MBBS First Year Physiology including Biophysics - II Important Question Bank

Essay Questions MBBS 1st Year:

1. **Define blood pressure. Explain in detail short term regulation of blood pressure. Add a note on hypertension.**
2. **Describe the classification, connections and functions of cerebellum.**
3. **Discuss in detail the neural regulation of respiration.**
4. **Describe the optic pathway from the photoreceptors to the visual cortex. Add a note on visual field defects produced by lesions at various levels of the pathway.**
5. **Describe the origin, course, termination and functions of pyramidal tract. Write a note on upper motor lesion.**
6. **Enumerate the descending tracts of spinal cord. Describe in detail the pyramidal tracts. Mention its functions and effects of lesion at different levels.**
7. **Define arterial blood pressure. Describe the nervous regulation of arterial blood pressure.**
8. **Name the functional divisions of the cerebellum. Describe the structure, connections, and functions of cerebellum. Mention two signs of cerebellar lesions.**
9. **Define cardiac cycle. Describe in detail with the help of a diagram. The mechanical changes during cardiac cycle. Add a note on heart sounds.**
10. **Enumerate the ascending tracts in the spinal cord. Describe the pathway for pain in detail. Add a note on referred pain.**
11. **Describe the neural regulation of respiration. Add a note on periodic breathing.**
12. **What are the types of muscular exercise? Discuss the various physiological changes occurring during and after exercise.**
13. **Elucidate how pressure vibrations in the air are perceived as sound.**
14. **Discuss the short term and long term regulation of Arterial blood pressure. Add a note on Neurogenic Hypertension.**
15. **With the help of a diagram, describe the auditory pathway. Add a note on conduction deafness.**
16. **Define Cardiac output. Discuss the factors regulating the cardiac output. Add a note on Fick's principle.**

17. Trace the visual pathway and the effects of lesion at various points in the pathway.
18. Name the functional Division of Cerebellum. Describe the Structure, connections and functions of cerebellum. Mention any two signs of cerebellar lesion.
19. Describe the structure and function of the conducting system of the Heart. List the properties of cardiac muscle.
20. Draw an oxygen dissociation curve & describe how oxygen is transported in the blood. Depict the Bohr's effect.
21. Classify pain. What are the receptors for pain? Describe the dual Pathways for pain. What is Analgesic system in the brain?
22. Define cardiac cycle. Describe in detail the pressure volume changes that occur during a Cardiac cycle with suitable Diagram.
23. Describe the connections and Functions of Hypothalamus.
24. Describe the process of transport of carbondioxide from tissues to lungs.
25. Describe in detail the photochemical mechanism of vision and mechanism of dark adaptation.
26. Define the term Blood pressure. Discuss the determinants and regulation of blood pressure.
27. Trace the pathway for perception of pain. Discuss the descending pain modulatory pathways. Discuss the terms 'Gating of pain' and 'Referred pain'.
28. Define the terms Cardiac output and Total Peripheral resistance and discuss their determinants.
29. What are the neural mechanisms involved in spontaneous breathing? Discuss chemical regulation of respiration. Distinguish between the two types of respiratory failure.
30. Define blood pressure. Discuss in brief the various factors which influences the pressure. Add a note on hypertension.
31. Define cardiac cycle. Describe the sequence of events during cardiac cycle in detail with suitable diagrams.
32. Define cardiac output. Explain the factors regulating cardiac output. Add a note on ejection fraction.
33. Describe in detail the Pyramidal tract. List out the differences between UMN and LMN lesions.
34. Explain the chemical regulation of respiration. Add a note on oxygen toxicity.
35. What is cardiac cycle? Describe the various events in the cardiac cycle.
36. Describe the oxygen transport in blood. Add note on fetal haemoglobin.

Write Short Note Questions MBBS 1st Year:

1. **Auto rhythmicity of heart**
2. **Describe the connections and functions of temporal lobe**
3. **Golgi tendon reflex**
4. **Oxygen-haemoglobin dissociation curve**
5. **Effects of lesions in optic pathway**
6. **Determinants of Blood pressure**
7. **Functions of Hypothalamus**
8. **Baroreceptor reflex**
9. **Auditory pathway with suitable diagram**
10. **Adjustment in respiratory physiology at high altitudes**
11. **Brown Sequard syndrome**
12. **Oxygen dissociation curve**
13. **Neural regulation of respiration**
14. **Functions and tests of cerebellum**
15. **Describe the bipolar limb leads of ECG What is the significance of (a) PR interval (b) ST segment in an ECG?**
16. **Discuss the changes in ventricular volume during different phases of the cardiac cycle with a diagram**
17. **Discuss any two pulmonary function tests which can detect obstructive lung disease**
18. **Trace the pathway for perception of fine touch**
19. **Operant conditioning**
20. **Clinical features of cerebellar lesions**
21. **Define muscle tone and discuss the phenomenon responsible for it**
22. **What conditions lead to alterations of tone?**
23. **Endogenous opioid peptides**
24. **Refractory errors of the eye**
25. **Discuss the phenomena by which sound waves in air induce action potentials in the cochlear nerve**
26. **Ionic basis of the pace-maker potential**
27. **Windkessel effect of aorta**
28. **Illustrate with a diagram, the left ventricular volume and pressure changes**
29. **during a cardiac cycle**
30. **Role of myelin sheath in conduction of nerve impulse**
31. **Functions of hypothalamus**
32. **Clinical features of cerebellar lesions**
33. **Physiological roles of muscle spindle**
34. **Chemical regulation of respiration**

35. **Hamburger's chloride shift**
36. **Role of surfactant in pulmonary function**
37. **Decompression sickness**
38. **Middle ear functions**
39. **Define cardiac output What are the methods to measure the cardiac output?**
40. **Heart sounds**
41. **Define synapse and describe its properties**
42. **Describe the functions of thalamus**
43. **What are the functions of basal ganglia?**
44. **Describe the physiology of speech**
45. **Decerebrate rigidity**
46. **Functions of prefrontal lobe**
47. **Functional Residual capacity and its significance**
48. **Types of Hypoxia and its cause**
49. **Respiratory membrane**
50. **Neural centres for Regulation of respiration**
51. **Dead space**
52. **Pacemaker potential**
53. **Cardiac Index**
54. **Dark adaptation**
55. **Functions of Basal Ganglia**
56. **Vestibulo cerebellum**
57. **Frank-starling's law of the heart**
58. **Cardiac pacemaker potential**
59. **Draw a labelled diagram of a normal ECG in lead II Write a brief note on PR interval**
60. **Non progressive shock**
61. **Travelling waves in the ear**
62. **Ventilation-perfusion ratio**
63. **Caisson disease**
64. **Brown Sequard syndrome**
65. **Functions of Ascending reticular activating system**
66. **Role of purkinje cells of cerebellum**
67. **Non respiratory functions of lung**
68. **What is FRC? How will you measure FRC and its clinical Importance?**
69. **Artificial respiration**
70. **Referred pain and its theories**
71. **Special features of coronary circulation**
72. **Colour Vision**

73. Taste pathway
74. Explain Dark adaptation
75. What is Myasthenia Gravis? Explain the biological basis of it's treatment
76. Brown sequared syndrome
77. Normal ECG in Lead II
78. Regulation of coronary blood flow
79. Compliance of lung
80. Carbon dioxide transport
81. Dysbarism
82. Functions of Thalamus
83. REM sleep
84. Decerebrate rigidity
85. Taste pathway
86. Theories of hearing
87. Theories of Hearing
88. Anterior spino thalamic tract
89. Postural reflexes
90. Aqueous humor
91. Taste pathway
92. Cerebral circulation
93. Color vision
94. CO transport
95. Chemo receptors
96. Endothelins
97. Kirchoff's law and Einthoven's law
98. Excitation contraction coupling in cardiac muscle
99. Triple response in skin
100. Physiological dead space
101. Dysbarism
102. Causes of muscle tone
103. Function of palaeostriatum
104. Climbing, mossy and parallel fibres
105. Control of appetite
106. Induction of sleep
107. Compliance of lungs
108. Brown sequard syndrome
109. Blood brain barrier
110. Surfactant
111. Chronaxie and rheobase
112. Pupillary light Reflexes

113. Pace maker potentials
114. Atrial natriuretic peptide
115. Draw the optic pathway Depict the lesions at various levels
116. Peculiarities of pulmonary circulation
117. Neuro-muscular junction
118. Compare rem and nonrem sleep
119. Triple response
120. Describe formation, circulation and functions of cerebrospinal fluid (CSF)
121. Functions of vestibular apparatus
122. Explain 'Dark Adaptation'
123. Organ of corti
124. Describe decompression sickness
125. Describe chemical control of respiration
126. What is myasthenia gravis Describe the biological basis of its treatment
127. Surfactant
128. Chloride Shift
129. Artificial respiration
130. Taste Pathway
131. Effects of lesion in optic pathway
132. Brown sequard syndrome
133. Functions of Thalamus
134. Pacemaker Potential
135. Regulation of coronary circulation
136. Neuromuscular transmission

Write Short Answer Questions MBBS 1st Year:

1. Define sarcomere Mention normal length of sarcomere
2. Myasthenia gravis
3. Windkissel effect
4. Phonocardiogram
5. Haldane's effect
6. VO Max
7. Babinski sign
8. Alpha block
9. Functions of Aqueous humor

10. **Rinne's Test**
11. **Explain the basic defect in astigmatism and its correction**
12. **Draw a labelled diagram of arterial pulse and explain**
13. **Draw a labelled diagram of pathways for taste**
14. **Rigor mortis**
15. **Phantom limb**
16. **Oxygen debt**
17. **What is Bohr's effect? What is its physiologic significance?**
18. **Draw a normal ECG and label it**
19. **Refractory period**
20. **Define Terms: Chronaxie, Rheobase and utilization time**
21. **Wernicke's aphasia**
22. **Acetyl choline**
23. **Parkinson's disease: Features**
24. **Rapid – Eye movement sleep**
25. **Anti – G Suit**
26. **Clinical significance of electro encephalo gram**
27. **Chloride shift**
28. **Jugular venous pulse**
29. **Contents of middle ear**
30. **Functions of placenta**
31. **Tracing of arterial pulse**
32. **Reynold's number**
33. **Pre load and after load in the heart**
34. **Sneezing reflex**
35. **Denervation hypersensitivity**
36. **Reciprocal inhibition**
37. **Consolidation of memory**
38. **Formation of cerebrospinal fluid**
39. **Gustatory receptors**
40. **Dark adaptation**
41. **Broca's Area**
42. **Spinal Animal**
43. **SCUBA diving**
44. **Cardiac Index**
45. **Bohr's effect**
46. **Inverse stretch reflex**
47. **Respiratory distress syndrome**
48. **Thalamic syndrome**
49. **Unipolar limb leads**

50. Astigmatism
51. State Frank Starling's law of the heart
52. List short term regulation of blood pressure
53. Intrapleural pressure
54. State dead space and its normal value
55. Define Histotoxic hypoxia with an example
56. What is Bell – Megendie law?
57. Four functions of Reticular activating system
58. Functions of prefrontal lobe
59. What is Endo chochlear potential?
60. Delta waves in EEG
61. Draw the diagram of alveocapillary membrane and write the thickness of it
62. What is SCUBA?
63. Who discovered J receptors? What is its Physiological significance?
64. What are otolith organs?
65. What is alpha block?
66. Define Frank-Starling law
67. What is Monroe Kellie Doctrine law?
68. What is Stereognosis? Where is its centre?
69. What are the functions of frontal lobe?
70. What are the mechanoreceptor? Give example
71. What is summation? Mention its types
72. What are Cholinergic & Adrenergic receptors?
73. Draw the structure of rods & Cones
74. What is the difference between the Spasticity and Rigidity
75. Define histotoxic hypoxia
76. Astigmatism
77. Ocular dominance columns
78. Dicrotic notch
79. Cardiac reserve
80. Reynold's number
81. J point
82. Extrasystole
83. Bell-magendie law
84. Cog-wheel rigidity
85. Betz cells
86. Homunculus
87. Anomic aphasia
88. Timed vital capacity

89. Pneumotaxic centre
90. Asphyxia
91. Muscles of inspiration
92. P
93. End diastolic volume
94. Attenuation Reflex
95. Perimetry
96. Summation
97. Referred pain
98. Types of memory
99. Thalamic syndrome
100. Kluver Bucy syndrome
101. What is P?
102. What are the types of hypoxia?
103. Mention common refractory errors of the eye
104. SA node as pacemaker
105. PR interval
106. Reflex arc
107. Functions of cerebrospinal fluid
108. What is righting reflex?
109. Name the nuclei responsible for hunger and satiety in human being
110. What is referred pain?
111. List the calcium transporters on the sarcoplasmic reticular membrane in the ventricular Muscle
112. State Starling's law of the heart
113. What is the effect of , diphosphoglycerate on the oxygen-hemoglobin dissociation curve? Does it help in loading or unloading of oxygen?
114. What are the types of hypoxia?
115. Region of the cochlea which vibrates most for the highest sound frequency in the audible range
116. Visual field defect when the optic chiasma is cut in the centre
117. State the refractive error in astigmatism How is it corrected?
118. What is 'Blind spot'?
119. Receptors for vestibular sensation
120. Name of tracts made up by second order neurons in the pathway for (a) fine touch (b) pain
121. List the types of shock
122. Define Preload and state its effect on cardiac function
123. Baroreceptor reflex

124. What is myocardial infarction? State one ECG change in this condition
125. Role of myelin sheath in conduction of nerve impulse
126. Conditions where Plantar response is 'extensor'
127. Finding in Weber's test in conduction deafness of the left side
128. Muscle actions responsible for (a) normal expiration (b) forced expiration
129. Oxygen carrying capacity of blood
130. Hypoxic vasoconstriction – where does it occur and what are its complications?
131. Heart sounds
132. Waves of ECG in Lead II
133. Different types of hypoxia
134. Aphasia
135. Stages of sleep
136. Optic pathway
137. Functions of ascending reticular activating system
138. Components of vestibular apparatus
139. Features of Parkinson's disease
140. Functions of middle ear
141. Dead space
142. Hering Breuer reflex
143. Korotkoff sounds
144. Draw a diagram of the pathway of crude touch and label it
145. Functions of CSF
146. Fluent aphasia
147. Receptor potential
148. Motor homunculus
149. Attenuation reflex
150. Taste pathway
151. Accommodation reflex
152. Conducting system of the heart
153. Artificial respiration
154. Conditioned reflexes
155. Surfactant
156. Central analgesic system
157. VO Max
158. Functions of CSF
159. Decompression sickness
160. Babinski's sign and its clinical significance

161. **Dark adaptation**
162. **Periodic breathing**
163. **Pacemaker potential**
164. **Cardiac reserve**
165. **Referred pain theories**
166. **Features of Shock**
167. **Peak expiratory flow rate**
168. **Oxygen debt**
169. **Mass Reflex**
170. **Impedance matching**
171. **Phasic changes in coronary blood flow**
172. **AV nodal delay**
173. **Properties of reflex**
174. **Splanchnic circulation**
175. **Functions of middle ear**
176. **Nitrogen narcosis**
177. **Effects of positive 'g'**
178. **Papez circuit**
179. **Heart sounds**
180. **Differentiate REM and NREM sleep**
181. **Putamen circuit of basal ganglia**
182. **Caisson disease**
183. **Hering - Breuer inflation reflex**
184. **Einthoven's law**
185. **Endo cochlear potential**
186. **Describe the normal waves in electro encephalogram (EEG)**
187. **Presbyopia**
188. **Bainbridge reflex**
189. **Transpulmonary pressure**
190. **Wernicke's and global aphasia**
191. **Taste receptors**
192. **Functions of utricle and saccule**
193. **Sleep-Wake theory**
194. **Mechanism of accommodation**
195. **P-R interval**
196. **Trichromatic theory of color vision**
197. **Mean arterial pressure**
198. **Reward and punishment centers**
199. **Changes in cardiac output during exercise**
200. **Surfactant**