Test 1 Practice Answers : Raj, Waker, & Balliett

1.	Cell
2.	Chromatin, nucleolus, nuclear sap, and nuclear membrane
3.	Protoplasm
4.	Reproduction of cells, hereditary characteristics, and controlling cell work
5.	Protein and DNA
6.	Protein and RNA
7.	Semi fluid colloidal solution
8.	Matrix, organelles, and inclusion
9.	Formation and release of energy, synthesis of protein, and growth and mobility
10.	Living substances responsible for particular functions
11.	Non-living substances such as pigments, lipids and carbohydrates
12.	Colloidal solution between the organelles and inclusion
13.	Membranous, and Nonmembranous; A plasma Membrane
14.	Electron microscope
15.	Mitochondria
16.	Rough endoplasmic (ribosomes, protein synth), and smooth endoplasmic (lipid synth)
17.	1
18.	Cell respiration forming chemical energy via enzymes
19.	Crista
20.	Golgi apparatus
21.	Degradation of materials
22.	Detoxification
23.	Adds carbohydrates to proteins, packs product for export, and forms cell membranes
24.	Cytoskeleton of the cells
25.	Cell division
26.	3 layers, dense inner and outer layers, a pale middle layer
27.	Carbohydrates 10%, Lipids 30%, and Proteins 60%
28.	Product coming in
29.	Pinocytosis (cell drinking, small particles and water) and Phagocytosis (cell eating, large)
30.	Antibodies and hormone receptors
31.	Entrance and transportation of lipid soluble substances
32.	Structural stability
33.	Exocytosis
34.	Apical, lateral, and basal
35.	Projections for added transport and absorption
36.	Projections for motility and increased movement of particles and fluid

37.	Long microvilli that can also absorb fluids
38.	9 pairs of dinein arms
39.	Microtubules, Connected by the radian spokes
40.	Epithelial, connective, muscular, and nervous
41.	Hereditary disease with immobile cilia, situs inversus, and bronchiectasis
42.	Occluding (physical barrier), Anchoring (microtubule and cell attachment), and Communicating (cell to cell communication)
43.	Bronchiectasis
44.	Situs inversus
45.	Selective barrier, secretion, and absorption
46.	Transportation via cilia, and reception of sensory stimuli
47.	Only cells, a-vascular
48.	Regeneration
49.	Epithelioid tissue
50.	By cell arrangement, shape, and layering
51.	Leydig cells and the Islets of Langerhans
52.	Type 4 collegen fibers formed by the epithelial cells
53.	Type 3 collegen formed by underlying connective tissue
54.	Structural attachment, compartmentalism, filtration
55.	Diabetes (blood vessels), and Glomerulonephritis
56.	Secretion
57.	Secretion and Absorption
58.	Gall bladder; uterine tube (ciliated)
59.	Pseudo stratified columnar ciliated epithelium
60.	Their most superficial layer
61.	Keratinized (the skin) and Non-keratinized (esophagus)
62.	Layers topped with pear shaped cells under umberal cells.
63.	Accommodation (Expansion) and Protection
64.	The Urinary system.
65.	Secret mucous into tubes and found in Pseudo stratified epithelium
66.	Endothelium
67.	Exocrine, Endocrine, and Paracrine
68.	Serous (watery), and mucous (viscous and slimy), seromucous (both; mixing)
69.	Paracrine
70.	Endocrine
71.	Exocrine

72. Convey 0_2, nutrients, hormones; Remove waste and CO2; Thermal regulation
73. The ratio of cells to plasma in the blood. (45% to 55%)
74. Water (91%), Protein (8%), and misc. (1%, Gases, nonproteins, electrolytes, nutrients)
75. RBC's, Leukocytes, and platlets
76. Fibrogen, Albumin, and globulin
77. Non-immunoglobulin
78. Secreted by the liver, used for blood clotting and clot dissolution
79. Formed by the liver, exerts osmotic pressure on blood vessel walls.
80. Antibodies secreted by plasma cells (IgG and IgE)
81. 4 to 5 million per mm3
82. 120 days
83. Colony forming pluripotent stem cell, reticulocyte, and then erythrocyte.
84. No nucleus
85. Polycythemia, anemia
86. Polycythemia vera
87. Granulocytes, agranulocytes
88. Holocrine
89. Neutrophils 60%, Eosinophils 1%, and Basophils 0.5%
90. Lymphocytes 35%, Monocytes 3.5%
91. They have a very limited number of granules making the appearance of lack.
92. Basophils
93. When stained, purple multisized granulous obscure the nucleus
94. Eosinophilic chemotactic factor, stimulates the formation of IgE, contain hydrolytic substances of histamine, and are the Slow Reacting Substance
95. Neutrophils
96. Bilobed
97. Phagocytosis, acute inflammation
98. 8-12 hours, escape to interstitial site of inflammation
99. Momma (Basophil), and Sonny (Eosinophil); Eosinophils secrete peroxidase
100. Allergic parasitic infestation and general allergeric reactions
101. Monocytes
102. 200,000 to 400,000
103. Nucleus, 10 days, megakaryocytes
104. Monocytes
105. Clotting, clot retraction, and clot dissolution
106. Lymphoid tissue

107. 16 hours
108. Plasma cells, antibody mediated immunity
109. Long, Cytotoxic, T-Helper, and TS (suppressor)
110. Cell mediated immunity
111. Thrombocytopenia
112. Thrombocytosis
113. Cause b-cell differentiation
114. Actively kill antigens
115. Slow down the B cells
116. Smooth muscle
117. The cell wall of muscle fibers
118. Homogenous, bundles or sheets
119. Nerves do not directly connect, rather neurotransmitters diffuse via the peristalysis
120. Muscle, Fasicle, Fiber, Myofiber, and Myofilaments
121. Epimysium, perimysium, and endomysium
122. On the periphery
123. Actin (thin), myosin (thick)
124. Motor End Plate
125. Muscle spindle or tendon spindle
126. A-Band, actin and myosin (the myosin makes it dark)
127. I-Band, Actin (thus light)
128. Z disk
129. Area between the two z-disks, a functional unit
130. Attach to M-line, found in H-band
131. T-tubule that invaginates and extends the sarcolema forming a triad with the sacroplasmic reticulum, plays an important role in contraction
132. I band shortens, a band remains unchanged, H band narrows, entire sacromere shortens
133. A-I Junction
134. Neither
135. Spontaneous and rhythmic contraction
136. Center of cell
137. Branched
138. Intercalated disks
139. Mitochondria
140. Diads, level of the Z line
141. Low electrical resistance, rapid spread of excitation

142. Selective permeability
143. Endocardium, myocardium, pericardium
144. Internal elastic lamina, external elastic lamina
145. Endothelium, subendothelium, and internal elastic lamina
146. College fibers
147. Conducting and large: Aorta and subclavian
148. Blood vessels supplying larger vessels in the tunic adventitia (elastic, muscular)
149. Nervi vascularis
150. Tunica media, elastic fibers in fenestrated sheets with fibroblasts
151. Medium and distributing
152. Internal and external elastic lamina
153. Smooth muscle
154. Arterioles, pre-capillary sphincters
155. All 3 layers, thin layers, no internal elastic lamina in the smaller arterioles
156. Peripheral adema
157. Small, single layer epithelium, 1 to 3 cells, surrounded by BM, have a pericyte
158. Phagocytosis of particles and smooth muscle creation
159. Fenestrated, continuous, and discontinuous
160. Holes in the wall with thin covering diaphragms: endocrine glands
161. 2 celled lumen, uniform, with pericyte between BM and endothelium: muscles & lung
162. Sinusiods, large and irregularly shaped: liver & spleen
163. Sel. Permability, synthetic and metabolic, blood homeostasis, and thrombic functions
164. Post-capillary
165. Tunica media and tunica adventitia
166. All 3 layers, circularly arranged smooth muscle in tunica media
167. All 3 layers, longitudinal smooth muscle in tunica adventitia
168. Lymphatic vessels
169. Connective
170. Encapsulated (lymphnodes, spleen, thymus), partially (palatine tonsil), non (Wall of GI)
171. Thymus (T cells), bone marrow (B cells): lymphocytes differentiate in immunocompetent
172. Immunocompetent cells organize around reticular fibers: tonsil, lymph nodes, spleen
173. Cell mediated immunity
174. Humoral (antibody) immunity
175. Plasma cells and memory cells
176. Secrete anti-bodies
177. Programming, proliferation of T lymphocytes, and production of thymosin

178. Protects developing lymphocytes in the thymus from antigens
179. Endothlium, basal lamina, perivascular CT, basal lamina, epithelioreticular cells
180. In the cortex
181. Superior mediastinum
182. Yes
183. Epithelioreticular cells and their branching cytoplasm
184. Closely packed small lymphocytes, no follicle
185. Large lymphocytes and thymic corpuscles
186. Thymocytes
187. Flattened reticular cells, concentric layers, secrete thymosin
188. Partially encapsulated, stratified squamous epithelium
189. Crypts
190. Septa
191. Salivary corpuscles, lymphocytes that have migrated into the epithelium
192. Proliferation and clone selection site for B and T cells
193. Hyperslenism, (anemia, leucopenia, and thrombocytopenia)
194. Lymphoid organ that filters blood for antigens
195. PALS, Periarterial lymphatic sheath
196. Malpighian (splenic) corpuscles
197. Splenic sinuses
198. White pulp
199. Splenic cords, meshwork of reticular cells, fibers, plasma cells, and blood cells
200. Passage of bloodcells into the sinusoid and vice versa
201. Discountinous capillaries and basal lamina
202. Proliferation of lymphocytes in germinal centers
203. Medullary sinuses
204. Reticular fibers, cells, and macrophages; not an empty space
205. Slow down lymph flow, heavy filtration, phagocytosis by macrophages
206. Efferent vessels
207. Follicle
208. Primary, the edge, small lymphocytes w/ no germinal center
209. Secondary, center due to germinal center
210. Corona
211. Deep cortex, no follicles
212. Afferent lymph vessels
213. Hilus

214. Subcapsular lymph sinus
215. Subcapsular lymph sinus, trabeculae, trabecular sinus, medullary sinus
216. Lamina rara interna (L. lucida/cell side), L. densa, L. rara externa (L. fibroreticularis)
217. Type IV
218. Unspecialized
219. Loose (areolar), Dense irregular, Dense regular, adipose, and reticular
220. Motile (Fibroblasts and Macrophages), Non-motile (Adipocyte, plasma cell, mast cell)
221. Lymphocytes, monocytes, & granulocytes
222. Fibroblasts and adipose
223. Make or remove collagen: collagenase
224. Histocytes
225. Eliminate organisms, cellular debris, particulate matter, rbc's in spleen. Compliment proteins for antibodies, and cellular source of hemopoietic growth factors.
226. Common human fat, triglycerides, storage site for energy, and cushioning of organs
227. Rich capillary supply uncommon in humans for temperature regulation (sympathetic), found in infants and hibernating species.
228. Scapula, mediastinum, and along aorta
229. Plasma cells
230. Clock face / Wagon Wheel
231. Rough Endoplasmic reticulum, protein formation (so you can make antibodies duh!)
232. Mitocondria, golgia apperatus, and secretory granules
233. Heparin and histamine
234. Allergic reaction and acute inflammatory responses
235. Clearing plasma lipids
236. Glycoprotein and proteoglycan gel
237. Collegen
238. Triple helix formation, trimers, alpha chains (tropocollegen)
239. Groupings, meshworks, fibers
240. Crosslinked
241. 14
242. 1 through 4
243. Type I
244. Bone, Cartilage
245. Binding of tissues, protection and nourishments of bonded structures, and fluid storage
246. Beneath skin, around blood vessels, muscles and nerves
247. Dense regular connective tissue

248. Tendons and ligaments: strong flexible support
249. Sites where firm packing and binding are needed, dermis of skin
250. 1½ times
251. Collagen, very small bundles
252. Support to soft organs
253. Signet ring, fat globules
254. Type II – Hyaline and Elastic. Type I – Fibrocartilage
255. Mesenchymal cells, chondroblasts, chondocytes
256. Same refractive index as the matrix
257. Fibroblasts, perichondrium
258. Fibrous layer, chondrogenic layer
259. Primary lacuna
260. When a chondrocyte divides multiple times and is separated by a thin matrix.
261. Secondary lacuna
262. Young chondorcytes
263. Proteoglycans
264. Attracts water (compression), repel each other expanding volume (diminished force)
265. Chondrocalcin
266. Chondronectin (sticky nectar!)
267. Type I Collagen
268. Chondroblasts
269. Areas that need tensile, shear, and compression strength
270. IVD, syphysis's, menisci of knee
271. Contains elastic fibers and sheets of elastic material
272. Perichondrium
273. External ear, nose, larynx
274. Calcifies
275. Genetic expression
276. Stack of 5 plates of flattened memebraneous sacs
277. Cisternae
278. N-acetyl-glucosamine
279. Golgi-apperatus
280. Acid hydrolases, pH 5.0
281. ATP protein pump in the lysosomal membrane
282. Hormones & Neurotransmitters via clathrin coated pits
283. Invaginates

284. Clathrin coated pits (plama membrane site)
285. Proteins, three-legged triskelion, polyhedral coat
286. Macrophages and Neutrophils
287. Vitamin C
288. Oxidative phosphorylation
289. Divides itself into two.
290. Double stranded DNA, mother
291. Liver, catalase
292. Microfilaments, intermediate filaments, and microtubules
293. Rope-like/Lattice-like, mechanical stress and shear
294. No energy
295. Keratin, neurofilaments, and vimentin
296. Epithelial cells
297. Axons and dendrites
298. Fibroblasts, macrophages, and muscle cells
299. 8 tetramers
300. Microtubles
301. Respiratory tract, oviduct
302. Spermatozoon
303. Motility, chromosomal movement, vesicle transport, and vesicle secretion
304. Axoneme
305. Kidney, bladder, and intestines
306. Desmosomes, hemidesmosomes, focal contacts, and adhesion belts
307. Cell to cell
308. Keratin intermediate filaments
309. Desmosomes and adhesion belts
310. Cells to basal lamina (Cell-matrix junction)
311. IF
312. Focal contacts
313. Cell-matrix, actin
314. Cadherins
315. Cell-Cell, contractile actin network (thus can tighten!)
316. Connexon
317. Calcium dependent, adhesion molecules
318. Selectins
319. Turgor, resists tissue compression

320. Negative, Sodium, Water
321. WBC's
322. Filtration in kidney, bind signaling molecules
323. Bottle washer, sticky
324. Glycine
325. Hydroxyproline, hydroxylysine, vitamin C
326. Procollegen, tropocollagen
327. Scurvy
328. Lean muscle mass
329. When calcium binds to calmodulin, SmMLCK phosphorylates the myosin.
330. Smooth muscle light chain kinase
331. Locomotion, heat production, and protein reserve during fasting
332. Sponteneously, ATP and magnesium
333. Helical actin filaments
334. F-actin, tropomyosin, and troponin
335. Six
336. Fills groves of actin thus stabilizing, stiffening, and covering active sites
337. Found at end of tropomyosin that calcium binds to, moving tropomyosin off active
338. Light chains, myosin heads
339. The ATPase activity
340. Titin (strong for thick!)
341. Nebulin
342. A low calcium concentration
343. The A band
344. Sliding filament theory