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MBBS First Year Physiology including Bio-Physics Paper-II Important Question Bank

Essay Questions:

1. Describe the Arterial Blood Pressure. Describe nervous regulation of Arterial Blood Pressure.
2. Name the functional divisions of the Cerebellum. Describe the structure, connections and functions of cerebellum .Mentions two signs of cerebellar lesions.
3. Describe the physiological roles of the different types of leucocytes circulating in blood. Add a note on functions of lymphocytes in viral infection.
4. Name the functional Division of Cerebellum. Describe the Structure, connections and functions of cerebellum. Mention any two signs of cerebellar lesion.
5. Draw an oxygen dissociation curve & describe how oxygen is transported in the blood.
   Depict the Bohr's effect.
6. Classify pain. What are the receptors for pain? Describe the dual Pathways for pain. What is Analgesic system in the brain?
7. List the ascending tracts in the spinal cord and discuss the tracts of posterior column with diagram.
8. Define cardiac output. Discuss the factors affecting cardiac output and any one method of determination. What is the significance of ejection fraction in ventricular functioning?
9. Describe the connections and Functions of Hypothalamus.
10. Define cardiac cycle. Describe in detail the pressure volume changes that occur during a Cardiac cycle with suitable Diagram.
11. Trace the pathway for perception of pain. Discuss the descending pain modulatory pathways. Discuss the terms 'Gating of pain' and 'Referred pain'.

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12. Define the term Blood pressure. Discuss the determinants and regulation of blood pressure
13. Describe in detail the photochemical mechanism of vision and mechanism of dark adaptation.
14. Describe the process of transport of carbondioxide from tissues to lungs.
15. What are the neural mechanisms involved in spontaneous breathing? Discuss chemical regulation of respiration. Distinguish between the two types of respiratory failure.
16. Define the terms Cardiac output and Total Peripheral resistance and discuss their determinants

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17. Define cardiac cycle. Describe the sequence of events during cardiac cycle in detail with suitable diagrams
18. Define blood pressure. Discuss in brief the various factors which influences the pressure. Add a note on hypertension.
19. Define cardiac output. Explain the factors regulating cardiac output. Add a note on ejection fraction.
20. Describe in detail the Pyramidal tract. List out the differences between UMN and LMN lesions.
21. . Explain the chemical regulation of respiration. Add a note on oxygen toxicity.
22. Describe the oxygen transport in blood. Add note on fetal haemoglobin.
23. What is cardiac cycle? Describe the various events in the cardiac cycle.
24. Define blood pressure. Explain in detail short term regulation of blood pressure. Add a note on hypertension.
25. Discuss in detail the neural regulation of respiration.
26. Discuss in detail the neural regulation of respiration.
27. Describe the origin, course, termination and functions of pyramidal tract. Write a note on upper motor lesion.
28. 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.
29. Describe the structure and function of the conducting system of the Heart. Add a note on Pacemaker Potential.
30. Describe the neural regulation of respiration. Add a note on periodic breathing.
31. Describe the Arterial Blood Pressure. Describe nervous regulation of Arterial Blood Pressure.
32. Name the functional divisions of the Cerebellum. Describe the structure, connections and functions of cerebellum .Mentions two signs of cerebellar lesions.

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Short Answer Questions:

1. Normal ECG in Lead II
2. Regulation of coronary blood flow
3. Compliance of lung
4. Carbon dioxide transport
5. Dysbarism
6. Functions of Thalamus
7. REM sleep
8. Decerebrate rigidity
9. Taste pathway
10. Theories of hearing
11. State Frank Starling's law of the heart
12. List short term regulation of blood pressure
13. Intrapleural pressure
14. State dead space and its normal value
15. Define Histotoxic hypoxia with an example
16. What is Bell – Megendie law?
17. Four functions of Reticular activating system
18. Functions of prefrontal lobe
19. What is Endo chochlear potential?
20. Delta waves in EEG
21. Non respiratory functions of lung
22. What is FRC? How will you measure FRC and its clinical Importance?
23. Artificial respiration
24. Referred pain and its theories
25. Special features of coronary circulation
26. Colour Vision
27. Taste pathway
28. Explain Dark adaptation
29. What is Myasthenia Gravis? Explain the biological basis of it's treatment
30. Brown sequared syndrome

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31. **Draw the diagram of alveocapillary membrane and write the thickness of it**
32. **What is SCUBA?**

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33. Who discovered J receptors? What is its Physiological significance?
34. What are otolith organs?
35. What is alpha block?
36. Define Frank-Starling law
37. What is Monroe Kellie Doctrine law?
38. What is Stereognosis? Where is its centre?
39. What are the functions of frontal lobe?
40. What are the mechanoreceptor? Give example
41. What is summation? Mention its types
42. What are Cholinergic & Adrenergic receptors?
43. Draw the structure of rods & Cones
44. What is the difference between the Spasticity and Rigidity
45. Define histotoxic hypoxia
46. Frank-starling's law of the heart
47. Cardiac pacemaker potential
48. Draw a labelled diagram of a normal ECG in lead II Write a brief note on PR interval
49. Non progressive shock
50. Travelling waves in the ear
51. Ventilation-perfusion ratio
52. Caisson disease
53. Brown Sequard syndrome
54. Functions of Ascending reticular activating system
55. Role of purkinje cells of cerebellum
56. III Short Answers on :
57. Astigmatism
58. Ocular doance columns
59. Dicrotic notch
60. Cardiac reserve
61. Reynold's number
62. J point
63. Extrasystole
64. Bell-magendie law
65. Cog-wheel rigidity
66. Betz cells
67. Homunculus

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68. Anomic aphasia

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69. Timed vital capacity
70. Pneumotaxic centre
71. Asphyxia
72. Chemical regulation of respiration
73. Functions of middle ear
74. Hypovolumic shock
75. Ventilation-Perfusion ratio
76. Parkinson's disease with treatment
77. Classification of nerve fibres
78. Heart Sounds
79. Errors of refraction with correction
80. Transport of oxygen in blood
81. Waves of EEG
82. III Short Answers on:
83. Reynold's number
84. Summation
85. Herring - Breuer inflation reflex
86. Taste receptor
87. PR interval in ECG
88. Chronaxie
89. CSF formation
90. Phasic changes in coronary circulation
91. FEV
92. Dopae
93. Functional Residual capacity and its significance
94. Types of Hypoxia and its cause
95. Respiratory membrane
96. Neural centres for Regulation of respiration
97. Dead space
98. Pacemaker potential
99. Cardiac Index
100. Dark adaptation
101. Functions of Basal Ganglia
102. Vestibulo cerebellum
103. Muscles of inspiration
104. End diastolic volume

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105. Attenuation Reflex

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106. Perimetry
107. Summation
108. Referred pain
109. Types of memory
110. Thalamic syndrome
111. Kluver Bucy syndrome
112. Ionic basis of the pace-maker potential
113. Windkessel effect of aorta
114. Illustrate with a diagram, the left ventricular volume and pressure changes
115. during a cardiac cycle
116. Role of myelin sheath in conduction of nerve impulse
117. Functions of hypothalamus
118. Clinical features of cerebellar lesions
119. Physiological roles of muscle spindle
120. Chemical regulation of respiration
121. Hamburger's chloride shift
122. Role of surfactant in pulmonary function
123. List the calcium transporters on the sarcoplasmic reticular membrane
in the
124. ventricular Muscle
125. State Starling's law of the heart
126. What is the effect of , diphosphoglycerate on the oxygen-hemoglobin
127. dissociation curve? Does it help in loading or unloading of oxygen?
128. What are the types of hypoxia?
129. Region of the cochlea which vibrates most for the highest sound frequency
130. in the audible range
131. Visual field defect when the optic chiasma is cut in the centre
132. State the refractive error in astigmatism How is it corrected?
133. What is 'Blind spot'?
134. Receptors for vestibular sensation

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135. Name of tracts made up by second order neurons in the pathway for a fine touch b pain

136. Decompression sickness

137. Middle ear functions

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138. Define cardiac output What are the methods to measure the cardiac output?
139. Heart sounds
140. Define synapse and describe its properties
141. Describe the functions of thalamus
142. What are the functions of basal ganglia?
143. Describe the physiology of speech
144. Decerebrate rigidity
145. Functions of prefrontal lobe
146. What is P?
147. What are the types of hypoxia?
148. Mention common refractory errors of the eye
149. SA node as pacemaker
150. PR interval
151. Reflex arc
152. Functions of cerebrospinal fluid
153. What is righting reflex?
154. Name the nuclei responsible for hunger and satiety in human being
155. What is referred pain?
156. List the types of shock
157. Define Preload and state its effect on cardiac function
158. Baroreceptor reflex
159. What is myocardial infarction? State one ECG change in this condition
160. Role of myelin sheath in conduction of nerve impulse
161. Conditions where Plantar response is 'extensor'
162. Finding in Weber's test in conduction deafness of the left side
163. Muscle actions responsible for a normal expiration b forced expiration
164. Oxygen carrying capacity of blood
165. Hypoxic vasoconstriction – where does it occur and what are its complications?
166. Brown Sequard syndrome
167. Oxygen dissociation curve
168. Dead space

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169. Hering Breuer reflex

170. Korotkoff sounds

171. Draw a diagram of the pathway of crude touch and label it

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172. Functions of CSF
173. Fluent aphasia
174. Receptor potential
175. Motor homunculus
176. Attenuation reflex
177. Taste pathway
178. Neural regulation of respiration
179. Functions and tests of cerebellum
180. Heart sounds
181. Waves of ECG in Lead II
182. Different types of hypoxia
183. Aphasia
184. Stages of sleep
185. Optic pathway
186. Functions of ascending reticular activating system
187. Components of vestibular apparatus
188. Features of Parkinson's disease
189. Functions of middle ear
190. Auditory pathway with suitable diagram
191. Adjustment in respiratory physiology at high altitudes
192. Accommodation reflex
193. Conducting system of the heart
194. Artificial respiration
195. Conditioned reflexes
196. Surfactant
197. Central analgesic system
198. VO Max
199. Functions of CSF
200. Decompression sickness
201. Babinski's sign and its clinical significance
202. Functions of Hypothalamus
203. Baroreceptor reflex
204. Dark adaptation
205. Periodic breathing
206. Pacemaker potential
207. Cardiac reserve

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208. Referred pain theories

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209. Features of Shock
210. Peak expiratory flow rate
211. Oxygen debt
212. Mass Reflex
213. Impedance matching
214. Effects of lesions in optic pathway
215. Deterants of Blood pressure
216. Phasic changes in coronary blood flow
217. AV nodal delay
218. Properties of reflex
219. Splanchnic circulation
220. Functions of middle ear
221. Nitrogen narcosis
222. Effects of positive 'g'
223. Papez circuit
224. Heart sounds
225. Differentiate REM and NREM sleep
226. Auto rhythmicity of heart
227. Describe the connections and functions of temporal lobe
228. Taste receptors
229. Functions of utricle and saccule
230. Sleep-Wake theory
231. Mechanism of accommodation
232. P-R interval
233. Trichromatic theory of color vision
234. Mean arterial pressure
235. Reward and punishment centers
236. Changes in cardiac output during exercise
237. Surfactant
238. Golgi tendon reflex
239. Oxygen-haemoglobin dissociation curve
240. Putamen circuit of basal ganglia
241. Caisson disease
242. Hering - Breuer inflation reflex
243. Einthoven's law
244. Endo cochlear potential

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245. Describe the normal waves in electro encephalogram EEG

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246. Presbyopia
247. Bainbridge reflex
248. Transpulmonary pressure
249. Wernicke's and global aphasia
250. Compliance
251. Hypoxic hypoxia
252. Pacemaker potential
253. Stages of sleep
254. Functions of cerebellum
255. Triple response
256. Bain bridge reflex
257. Residual volume
258. Artificial respiration
259. Functions of middle ear
260. Features of Parkinsonism
261. Papez circuit
262. Name two facilitatory and inhibitory neurotransmitters and their sites of action
263. Saltatory conduction
264. Sensations carried by posterior column
265. Ventricular action potential
266. Tract of Gall and Burdach
267. Venous return
268. Lung volumes and capacities
269. Fetal circulation
270. Clinical uses of ECG
271. Types of deafness
272. Blood – brain barrier
273. Anaphylactic shock
274. Red – green color blindness
275. Reflex arc
276. Primary taste sensations
277. Functions of limbic system
278. Physiological dead space
279. Triple response
280. Non-respiratory functions of lungs

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281. Mechanism of receptor potential

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282. Factors regulating cardiac output
283. Anatomic dead space
284. The law of projection
285. Types of hypoxia
286. Antegrade amnesia
287. Draw a normal electrocardiogram ECG What is Einthoven's triangle?
288. Respiratory exchange Ratio
289. Attenuation reflex
290. Mean arterial pressure
291. Reynold's number
292. Astigmatism
293. Functions of thalamus
294. Hypoxic Hypoxia
295. Thalamic syndrome
296. Surfactant
297. Sino aortic reflex
298. Myocardial Infarction
299. Measurement of dead space
300. Haldane effect
301. Ventilation perfusion ratio
302. Give two examples of high cardiac output state and
303. low cardiac output state
304. AV nodal delay
305. Synaptic plasticity
306. Prefrontal lobotomy
307. Accommodation reflex pathway
308. Travelling wave theory of hearing
309. Taste pathway
310. Brown – sequard syndrome
311. Histotoxic hypoxia
312. Physiology of fetal circulation before and after birth
313. Special features of coronary circulation
314. Caisson's disease
315. Implicit memory
316. Stages of sleep cycle

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317. Denervation hypersensitivity

318. Deterants of force of contraction of heart

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319. Bohr effect
320. Jugular venous pulse
321. Endogenous opioids
322. Mouth to mouth respiration
323. Heart block
324. Respiratory distress syndrome of new born
325. Non respiratory functions of the Lung
326. Oxy –Haemoglobin Dissociation Curve
327. Heart Sounds
328. Functions of Basal Ganglia
329. Name Four properties of Synapse
330. Receptor Potential
331. Reynold's Number
332. Artificial Respiration
333. Vital capacity
334. Errors of Refraction
335. Functions of Thalamus
336. Papez Circuit
337. Functions of Cerebro Spinal Fluid
338. Bell Magendie Law
339. Referred pain
340. Factors affecting cardiac output
341. Pacemaker potential
342. ECG –Lead –II
343. Auditory Pathway
344. Functions of cerebellum
345. Lung Compliance
346. Exchange Vessels
347. Functions of parietal lobe
348. Waves of EEG
349. Referred pain
350. Circadian Rhythm
351. Aphasia
352. Kluver Bucy Syndrome
353. Homunculus
354. Sensation carried by posterior column

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355. Chloride Shift

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356. Changes that occur in acclimatization
357. Draw a normal spirogram and write about the volumes and capacities of lung
358. Polysomnography
359. Functions of Hypothalamus
360. Peculiarities of pulmonary circulation
361. Hypovolemic Shock
362. Cardiopulmonary resuscitation
363. Control of Appetite
364. Colour vision

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