR and PCR
Log book entry required	5. Date wise RFT data collection along with clinical details(2 cases) and their interpretation 6. Calculating Estimated GFR and PCR 7. Reflective writing related to the understanding of RFT in diagnosing different types of renal disorders
Assessment	Formative: 11. Attendance 12. Daily participation in departmental and laboratory activity 13. Performance of assigned tasks per day 14. Presentation of worked up cases in department 15. 360 degree assessment
Other comments	The learner is expected to spend at least 3 hours in Department /laboratory 75% attendance is mandatory for successful completion of the elective

BIOCH5

Name of Block	Block I
Name of Elective	Investigating different types of jaundice Altered LFT values – Diagnostic possibilities ?
Location of hospital lab/research facility	Dept of Biochemistry & Biochemistry section of Central Laboratory
Name of internal preceptor(s)	Dr Angel Abraham
Name of external preceptor(s) if applicable	
Learning objectives of electives	<ol style="list-style-type: none"> 1. Classification of Liver Function Tests in blood and Urine 2. Utility of LFT in diagnosing different types of Jaundice and other liver disorders 3. 4. De Ritis ratio and A/G : Clinical application
Number of students that can be accommodated in this elective	Two
Prerequisites for elective	Basic knowledge about <ol style="list-style-type: none"> 1.Function of Liver 2.Bilirubin metabolism 3.Different types of liver disorders 4.Different types of tests used to assess function of liver in order to diagnose different types of liver disorders
Learning resources for students	1. Tietz text book of laboratory Medicine
List of activities of student participation	<ol style="list-style-type: none"> 1.Work with preceptors 2. Collect data (Two case histories each with clinical details and laboratory findings for obstructive ,hemolytic , hepatic jaundice and haemolytic jaundice) 3. De Ritis ratio and A/G ratio :Essential details related to these ratio; Clinical utilities of these ratios by quoting report from two cases for each parameter
Portfolio entries required	Documentation with reflective writing, <ol style="list-style-type: none"> 4. Documentation of different types of jaundice cases with laboratory data and their interpretation including A/G ratio and De Ritis ratio
Log book entry required	8. Date wise LFT data collection along with clinical details

	<p>(6 cases)</p> <p>9. Calculating AG ratio and De Ritis ratio of 6 cases and their interpretation</p> <p>10. Reflective writing related to the understanding of LFT in diagnosing different types of liver disorders</p>
Assessment	<p>Formative:</p> <p>16. Attendance</p> <p>17. Daily participation in departmental and laboratory activity</p> <p>18. Performance of assigned tasks per day</p> <p>19. Presentation of worked up cases in department</p> <p>20. 360 degree assessment</p>
Other comments	<p>The learner is expected to spend at least 3 hours in a day in laboratory and department</p> <p>75% attendance is mandatory for successful completion of the elective</p>

BIOCH6

Name of Block	Block I
Name of Elective	9. Investigating Thyroid disorders : Laboratory perspective with clinical correlations
Location of hospital lab/research facility	Dept of Biochemistry & Biochemistry section of Central Laboratory
Name of internal preceptor(s)	Dr Arun Babu N B
Name of external preceptor(s) if applicable	Nil
Learning objectives of electives	<p>1. To know about different types of Thyroid disorders</p> <p>2. To study about different types of Thyroid Function Tests (TFT) and their utility in clinical practice</p>
Number of students that can be accommodated in this elective	Two
Prerequisites for elective	<p>Basic knowledge of :</p> <p>1. Thyroid function tests and their interpretation</p> <p>2. Different types of thyroid disorders-</p> <p>3. Flow chart for diagnosis of Hypothyroidism and</p>

	Hyperthyroidism
Learning resources for students	6. Tietz text book of laboratory Medicine 7. Harrison's Principles of Internal Medicine
List of activities of student participation	5. Work with preceptors 6. Collect data (10 cases of Thyroid disorders: clinical details along with TFTs) 7. Prepare flow chart for diagnosing Hypothyroidism and Hyperthyroidism
Portfolio entries required	Documentation with reflective writing, 5. Documentation of clinical details and laboratory findings for Hypothyroidism and Hyperthyroidism
Log book entry required	11. Date wise TFT data collection along with clinical details(10 cases) and their interpretation 12. Differentiate the thyroid disorders as Hypothyroidism and Hyperthyroidism
Assessment	Formative: 21. Attendance 22. Daily participation in departmental and laboratory activity 23. Performance of assigned tasks per day 24. Presentation of worked up cases in department 25. 360 degree assessment
Other comments	The learner is expected to spend at least 3 hours in Department /laboratory 75% attendance is mandatory for successful completion of the elective

BIOCH7

Name of Block	Block I
Name of Elective	10.Electrolyte disorders – Serum Sodium : Laboratory Perspective with Clinical Correlations in diagnosis and management
Location of hospital lab/research facility	Dept of Biochemistry & Biochemistry section of Central Laboratory
Name of internal preceptor(s)	Dr Reshma Pushparajan

Name of external preceptor(s) if applicable	Nil
Learning objectives of electives	To know about <ol style="list-style-type: none"> 1. Reference range for Serum Sodium 2. Most common and reliable methodology used for estimation of S. Sodium 3. Causes and Clinical features of Serum Sodium imbalance (Hyponatremia & Hypernatremia)
Number of students that can be accommodated in this elective	Two
Prerequisites for elective	Basic knowledge of : <ol style="list-style-type: none"> 1. Serum electrolytes and their reference range 2. Serum Sodium – disorders 3. Correction of hyponatremia and hypernatremia – role of laboratory
Learning resources for students	<ol style="list-style-type: none"> 8. Tietz text book of laboratory Medicine 9. Harrison’s Principles of Internal Medicine
List of activities of student participation	<ol style="list-style-type: none"> 8. Work with preceptors 9. Record five cases each for hyponatremia and hypernatremia with clinical details including management strategies
Portfolio entries required	Documentation with reflective writing, <ol style="list-style-type: none"> 6. Documentation of clinical details and laboratory findings for Hyponatremia and Hypernatremia with details including management strategies
Log book entry required	<ol style="list-style-type: none"> 13. Date wise data collection along with clinical details(5 cases each for hyponatremia and hypernatremia) 14. Note on utility of serum sodium estimation in the management of different types of serum sodium imbalances
Assessment	Formative: <ol style="list-style-type: none"> 26. Attendance 27. Daily participation in departmental and laboratory activity 28. Performance of assigned tasks per day 29. Presentation of worked up cases in department 30. 360 degree assessment
Other comments	The learner is expected to spend at least 3 hours in Department /laboratory 75% attendance is mandatory for successful completion of the

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BIOCH8

Name of Block	Block I
Name of Elective	11.Electrolyte disorders – Serum Potassium : Laboratory Perspective with Clinical Correlations in diagnosis and management
Location of hospital lab/research facility	Dept of Biochemistry & Biochemistry section of Central Laboratory
Name of internal preceptor(s)	Dr Nimmy Maria James
Name of external preceptor(s) if applicable	Nil
Learning objectives of electives	To know about <ul style="list-style-type: none"> 4. Reference range for Serum Potassium 5. Most common and reliable methodology used for estimation of S. Potassium 6. Preanalytical factors affecting Serum K level 7. Causes and Clinical features of Serum Potassium imbalance (Hypokalemia & Hyperkalemia)
Number of students that can be accommodated in this elective	Two
Prerequisites for elective	Basic knowledge of : <ul style="list-style-type: none"> 3. Serum Potassium and its reference range and preanalytical errors 4. S.Potassium imbalances 5. Role of laboratory in the management of hyperkalemia and hypokalemia
Learning resources for students	10. Tietz text book of laboratory Medicine 11. Harrison’s Principles of Internal Medicine (20 th or 21 st edn)
List of activities of student participation	10. Work with preceptors 11. Record five cases each for Hypokalemia & Hyperkalemia with clinical details including management strategies

Portfolio entries required	Documentation with reflective writing, 7. Documentation of clinical details and laboratory findings for Hypokalemia & Hyperkalemia with details including management strategies
Log book entry required	15. Date wise data collection along with clinical details(5 cases each for Hypokalemia & Hyperkalemia) 16. Note on utility of serum Potassium estimation in the management of different types of serum Potassium imbalances
Assessment	Formative: 31. Attendance 32. Daily participation in departmental and laboratory activity 33. Performance of assigned tasks per day 34. Presentation of worked up cases in department 35. 360 degree assessment
Other comments	The learner is expected to spend at least 3 hours in Department /laboratory 75% attendance is mandatory for successful completion of the elective

BIOCH9

Name of Block	Block I
Name of Elective	Utility of tumor markers in the management of different types of malignancies
Location of hospital lab/research facility	Dept of Biochemistry & Biochemistry section of Central Laboratory
Name of internal preceptor(s)	
Name of external preceptor(s) if applicable	Nil
Learning objectives of electives	1. Tumor markers : Different types and the reliable methodology for their estimation 2. Utility of tumor markers including cut off values (in the diagnosis and monitoring of malignancies (PSA, beta HCG,CEA,AFP,CA 125,CA 19.9)
Number of students that	Two

can be accommodated in this elective	
Prerequisites for elective	Basic knowledge of : 1. Different types of Tumor markers 2. Role of tumor markers in diagnosis and management of malignancies
Learning resources for students	12. Tietz text book of laboratory Medicine
List of activities of student participation	12. Work with preceptors 13. Collect data and Record values of tumor markers tested for 5 days with clinical details (indicate the type of malignancy)
Portfolio entries required	Documentation with reflective writing, 8. Documentation of values of tumor markers tested for 5 days with clinical details of positive cases 9. In positive cases indicate the type of malignancy
Log book entry required	17. Enlist the tumor markers including cut off values in the diagnosis and monitoring of malignancies (PSA, beta HCG,CEA,AFP,CA 125,CA 19.9) 18. Find out the positive cases 19. Mention the type of malignancy in positive cases
Assessment	Formative: 36. Attendance 37. Daily participation in departmental and laboratory activity 38. Performance of assigned tasks per day 39. Presentation of worked up cases in department 40. 360 degree assessment
Other comments	The learner is expected to spend at least 3 hours in Department /laboratory 75% attendance is mandatory for successful completion of the elective

BIOCH10

Name of Block	Block I
Name of Elective	Unraveling Dyslipidemia – Role of Laboratory
Location of hospital	Dept of Biochemistry & Biochemistry section of Central

lab/research facility	Laboratory
Name of internal preceptor(s)	Dr Deepa Maria K V
Name of external preceptor(s) if applicable	Nil
Learning objectives of electives	To know about 1. Lipid profile : Different parameters tested in this profile and their desirable levels 2. Utility of lipid profile in diagnosing Dyslipidaemia
Number of students that can be accommodated in this elective	Two
Prerequisites for elective	Basic knowledge of : 3. Serum lipids : Different types of lipoproteins and their role in Lipid transport (in brief) 4. Lipid profile : Different parameters tested under this category , type of specimen used (mention the rationale) 5. Apolipoproteins tested in this context and their significance 6. Dyslipidemia : Definition by quoting desirable levels of each parameter 7. Consequences of dyslipidemia (in brief) 8. Role of Apo lipoproteins and serum lipids in the risk assessment of atherosclerotic vascular diseases (CAD, CVA and PVD)
Learning resources for students	13. Tietz text book of laboratory Medicine
List of activities of student participation	14. Work with preceptors 15. Collect data - Tabulate lipid profile values of 2 days during elective posting and find out the percentage of dyslipidemia cases /day
Portfolio entries required	Documentation with reflective writing, 10. Tabulate lipid profile values of 2 days during elective posting and find out the percentage of dyslipidemia cases/day 11. Record 10 cases of dyslipidemia including clinical details
Log book entry required	20. Lipid profile : Different parameters and their desirable levels

	<ol style="list-style-type: none"> 21. Tabulate lipid profile values of 2 days during elective posting and find out the percentage of dyslipidemia /day 22. Record 10 cases of dyslipidemia including clinical details 23. Reflective writing on utility of unraveling dyslipidemia in the risk assessment and early intervention to prevent CAD, CVA and PVD
Assessment	<p>Formative:</p> <ol style="list-style-type: none"> 41. Attendance 42. Daily participation in departmental and laboratory activity 43. Performance of assigned tasks per day 44. Presentation of worked up cases in department 45. 360 degree assessment
Other comments	<p>The learner is expected to spend at least 3 hours in Department /laboratory 75% attendance is mandatory for successful completion of the elective</p>

