MBBS First Year Biochemistry – II Important Question Bank

Essay Questions MBBS 1st Year:

1. Brief about the conversion of phenylalanine to tyrosine. Describe in detail about phenylketonurias.
2. Write in detail about ammonia production, transport and disposal. Add a note on disorders of urea cycle.
3. Write briefly the mechanisms by which the pH of the body fluids is regulated. Add a note on acid base disturbances with examples.
4. Explain the biochemical basis of clinical features of porphyrias.
5. Describe the pathways of methionine metabolism. Add a note on metabolic functions of methionine and cysteine.
6. Describe the biosynthesis of purine nucleotide. Add a note on regulation.
7. Describe the biosynthesis of purine nucleotide. Add a note on regulation.
8. Name the compounds derived from glycine. Explain any two in detail.
9. Describe in detail the mechanism of regulation of blood PH.
10. Name liver function tests with diagnostic significance of each. Write in detail the biochemical tests of any three done in your laboratory.
11. Describe the pathway for synthesis of urea from ammonia. What is normal blood urea level? Name the conditions in which blood urea level is increased and give the biochemical basis.
12. Describe the steps of s-adenosyl methionine cycle. Explain the term transmethylation with five suitable examples.
13. Describe the separation of Serum Proteins by paper electrophoresis. Draw the pattern of electrophoresis in i) Multiple Myeloma ii) Nephrotic Syndrome.
14. How is blood pH regulated?
15. Write in details about the initiation, elongation and termination of transcription.Give an account of post transcriptional processing.
16. Write in detail about the absorption, transport, daily requirement and deficiency Manifestation of Iron.
17. What is cloning? Mention the various types of cloning. Describe in detail the steps involved in recombinant DNA technology.
18. Describe the role of plasma and renal buffers in maintaining acid base homeostasis.

19. Describe the metabolism of tyrosine. Name the inborn errors associated with this pathway.
20. Enumerate the liver function tests and how Vanden Bergh test distinguishes different types of jaundice.
21. With the help of a figure, describe the process by which DNA replication takes place in a cell.
22. Name the Aromatic Aminoacids. Add a note on physiologically important derivatives of tyrosine.
23. Explain Protein synthesis in detail. Add a note on drugs that inhibit protein synthesis
24. Describe the catabolism of Heme in the body. Explain the different types of jaundice. How do you investigate a case of jaundice?
25. What is the normal pH of blood. Describe the various mechanisms which maintain it? Mention the acid base disorders.
26. List the parameters that are commonly used in clinical practice as indicators to assess the functions of the liver. Explain the basis of the use of these parameters in assessment of liver function. Briefly discuss medical conditions in which these parameters become abnormal.
27. Describe the role of the kidney to maintain the pH of blood. What are the compensatory mechanisms the kidney will adopt to maintain pH in the presence of metabolic acidosis?
28. What is the reference range for serum uric acid? What is the source of uric acid in the body? What is its ultimate fate? Discuss causes of abnormalities in levels of serum uric acid.
29. Describe recombinant DNA technology. Explain the different techniques with its application.
30. Discuss in detail the replication of DNA. Mention the inhibitors of replication.
31. Describe in detail the steps in protein synthesis. Add a note about Post translational modification and inhibitors of protein synthesis.
32. Describe in detail the steps in protein synthesis. Add a note about Post translational modification and inhibitors of protein synthesis.
33. What is a Buffer? Describe in detail about the Renal Regulation of Blood pH.
34. Describe in detail about the formation and transport of ammonia in our body. Add a note on Urea cycle.
35. Describe in detail about the Synthesis of Tyrosine and its metabolic endproducts.
36. Name the important buffer systems in the body. Describe in detail the role of lungs and kidneys in maintenance of acid base balance.

37. **What is polymerase chain reaction? Write a note on the steps involved in PCR and its applications.**

Write Short Note Questions MBBS 1st Year:

1. **Phenyl ketonuria**
2. **Formation of uric acid**
3. **Porphyria**
4. **Urea cycle**
5. **ELISA**
6. **Active Methionine**
7. **Flame photometer**
8. **Bilurubin formation & excretion**
9. **Plasma proteins**
10. **Replication**
11. **Transamination reactions**
12. **Renal regulation of pH**
13. **Gout**
14. **Mutation**
15. **Differences between DNA and RNA**
16. **Oncogenes**
17. **Post translational modification**
18. **Formation of creatine**
19. **Alkaptonuria**
20. **Southern blotting**
21. **Disorders of Tyrosine metabolism**
22. **Southern blot technique and its applications**
23. **Write about post transcriptional processing Mention about post transcriptional inhibitors**
24. **Describe about the various patterns of diseases in protein electrophoresis**
25. **Structure of mRNA**
26. **Liver function tests**
27. **Laboratory investigations in different types of Jaundice**
28. **Structure of DNA**
29. **Purine Salvage pathway**
30. **Metabolism of Methionine**

31. What is Blotting technique? Write in detail about Southern blot technique
32. Give a detailed account of how bilirubin is formed and excreted
33. Transamination reaction and its significance
34. Homocystinuria
35. Essential amino acids
36. Structure of tRNA
37. Restriction endonucleases
38. Post-translational modifications of proteins
39. What is creatine clearance? Write the normal value of it
40. Sources of ammonia in the body and its metabolism
41. Functions of glycine in the body
42. Heavy metal poisonings
43. Disorders associated with potassium homeostasis
44. Functions of nucleotides
45. Denaturation of proteins
46. Types of mutations
47. Post-transcriptional modifications of RNA
48. Restriction endonucleases and their uses
49. Specialized products derived from tyrosine
50. Principle and applications of electrophoresis
51. Cell cycle
52. Causes and clinical features of dehydration
53. Consequences of hyperuricemia
54. Structure of DNA
55. Active form of methionine and its function
56. Inhibitors of Protein Biosynthesis
57. Porphyria
58. LAC Operan
59. Transcription & Post Transcriptional modification
60. Cyclic AMP
61. Detoxification by conjugation
62. Renal Function Tests
63. Tumor Markers
64. Different mechanisms involved in hormone action
65. Thyroid function Tests
66. Recombinant DNA Technology
67. Structure of DNA
68. Post transcriptional modifications
69. Functions of albumin
70. Electrophoresis and its applications

71. Causes for respiratory acidosis
72. Renal mechanism of maintaining Acid Base Balance
73. Purine Salvage pathway
74. Lac Operon concept
75. Post translational modifications
76. Electrophoresis
77. Repair mechanism of DNA
78. Salvage pathway of Purine synthesis
79. Functions of Glucocorticoids
80. Functions of albumin
81. Precipitation reactions of Proteins
82. Tubular function tests
83. Role of Kidney in regulating the pH of blood
84. Immunoglobulins
85. Purine salvage pathway
86. Explain the types and functions of immunoglobulins
87. Phenylketonuria
88. Fluorosis
89. Serum protein electrophoresis
90. Cell cycle
91. Role of Parathormone in Calcium, Phosphate homeostasis
92. Define Xenobiotics and add a note on the various detoxification reactions
93. Mutation
94. Secondary structure of protein
95. Synthesis and mechanism of action of Nitric Oxide
96. Homocystinurias
97. Hyperuricemias
98. Metabolic acidosis
99. Phase Two detoxification
100. Cyclic AMP
101. Assessment of hypothyroidism
102. Mutations
103. Electrophoresis
104. Antioxidants
105. Genetic code
106. Formation of Epinephrine
107. Cytochrome
108. Purine Salvage pathways
109. Dehydration
110. LAC operon

111. Orotic acidurias
112. t RNA
113. Phenyl ketoneuria
114. Water toxicity
115. Denaturation
116. Reverse transcription
117. Sphingolipidoses
118. GOUT
119. Metabolic acidosis
120. Tumor markers
121. Colorimeter
122. Functions of adrenal cortical hormones
123. Plasmid
124. Functions of albumin
125. Give an account of the formation of specialized products from glycine
126. Explain the term transamination and its salient features
127. Polymerase chain reaction and its applications
128. Blotting techniques
129. Gene therapy
130. Write an account of salvage pathway in purine nucleotide synthesis Add a note on Lesch – Nyhan syndrome
131. Post translational modification
132. What are porphyrias? Describe any three porphyrias in detail
133. Give an account of water distribution and its balance in the body
134. What are isotopes? What are its applications in biochemistry?

Write Short Answer Questions MBBS 1st Year:

1. Name the buffer systems of blood
2. Sources of carbon and nitrogen in purine ring
3. Wobble hypothesis
4. Write the enzyme defect in (1) Lesch-Nyhan Syndrome (2) Orotic aciduria
5. Okasaki fragments
6. What are Xenobiotics
7. Causes of Metabolic acidosis

8. **Name the important compounds formed from Glycine**
9. **Inhibitors of protein biosynthesis**
10. **Apoptosis**
11. **Detoxification by conjugation**
12. **Glutathione**
13. **Metabolic acidosis**
14. **Codons**
15. **Renal function test**
16. **Orotic acid urea**
17. **Wobble hypothesis**
18. **Vanden Bergh's test**
19. **Rickets**
20. **γ Globulins**
21. **Maple syrup urine disease**
22. **Alkali reserve**
23. **Biological value of proteins**
24. **Carcinogenic virus**
25. **Electrophoretic technique and its importance**
26. **Methemoglobin**
27. **Importance of glucose six phosphate dehydrogenase deficiency**
28. **G-Proteins**
29. **Renal threshold substances**
30. **Carbon monoxide**
31. **Phenyl keton uria**
32. **Structure of t-RNA**
33. **Okazaki pieces**
34. **Differences between CPSI and CPS II**
35. **Metabolic role of magnesium**
36. **Anion Gap**
37. **Rotheras test**
38. **Gout**
39. **Flurosis**
40. **Vanden Berg test**
41. **Xeroderma pigmentosum**
42. **Hemoglobin S**
43. **Functions of parathyroid hormone**
44. **Mention two second messengers**
45. **Symport**
46. **Oxytocin**
47. **Addison's disease**

48. Functions of Glucagon
49. Gama Amino Butyric Acid
50. Hartnup's disease
51. Name the major intracellular and extracelluar anion
52. Principle of flamephotometer
53. Metabolic roles of zinc and selenium
54. Orotic aciduria
55. Chimeric DNA
56. Osmolality
57. Anti HIV drugs
58. Compounds formed from Glycine
59. Write the normal serum sodium and potassium level
60. What are monoclonal and polyclonal antibodies
61. Urea cycle disorders cause orotic aciduria Explain
62. Acidosis causes hyperkalemia Why?
63. Define frameshift mutation with an example
64. We need two primers for polymerase chain reaction Justify
65. Mechanism of action of chloramphenicol
66. Mention the aminoacids which take part in one carbon pool
67. Mention the enzymes which require selenium as cofactor
68. Lesch nyhan syndrome presents with hyperuricemia Explain
69. Hypothyroidism presents with hypercholesterolemia Why?
70. Histidine load test
71. Mention two tumour markers and specify the diagnostic application
72. M band
73. Beer Lambert's law
74. Mention transmethylation reactions
75. Enzyme deficiency in albinism Mention two clinical features
76. Restriction Endonucleases
77. Mutagens
78. Lesch Nyhan Syndrome
79. Denaturation of Proteins
80. Differences between DNA and RNA
81. What are the enzymes required for DNA replication
82. What is the principle of affinity Chromatography
83. What are the causes of respiratory acidosis
84. Maple syrup urine disease
85. Urea clearance
86. Bence Jones Protein
87. What are Oncogenes?

88. Beer – Lambert's Laws
89. What are the forces that stabilize secondary structure of Proteins
90. Name the basic Amino Acids
91. Enzyme defect in a)Phenylketonuria b) Alkaptonuria
92. DNA polymerase enzyme
93. Types of mutations
94. Reverse Transcriptase
95. Inhibitors of RNA synthesis
96. Features of Genetic Code
97. Gout
98. Name Renal Function Tests
99. Denaturation of proteins
100. Name enzymes that are increase in hepatic jaundice
101. ELISA
102. Hyperkalemia
103. Okazaki fragments
104. Thyroid Function Tests
105. Creatinine clearance
106. GABA
107. Iso electric pH of proteins
108. Maple syrup urine disease
109. Multiple Myeloma
110. Lesch-Nyhan Syndrome and orotic aciduria
111. What is the principle of a radioimmuno assay (RIA)?
112. List the different types of immunoglobulins
113. List causes of respiratory acidosis
114. Which amino acid gives rise to nitric oxide in the body? What is the enzyme that catalyzes this process?
115. What is the biochemical basis of the encephalopathy that can develop in patients who have liver cirrhosis?
116. List the biochemical abnormalities seen in phenylketonuria
117. Give examples of conjugating agents in the body that are involved in metabolism of xenobiotics
118. What is the role of gamma-amino butyric acid in the body? Name the amino acid from which it is derived
119. What is multiple myeloma? What is a laboratory test that can be used to confirm diagnosis of this condition?
120. List functions of nucleotides
121. ELISA
122. Hyperkalemia

123. Okazaki fragments
124. Thyroid Function Tests
125. Creatinine clearance
126. GABA
127. Iso electric pH of proteins
128. Maple syrup urine disease
129. Multiple Myeloma
130. Lesch-Nyhan Syndrome and orotic aciduria
131. Enzyme defect in a)Phenylketonuria b) Alkaptonuria
132. DNA polymerase enzyme
133. Types of mutations
134. Reverse Transcriptase
135. Inhibitors of RNA synthesis
136. Features of Genetic Code
137. Gout
138. Name Renal Function Tests
139. Denaturation of proteins
140. Name enzymes that are increase in hepatic jaundice
141. Restriction Endonucleases
142. Mutagens
143. Lesch Nyhan Syndrome
144. Denaturation of Proteins
145. Differences between DNA and RNA
146. What are the enzymes required for DNA replication
147. What is the principle of affinity Chromatography
148. What are the causes of respiratory acidosis
149. Maple syrup urine disease
150. Urea clearance
151. Bence Jones Protein
152. What are Oncogenes?
153. Beer – Lambert's Laws
154. What are the forces that stabilize secondary structure of Proteins
155. Name the basic Amino Acids
156. Urea cycle disorders cause orotic aciduria Explain
157. Acidosis causes hyperkalemia Why?
158. Define frameshift mutation with an example
159. We need two primers for polymerase chain reaction Justify
160. Mechanism of action of chloramphenicol
161. Mention the aminoacids which take part in one carbon pool
162. Mention the enzymes which require selenium as cofactor

163. Lesch nyhan syndrome presents with hyperuricemia Explain
164. Hypothyroidism presents with hypercholesterolemia Why?
165. Histidine load test
166. Mention two tumour markers and specify the diagnostic application
167. M band
168. Beer Lambert's law
169. Mention transmethylation reactions
170. Enzyme deficiency in albinism Mention two clinical features
171. Name the major intracellular and extracelluar anion
172. Principle of flamephotometer
173. Metabolic roles of zinc and selenium
174. Orotic aciduria
175. Chimeric DNA
176. Osmolality
177. Anti HIV drugs
178. Compounds formed from Glycine
179. Write the normal serum sodium and potassium level
180. What are monoclonal and polyclonal antibodies
181. Xeroderma pigmentosum
182. Hemoglobin S
183. Functions of parathyroid hormone
184. Mention two second messengers
185. Symport
186. Oxytocin
187. Addison's disease
188. Functions of Glucagon
189. Gama Amino Butyric Acid
190. Hartnup's disease
191. Phenyl keton uria
192. Structure of t-RNA
193. Okazaki pieces
194. Differences between CPSI and CPS II
195. Metabolic role of magnesium
196. Anion Gap
197. Rotheras test
198. Gout
199. Flurosis
200. Vanden Berg test
201. Maple syrup urine disease

202. Alkali reserve
203. Biological value of proteins
204. Carcinogenic virus
205. Electrophoretic technique and its importance
206. Methemoglobin
207. Importance of glucose six phosphate dehydrogenase deficiency
208. G-Proteins
209. Renal threshold substances
210. Carbon monoxide
211. Detoxification by conjugation
212. Glutathione
213. Metabolic acidosis
214. Codons
215. Renal function test
216. Orotic acid urea
217. Wobble hypothesis
218. Vanden Bergh's test
219. Rickets
220. γ Globulins
221. Name the buffer systems of blood
222. Sources of carbon and nitrogen in purine ring
223. Wobble hypothesis
224. Write the enzyme defect in () Lesch-Nyhan Syndrome () Orotic aciduria
225. Okasaki fragments
226. What are Xenobiotics
227. Causes of Metabolic acidosis
228. Name the important compounds formed from Glycine
229. Inhibitors of protein biosynthesis
230. Apoptosis

****