MBBS First Year Physiology including Biophysics - I Important Question Bank

Essay Questions MBBS 1st Year:

1. **Define immunity. How will you classify immunity? Explain in detail cell mediated immunity.**
2. **Explain in detail synthesis, secretion and functions of thyroid hormone. Add a note on cretinism.**
3. **Define hemostasis. Describe the various stages involved in coagulation process.**
4. **Discuss the molecular basis of skeletal muscle contraction. Add a note on Rigor Mortis.**
5. **Describe the structure of glomerular capillary membrane and the factors affecting glomerular filtration. Add a note on measurement of glomerular filtration rate.**
6. **What is menstrual cycle. Explain the ovarian changes taking place during menstrual cycle.**
7. **What are different types of salivary glands? Describe the composition, functions and regulation of secretion of saliva.**
8. **Describe in detail the synthesis and functions of thyroid hormones. Add a note on Hypothyroidism.**
9. **Describe the composition, functions and regulation of secretion of gastric juice.**
10. **Enumerate the NUCLEI of Hypothalamus. Explain the connections and functions of hypothalamic obesity.**
11. **Explain the counter current mechanism in the concentration of urine. Add a note on diuresis.**
12. **Describe the enteric and colonic movements. Discuss the role of the enteric nervous system. Add a note on defaecation.**
13. **How did Hans Selye, group the adrenocortical hormones? Elucidate their physiological functions.**
14. **Name the different blood group systems. Mention the importance of blood groups.Explain the procedure for determining the blood group of an individual. Give the basis and principles of treatment of Erythroblastosis Foetalis.**
15. **Name any four hormones producing Hyperglycemia. Explain the actions of the chief hypoglycemic hormone on liver, skeletal muscle and adipose**

tissue. Briefly explain GTT. Add a note on diabetes Mellitus and Physiological basis of its treatment.

16. **Write in detail the electron microscopic structure of skeletal muscle and the molecular mechanism of muscular contraction.**
17. **Discuss the composition, mechanism and regulation of gastric secretion.**
18. **Define GFR. Explain briefly about mechanism of factors regulating GFR.**
19. **Define Haemostasis. Describe briefly about the mechanism of clotting. Add a note on hemophilia.**
20. **Explain the sliding filament hypothesis and outline the main events in the cross-bridge cycle.**
21. **What are the components of gastric secretion? Explain the regulation of gastric secretion.**
22. **Define haemostasis. Describe in detail about Extrinsic and Intrinsic mechanism of clotting?**
23. **Give an account of composition and functions of pancreatic juice. How is the secretion regulated.**
24. **What are blood groups? Discuss their importance.**
25. **Describe the hormonal regulation of human menstrual cycle.**
26. **Describe digestion and absorption of fat in the digestive tract. Write a note on steatorrhoea.**
27. **What do you understand by the terms innate and acquired immunity? Describe the phenomenon of cell-mediated immunity.**
28. **Describe the physiological roles of the different types of granulocytes circulating in blood.**
29. **Define Glomerular Filtration Rate (GFR). What are its determinants? Discuss the phenomenon of autoregulation of GFR. Describe the best test for estimation of GFR. What is the routinely used clinical test to assess renal function?**
30. **What is the composition of gastric juice? Describe the mechanism of HCl secretion. Give a detailed account on the regulation of gastric secretion.**
31. **Define anemia. Classify them. List the important investigations to confirm the various types of anemia.**
32. **Describe the synthesis, storage, release, functions and regulation of secretion of thyroid hormone. Add a note on hypothyroidism.**
33. **Describe the mechanism of coagulation of blood.**
34. **Discuss in detail the gastric secretions with experimental evidences. Add a note on peptic ulcer.**
35. **What is Glomerular Filtration Rate (GFR)? Enumerate the factors affecting GFR.**

36. **Discuss in detail the stages of erythropoiesis and the factors affecting it. Add a note on polycythemia.**

Write Short Note Questions MBBS 1st Year:

1. **Write the features of Acromegaly**
2. **Tubuloglomerular feedback**
3. **Explain mechanism of secretion of hydrochloric acid in stomach**
4. **Explain extrinsic mechanism of coagulation of blood**
5. **Write the functions of platelets**
6. **Write the actions of parathormone**
7. **Cystometrogram**
8. **Explain Neuroendocrine reflex**
9. **Erythroblastosis Foetalis**
10. **Haemophilia**
11. **Composition of semen and its uses as a diagnostic tool**
12. **Functions of juxtaglomerular apparatus**
13. **Explain components and functions of bile**
14. **Explain the stages of development of erythrocytes**
15. **Describe the metabolic actions of cortisol**
16. **Describe briefly the formation and functions of corpus luteum**
17. **Describe the formation and circulation of lymph**
18. **Enumerate the hormones secreted by anterior pituitary gland**
19. **Describe the actions of growth hormone**
20. **Classify the fluid compartments of body giving their normal values**
21. **mention two methods to determine ECF**
22. **Describe the formation and functions of immunoglobulins**
23. **Micturition reflex**
24. **Gastric emptying**
25. **Indicators of ovulation**
26. **Myxoedema**
27. **Entero hepatic circulation of bile**
28. **Chonn's syndrome**
29. **Functions of glucocorticoids**
30. **Significance of Rh group**
31. **A Transport mechanisms across cell membrane**

32. **Albumin : Globulin Ratio**
33. **Cells in fibrous tissue, their functions**
34. **Functional categorization of plasma proteins**
35. **Starling forces and oedema**
36. **Digestive proteases**
37. **Transporters of amino acids in gut and kidney**
38. **Counter current in juxtamedullary nephrons**
39. **Abnormalities of micturition**
40. **Actions of parathormone**
41. **Neuro humoral reflexes**
42. **Immunological test for pregnancy**
43. **Describe the phases of gastric juice secretion**
44. **Micelle formation**
45. **Describe cystometrogram**
46. **Functions of Sertoli cells**
47. **Functions of Placenta**
48. **Plasma proteins**
49. **Hepatic and gall bladder bile**
50. **Deglutition**
51. **Differences between cretinism and Dwarfism**
52. **Explain the hormonal regulation of menstrual cycle**
53. **Neuro muscular junction**
54. **Regulation of salivary secretions**
55. **Functions of pancreatic juice**
56. **Erythropoiesis**
57. **Micturition reflex**
58. **Spermatogenesis**
59. **Glucagon**
60. **Foeto placental unit**
61. **Secondary active transport**
62. **Fibrinolytic system**
63. **Resting membrane potential**
64. **Negative feedback mechanism with example**
65. **Pathophysiology of Diabetes mellitus**
66. **Small intestinal movements**
67. **Neuro endocrinal reflex**
68. **Functions of placenta**
69. **Describe the phases of gastric juice secretion**
70. **Hormonal regulation of menstrual cycle**
71. **Dwarf**

72. **Composition & Functions of saliva**
73. **Anticoagulants**
74. **G protein**
75. **Calcitriol**
76. **Thyroid function tests**
77. **Describe the Reflex Arcs involved in micturition**
78. **Explain the renal contribution to pH control**
79. **Tubulo glomerular feedback mechanism**
80. **Functions of plasma proteins**
81. **Haemophilia**
82. **Counter current blood flow in the villi**
83. **Erythroblastosis foetalis**
84. **Isotonic and isometric contraction**
85. **Facilitated diffusion**
86. **Enterohepatic circulation**
87. **Juxta Glomerular Exchanger**
88. **Counter current Exchanger**
89. **Transport Maximum**
90. **Acromegaly**
91. **Steps in Thyroxine synthesis**
92. **Stages of spermatogenesis**
93. **Tests for ovulation**
94. **Contraceptives**
95. **Thyroxine synthesis**
96. **Tetany**
97. **Juxta glomerular apparatus**
98. **Dialysis**
99. **Gastric emptying**
100. **Enterohepatic circulation**
101. **Functions of saliva**
102. **Autoimmune diseases**
103. **G-protein coupled receptors**
104. **Primary active transport**
105. **Autoregulation of GFR**
106. **Renal glycosuria**
107. **Mechanism of bicarbonate generation in distal tubule**
108. **Stimuli for secretion of aldosterone and actions of aldosterone**
109. **Pancreatic C-peptide and its significance as a laboratory test**
110. **Cretinism – its cause, features and strategy to prevent it**

111. What is the function of corpus luteum of pregnancy? How is it supported?
112. Parturition
113. cAMP signaling pathway, with an example
114. Colloid oncotic pressure and its importance
115. Excitation-contraction coupling in skeletal muscle
116. Types of polycythemia and complications due to this condition
117. Findings of 'tests of hemostasis' in hemophilia
118. Functions of macrophages
119. Physiological role of corticosteroids
120. Function of any one hormone of posterior pituitary
121. Composition of bile and the physiological role (if any) of the components
122. Pathophysiology of peptic ulcer
123. Hypersecretion of growth hormone
124. Tissue macrophage system
125. Transport across cell membrane
126. Ovarian and endometrial changes of menstrual cycle
127. Give an account on micturition
128. Classify the blood groups and indications and complications of blood transfusion
129. Cushings syndrome
130. Succus entericus
131. Factors necessary for Erythropoiesis
132. Explain the actions of Glucocorticoids
133. Facilitated diffusion
134. Control of insulin secretion
135. Neuromuscular junction
136. Regulation of hydrochloric acid secretion in the gastric parietal cells

Write Short Answer Questions MBBS 1st Year:

1. Functions of Eosinophil
2. Name anticoagulants used in laboratory
3. Write differences between adult haemoglobin and foetal haemoglobin
4. Write functions of sertoli cells
5. Write functions of large intestine

6. **Migrating Myoelectric Complex (MMC)**
7. **Achalasia Cardia**
8. **Name hormones of the hypothalamus**
9. **Write the actions of prolactin**
10. **Name second messengers**
11. **Briefly describe the process of deglutition**
12. **Heparin**
13. **Name two indications of exchange transfusion**
14. **Purpura**
15. **Plasma cells**
16. **Functions of plasma proteins**
17. **Phagocytosis**
18. **Physiological basis of pregnancy diagnosing tests**
19. **Role of oxytocin in female reproduction**
20. **List the important functions of saliva**
21. **Actions of Insulin**
22. **Estrogen – Functions**
23. **Aldosterone escape**
24. **Function of saliva**
25. **Significance of erythrocyte sedimentation rate**
26. **Functions of corpus luteum**
27. **Blood – testis barrier**
28. **GAP junctions**
29. **Glomerular filtration rate**
30. **Dietary fibre**
31. **Measurement of total body water**
32. **Lipids in cell membrane**
33. **Remodelling of bone tissue**
34. **Landsteiner's laws**
35. **Fibrinolysis**
36. **Lingual lipase**
37. **Limiting PH of urine**
38. **Leptin**
39. **Mullerian regression factor**
40. **Composition of semen**
41. **Phagocytosis**
42. **Role of sweat glands in thermoregulation**
43. **'B' lymphocytes in immunity**
44. **ESR and its clinical significance**
45. **Foetoplacental unit**

46. **Actions of relaxin and inhibins**
47. **Endogenous Pyrogens**
48. **Defaecation reflex**
49. **PAH clearance**
50. **Brown fat tissue**
51. **Milieu interior**
52. **Function of large intestine**
53. **Steatorrhea**
54. **Dietary fibre**
55. **Multi unit smooth muscle**
56. **Sarcomere**
57. **Cytokines**
58. **Auto immune disease**
59. **Na+k+pump**
60. **EMG**
61. **Four functions of plasma protein**
62. **Helper cells**
63. **Kernicterus**
64. **Secondary active transport**
65. **Rigor mortis**
66. **Name the Second messengers**
67. **Name the hormones involved for the growth**
68. **What is Turner's syndrome – three features?**
69. **APUD cells of its secretion**
70. **Law of intestine**
71. **Double Bhor effect**
72. **Aldosterone escape**
73. **What are different types of water absorption?**
74. **What is Houssay animal?**
75. **Name the hormones involved in calcium homeostasis, and the main organs that will act**
76. **Functions of Na-K pump**
77. **Saltatory conduction**
78. **Conn's syndrome**
79. **Laron dwarf**
80. **Aquaporins**
81. **Anion Gap**
82. **Macula densa**
83. **Opsonization**
84. **Immunological memory**

85. Cholelithiasis
86. Enterogastric reflex
87. Peristaltic rush
88. Progeria
89. Pills
90. Permissive action
91. Chronaxie
92. Motor unit
93. Apoptosis
94. Osmotic dieresis
95. LH surge
96. Somatomedins
97. Hormones of Adrenal cortex
98. Types of diabetes
99. Action of paratharmone on bone
100. Menarche
101. Functions of sodium potassium ATPase pump
102. Mention the normal value of GFR and substance used to measure GFR
103. Enumerate heat loss mechanism
104. Peristalsis
105. What is the role of vitamin K in the body?
106. What is the normal blood calcium level?
107. Name the hormones of adrenal cortex
108. Name the hormones of placenta
109. Cryptorchidism
110. Why are ovarian cycles suppressed during lactation?
111. Extracellular fluid volume and blood volume in an adult male weighing Kg
112. Calcium transporters on the membrane of sarcoplasmic reticulum
113. Mechanism of edema in congestive cardiac failure
114. State a manifestation of Hypocalcemic tetany Give one cause leading to this condition
115. List the Vitamin K-dependent coagulation factors
116. Rh status of mother, father and child for occurrence of Rh incompatibility
117. Role of tropomyosin in muscle contraction
118. Type of acetyl choline receptor on skeletal muscle and its function
119. Hormones secreted by hypothalamus
120. Hormonal defect in (a) Addison's disease (b) Conn's syndrome

121. Membrane transporters involved in clearance of calcium from cytoplasm
122. Concentrations of sodium and potassium in intra and extracellular fluids
123. Phenomena involved in the act of swallowing
124. Role of ATP in relaxation of muscle
125. Draw a schematic diagram of the sarcomere and label its components
126. Opsonins
127. Cells which express Major Histocompatibility complex II
128. Significance of glycosylated hemoglobin
129. Name enzymes in pancreatic secretion
130. Hormonal imbalance causing: (a) acromegaly (b) cretinism
131. Permissive action of hormone
132. Role of Vitamin D in Calcium Homeostasis
133. Contraception in males
134. Corpus luteum
135. Vitamin-K dependent clotting Factors
136. Atonic bladder
137. Functions of skin
138. Secondary active transport
139. Motor unit
140. Refractory period
141. Functions of plasma proteins
142. Non-excretory functions of kidney
143. Myasthenis gravis
144. Stages of spermatogenesis
145. Cystometrogram and its significance
146. Hormones regulating calcium homeostasis
147. Enterohepatic circulation
148. Enzymes involved in digestion of fat
149. Structure of platelets
150. Functions of saliva
151. Fetoplacental unit
152. Importance of dietary fibres
153. Neuromuscular transmission
154. ESR-clinical significance
155. Movements of small intestine
156. Diabetes Insipidus
157. Red cell indices

158. Extracellular edema
159. Functions of Sertoli cells
160. Tests for ovulation
161. Resting membrance potential
162. Define all or none law How is this law applicable in the skeletal and cardiac muscle
163. Name the muscle proteins What is the role of troponin c in muscle contraction
164. Inulin clearance
165. Countercurrent exchanger mechanism in kidney
166. Somatomedin
167. Action of thyroxine on CVS
168. Positive feedback mechanism
169. How does temperature influence spermatogenesis?
170. Effects of oestrogen on the uterine endometrium
171. Dwarfism
172. Functions of lymphocytes
173. Proximal tubular events
174. Acromegaly
175. Hormones produced by placenta
176. Stages of deglutition
177. Renin Angiotensin system
178. Oral contraceptives
179. Chronaxie and Rheobase
180. Significance of glycosylated haemoglobin
181. Hemophilia
182. Differentiate between isotonic and isometric contraction
183. Erythropoietin
184. Compound action potential
185. Gastrin
186. Addisonian crisis
187. Law of gut
188. Intestinal phase of pancreatic secretion
189. Inhibin
190. Functions of prostate gland
191. Functions of saliva
192. Diuretics and their sites of action
193. Steps in synthesis of thyroid hormones
194. Enterohepatic circulation
195. Phagocytosis

196. **Endoplasmic reticulum**
197. **Anticoagulants**
198. **Functions of estrogen**
199. **Importance of Rh typing**
200. **Fat absorption**

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