

# **BIOCHEMISTRY**

## **Fat Soluble :**

- Vitamin A - Retinol
- Vitamin D - Cholecalciferol
- Vitamin E - Tocopherol
- Vitamin K

## **Water Soluble :**

All Vitamin B & C - Ascorbic acid

- Vitamin B1 - Thiamine
- Vitamin B2 - Riboflavin
- Vitamin B3 - Niacin
- Vitamin B5 - Pantothenic acid
- Vitamin B6 - Pyridoxine
- Vitamin B7 - Biotin
- Vitamin B9 - Folic acid
- Vitamin B12 - Cobalamine

## Hints

Actinomycin D-----DNA

HMP shunt -----NADPH

Sickle cell -----point mutation

Codon-----3 pairs

1. *In starvation there is an - Increase in Pyruvatekinase*
2. *Musty odour urine is seen in - Phenyl ketanuria*

3. *Vitamin necessary for post transitional modification - Vit.K*
4. *Decarboxylation needs - Vit.B6*
5. *Power house of the cell - Mitochondria*
6. *Protein synthesis takes place in - Endoplasmic reticulum*
7. *Daily secretion of bile by liver is amount of - 500-1000ml*
8. *Haemorrhagic disease of Newborn is seen due to deficiency of - Vit.K*
9. *Acrodermatitis enteropathica is due to - Zinc deficiency*
10. *Molybdenum is necessary for - XXanthine oxidase*
11. *Hartnup disease is due to deficiency of - Tryptophan*
12. *Alkaptonuria is due to deficiency of - homogentisic acid oxidase*
13. *In alkaptonuria, the deposition of substance - Homocysteine*
14. *Vitamin used to correct neurological symptoms is - Cynocobalamine B12*
15. ***Wernicke-korsakoff psychosis /Beriberi*** *caused by deficiency of - Thiamine B1*
16. *Pellagra is caused by deficiency of - Niacin B3*
17. *Burning foot syndrome is caused by deficiency of - Pantothenic*
18. *Megaloblastic anemia/Neural tube defect caused by deficiency of - Folic acid*
19. *Pernicious anemia caused by deficiency of - B12*
20. *Seborrhic dermatitis caused by deficiency of - Riboflavin B2*
21. *IHD is associated with which type of cholesterol - LDL*
22. *Seen in chronic starvation - insulin decreases/glucagon & growth hormone increases/free fatty acids increases/glucose tolerance decreases.*
23. *Southern blot test is used to detect - DNA*
24. *Northern Blot test - RNA*
25. *Western Blot test - Protein*
26. *Respiratory distress syndrome in premature infants is due to inadequate secretion of - Dipalmitoyl phosphatidyl choline :part of surfactant/index of lung maturity/less than 2 indicates IRDS*
27. *Vitamin used for inhibiting lactation - B6*
28. *Wernicke's encephalopathy is caused by deficiency of - B1*
29. *Vitamin K dependant clotting factors are - fac.2,7,9,10*
30. *Enzyme deficient in marfan's syndrome is - Lysyl oxidase*
31. *Reactions takes place in Mitochondria*  
*- krebs cycle,urea cycle,electron transfer,fatty acid cycle*
32. *Melatonin is synthesised from - Tryptophan*

33. Amino acids excreted in the urine in cystinosis - cystine, ornithine, arginine, lysine
34. In maple syrup urine dis. the amino acids excreted in urine are - leucine, isoleucine, valine
35. Sulphur containing amino acids are cysteine & methionine
36. Conjugated hyperbilirubinemia is seen in - Dubin Johnson syndrome.
37. In Hartnup's disease excreted in urine is - Tryptophan
38. Bile contains - cholic acid, chenodeoxycholic, deoxycholic, lithocholic acids
39. Cofactor for transamination is - Pyridoxine
40. Vitamin essential for transamination - B6
41. Phenyl pyruvic acid in the urine is detected by - Guthrie's test
42. In alkaptonuria the urine contains - Homogentisic acid
43. Insulin has - 51 amino acids
44. Von Gierke's disease is due to deficiency of - galactose-1-phosphate uridylyltransferase
- 45. Essential fatty acids are - linoleic, linolenic & arachidonic acid**
- 46. Iron is absorbed actively in the - Duodenum**
47. vit. B12 is absorbed in the - Terminal ileum
48. Cardiac enzymes are - CPK, LDH, SGOT
49. Amount of proteins excreted in urine/24hrs - less than 150 mg
50. Highest content of triglycerides is seen in - Chylomicrons
51. Atherosclerosis is due to - Apo protein E deficiency
52. Triglyceride synthesis is increased by - Insulin
53. Which is an essential amino acid - phenylalanine, lysine, leucine
54. Insulin acts on which enzyme in glycolysis - Glucokinase
55. Present in cerebroside - Sphingosine, galactose
56. Melatonin is derived from - Tryptophan
57. Liver produces - albumin, fibrinogen, prothrombin & not gamma globulin
58. Bile acids are formed from - cholesterol
59. Heme in hemoglobin is in the - Hydrophobic pocket
60. 17-Alpha hydroxylase deficiency causes - decreased testosterone
61. Substance that does not cross blood brain barrier - Insulin
62. Anti infective vitamin is - vitamin A1
63. Tissue with highest glycogen content - Liver
64. Detoxification of drugs is controlled by - cytochrome P450
65. Anti atherosclerotic lipoprotein is - HDL
66. MC enzyme deficiency in man is - glucose-6-phosphate dehydrogenase

67. Largest amounts of prostaglandins are seen in - Seminal fluids
68. Sulphonamides are conjugated by - Glucuronic acid
69. Which amino acid causes Hypoglycemia - Leucine
70. Vitamin present in co-enzyme A is - pantothenic acid
71. Insulin resistance is seen in - hypothyroidism,acromegaly
72. Fatty acid not synthesised in the body is - linoleic acid
73. Albinism results from deficiency of - Tyrosinase
74. Enzymes stored in muscle is- CPK
75. Secondary hyper parathyroidism is caused by - CRF
76. Abnormal Urinary constituents are - albumin,ketone,glucose
77. Urinary constituents - amino acids,urea,creatinine
78. Polyuria is seen in - DM,diabetes insipidus,recovery from acute nephritis
79. Polypeptide hormones are - insulin,angiotensin,growth hormones
80. Physiological constituents of urine - urea,creatinine
81. Major site of action of insulin - muscle,adipose tissue liver
82. Semi essential aminoacids are - Arginine,histidine
83. Ratio of adrenaline to noradrenaline - 85:15
84. Examples of monounsaturated fatty acids are - oleic acid
85. Acidic amino acids are - asparagine,glutamine
86. Basic amino acids are - arginine,lysine
87. Aromatic amino acids are - tryptophan,tyrosine,phenylalanine
88. Total body iodine stores are about - 50mg
89. vit.C is present in largest amount in the body in - Adrenal cortex
90. Tetany can be caused by - hypocalcemia,hypomagnesemia
91. Cerebroside contain which of the following - sphingosine
92. Ketone bodies are - Acetoacetate
93. Bile acids are derived from - cholesterol
94. Which is completely dependant on glucose as fuel - Retina
95. Immediate precursor of nor epinephrine is - Dopamine
96. Uric acid levels are increased in - pre-eclampsia,hodgkins lymphoma,leukemia
97. Metal in vit.B12 is - Cobalt
98. Ammonia in the brain is converted into - Glutamine
99. Dopamine synthesis in brain is increased by - Carbidopa
100. Calcium binding protein is - Troponin-C

101. Metabolite of epinephrine is - Metanephrine
102. End product of purine metabolism is - Uric acid
103. Vitamin A overdosage causes injury to - Lysosomes
104. Myocardium normally utilises - Fatty acid
105. Max. amount of serum cholesterol is found in - LDL
106. Vitamin that is useful in cancer is vitamin - A
107. Enzyme acetylcholine esterase is synthesised in - Liver
108. Urea in the Brain is derived from - Glutamine
109. Non-essential amino acid is - Tyrosine
110. Enzyme primarily responsible for protein degradation in stomach - Pepsin
111. Increased anion gap is seen in - renal failure, lactic acidosis, DKA
112. Cholesterol from the liver is transported to the tissues mainly by the - VLDL
113. Precursor of steroid - cholesterol
114. Maple syrup urine disease is due to the deficiency of - Decarboxylation
115. Amino acid that can be converted into vitamin is - tryptophan
116. Main function of mitochondria is - electron transfer
117. Histamine is produced by - decarboxylation
118. Glutathione is a - tripeptide
119. Ketone body formation takes place in - liver
120. Xanthurenic acid is a product of metabolism of - Tryptophan
121. Neurotransmitter is - Glutamine
122. DNA double helix is bound by - Hydrogen bond
123. Glucose-6-phosphate dehydrogenase deficiency is seen in - von Gierke's disease
124. Which is not seen in starvation - hypercholesterolemia
125. Muscle glycogen is mainly utilised for supplying energy to - heart
126. Enzyme marker of electron transport system is - cytochrome reductase
127. Major contribution towards gluconeogenesis is by - Alanine
128. Conversion of prothrombin to thrombin requires - factors-7,10,5 &  $\text{Ca}^{2+}$
129. Which does not inhibit platelet aggregation - Thromboxane A<sub>2</sub>
130. Conversion of proline to hydroxyproline is by - vit.C mediated hydroxylation
131. Ketone body which is maximum in DKA - Acetoacetic acid
132. Biotin is essential for - carboxylation
133. Ketoacidosis without glycosuria is seen in - prolonged starvation
134. Protein synthesis takes place in - Endoplasmic reticulum

135. NADPH is required in - lipogenesis
136. Dietary fibre is rich in - Pectin
137. Lipid which accumulates in fatty liver is - Triglycerides
138. Gluconeogenesis occurs in the liver & Kidney
139. Which has highest cholesterol content - LDL
140. Germ oil has high content of vitamin - E
141. Melanin is synthesised from - phenylalanine
142. Obesity is associated with - decreased insulin response
143. Glycerol is converted to glucose in - Liver
144. vit. K plays an essential role in - biosynthesis of prothrombin & proconvertin
145. Preservative used in urine samples for chemical analysis is - Thymol
146. Heart muscle in comparison to skeletal muscle has - high carnosine
147. Oil rich in linoleic acid - sunflower oil
148. pH of normal sweat is - 4.5
149. Urea is mainly formed in liver & to small extent in - Brain
150. Pantothenic acid acts on - CoA
151. Fluoride ions act by inhibiting - Enolase
152. Protective factor for heart - high HDL
153. Deficiency of which vitamin is not known in newborn - E
154. Toad skin is seen in deficiency of vitamin - A
155. Resting membrane potential is close to the isoelectrical potential of - Cl
156. Infant's gastric juice pH is - 5.0
157. Enzyme diagnostic of MI in case of hypothyroidism - CPK-MB
158. Transaminase an enzyme is most abundant in - Heart
159. White hair is due to - deficiency of melanin
160. Tyrosinase is - oxidase
161. Anticoagulant used for preserving blood for PT estimation is - sodium citrate
162. Chemically steroids are derivative of perhydrocyclopentanophenanthrene
163. Biotin deficiency is characterised by - muscular pain, nausea, dermatitis
164. Zinc is a component of - carbonic anhydrase, insulin, carboxypeptidase
165. Respiratory quotient of fat, protein & carbohydrate are - 0.70-0.80-1.0
166. In glycolysis which of the ions is most important - Mg
167. Prostaglandins - are acyclic fatty acid derivatives
168. Thiouracil inhibits thyroid function by - inhibition of thyroxine synthesis

169. Cytochromes are - iron-porphyrin proteins
170. Vitamin acts as a respiratory catalyst - vit. C
171. Correct sequence of breakdown of hemoglobin - Hb-heme-biliverdin-bilirubin-urobilinogen
172. Histidine decarboxylase is present in - liver & kidney
173. Dietary changes are not required in - Wilson's disease
174. Codon consists of - 3 consecutive nucleotide units
175. Coenzymes are - non-protein organic compounds
176. Hair is rich in amino acid - Cystine
177. Component of co-enzyme A - pantothenic acid, adenylic acid, sulphydryl group
178. Renin is present in - stomach
179. Methionine is important in - formation of choline
180. Actinomycin D interferes with enzyme induction by combining with - DNA
181. Ketone bodies are by products of metabolism of - Fats
182. Xeroderma pigmentosum, a rare skin disease is due to an autosomal recessive trait, which causes a deficiency of - specific DNA endonuclease
183. Lactate dehydrogenase is - Isozyme
184. Ketone bodies are normally synthesised from - Acetyl-S-CoA
185. Creatinine is formed metabolically from - Arginine
186. Blood brain barrier is maximally permeable to - CO<sub>2</sub>
187. Which of the following vitamin is destroyed by heat - Biotin
188. Daily normal excretion of ketone bodies - 1.0mg
189. In mammals protein sequence takes place chiefly in - rough endoplasmic reticulum
190. Derived from protein - peptones
191. Hexokinase is a - Transferase
192. Which is the by product of the urea cycle - Fumarate
193. False positive reaction of glucose is seen with - Aspirin
194. Which of the following is not a trace element - Ca<sup>+</sup>
195. Chitin is a - Polysaccharide
196. Biuret test is mainly done for - Protein
197. In metabolic acidosis, true about urinary change is - increase in Ammonia
198. A codon consists of - 3 consecutive nucleotide units
199. Monoclonal electrophoresis is useful in the diagnosis of - Multiple myeloma
200. Basic structural unit from which fatty acids are derived - Acetyl Co A

201. Precursor of cholesterol synthesis is - Acetyl CoA
202. Whole wheat is an excellent source of - Thiamine
203. Siderophyllin is - transferrin
204. Which of the following is not a phospholipid - cerebroside
205. Triglycerides in serum are transported by - VLDL
206. 1 molecule of glucose forms - 2 molecules of pyruvate
207. Which of the following is an initiating amino acid for protein synthesis - Methionine
208. In mammalian cells protein synthesis takes place chiefly at the - nucleolus
209. Insulin resistance may be due to - Acromegaly
210. Cytochromes are - iron-porphyrin proteins
211. Which of the following is seen in obstructive jaundice - excess of bile salts in the urine
212. Which of the following cannot be metabolized in the body - sucrose
213. High threshold substance is - glucose
214. Millon's test is used for detection of - Tyrosine
215. HMP shunt is of great importance in cellular metabolism because it produces - NADPH
216. Urea is produced by the enzyme - Arginase
217. Actinomycin D interferes with enzyme induction by combining with - DNA
218. A bilipid layer is most permeable to - Urea
219. The lactate dehydrogenase levels are increased in - Glycine
220. The most direct precursor of taurine is - Cysteine
221. Aromatic ring is present in - phenylalanine
222. A substance having affinity but no intrinsic activity is - Antagonist
223. Which of the following essential fatty acid contains maximum number of carbon atoms  
- arachidonic acid
224. Ferritin - an inactive form of iron is stored in - liver
225. Cholesterol is synthesized from - Acetyl CoA
226. First product of glycogenolysis is - glucose-1-phosphate
227. cAMP increases glycogenolysis by - contributing phosphate
228. Bohr effect is - effect of PCO<sub>2</sub> on oxyhemoglobin dissociation
229. Tea and coffee contains - tannin
230. Specific dynamic action is - energy expended on consumption of foods
231. Ingestion of benzoic acid in man results in an increase in urinary - hippuric acid
232. An essential amino acid in man is - L- methionine
233. The mucopolysaccharide hyaluronic acid is found primarily in - vitreous humor of the



eye

- 234. Ketosis is partly due to- overproduction of acetyl CoA
- 235. A substance having affinity and intrinsic activity is- partial agonist
- 236. The commonest enzyme deficiency is of- glucose -6-phosphatase
- 237. An amino acid not involved in urea synthesis is- histidine
- 238. The most abundant protein in the human body is - collagen
- 239. Sorbitol is- sugar alcohol
- 240. Dicumarol is an antimetabolite of- vit K
- 241. An essential for the conversion of glucose to glycogen in liver is -UTP
- 242. Inhibitors of DNA synthesis- actinomycin
- 243. Millon test is positive in- thyrosinosis
- 244. Most important buffer in extracellular fluid is -  $\text{H}_2\text{CO}_2/\text{HCO}_3$
- 245. Inhibition of glycolysis by  $\text{O}_2$  is known as- Pasteur effect
- 246. In human body which of the following trace element is next to iron-  $\text{Cu}^{++}$
- 247. Which of the following is a dietary essential? - lin oleic acid
- 248. Patients with severe renal disease may not be able to use normal dietary sources of vitamin- D
- 249. Winslow test is used to estimate serum or urinary- amylase
- 250. pH is maximum in- pancreatic secretion
- 251. Dawn phenomenon refers to -after breakfast hypoglycemia
- 252. Ehrlich's test done to detect- urobilinogen
- 253. Benzidine test is positive with the enzyme- peroxidase
- 254. Enzyme deficiency in alcaptonuria is homogentisic acid oxidase
- 255. Wernicke's encephalopathy is due to deficiency of - thiamine
- 256. Creatinine is synthesized from -glycine, arginine and methionine
- 257. Cyanide is toxic because it- inhibits cytochrome oxidase
- 258. The substance essential for transfer fatty acids across mitochondrial membrane- carnitine
- 259. Which of the following organs can't use ketone bodies- liver
- 260. Lipid from tissues is carried to liver by - HDL
- 261. Unsaturated fatty acids are converted to - Prostaglandins
- 262. Vitamin necessary for CoA synthesis - Pantothenic acid
- 263. Lamin is present in - inner nuclear membrane
- 264. NADPH is used in - Fatty acid synthesis
- 265. Thiamine is essential for - pyruvate dehydrogenase

266. Mono cystinuria is due to abnormal metabolism of - Methionine
267. People eating only maize as staple diet develop niacin deficiency due to - high leucine
268. Thromboxane is mostly produced by - Platelet
269. Normal value of BUN is - 10-20 mg/dl
270. Alcohol-uric jaundice is caused by - hemolytic jaundice
271. Oxidation of fatty acids occur in - Mitochondria
272. Triple helix is seen in - collagen
273. Urinary protein is detected by - Barfoed test
274. Glutathione peroxidase contains - selenium
275. Cholesterol is a - steroid
276. Saturated fatty acid is present in high quality - coconut oil
277. Which is correct about intracellular fluid - amount more than ECF
278. Keratin is chemically - cystine
279. Untreated diabetes leads to - tissue use fatty acids as main fuel
280. Protein synthesis takes place mainly in - the ribosomes
281. MCC of lactic acidosis - Circulatory failure
282. Not a cause of metabolic acidosis - climbing to high altitudes
283. Vitamin also acting as hormone - Vit D
284. Proteins binding to DNA has - Zinc
285. One of the following is a scavenger of cholesterol from tissue & prevents atherosclerosis  
- HDL
286. DNA fragments are separated by - agarose gel electrophoresis
287. Ferritin stores are present in sites - intestine/liver/spleen but not in - bone
288. Osmolarity is - moles per liter of solvent
289. In Beri-Beri which enzyme activity is measured - Transketolase
290. An exclusive protein meal intake will cause - Hypoglycemia
291. Heart uses one of the following as energy source during starvation - Acetoacetate
292. In Maple syrup urine absence FeCl<sub>3</sub> test with urine gives colour - Blue
293. Mousy or musty odor urine is seen in - Phenylketonuria
294. Carnitine is formed from - Lysine
295. Arthritis occur in - Alkaptonuria
296. Norepinephrine is converted to epinephrine by - N-methylation
297. Most important compensatory mechanism in metabolic acidosis - Hyperventilation
298. Translation occurs at - Ribosome

299. In cytochrome P450, P stands for - Pigment
300. The reaction inhibited in thiamine deficiency is - pyruvate to acetyl CoA
301. Skeletal muscle is deficient in - glucose-6-phosphate
302. Alcoholic group is found in - Galactoside
303. About glycolysis true is - complete breakdown of glucose
304. Familial hypercholesterolemia is - deficient of LDL receptors
305. Cholesterol maximally carried in - LDL
306. Most abundant collagen in body is - Type-1
307. Enzyme not present in muscle - glucose-6-phosphatase
308. What is the technique by which DNA can be amplified - polymerase chain reaction
309. Null mutation is - mutation which produces no functional gene product
310. Which one is non sense codon- UAG, UGA
311. Which of the following amino acids are associated with increased risk of MI - Homocysteine
312. Glutathione peroxidase contains - selenium
313. Which one of the following enzymes use NADP as co-enzyme - G6PD
314. Lung surfactant - dipalmitoyl lecithine
315. Fatty acids of cholesterol are mainly - palmitic & stearic acid
316. Shortest peptide is - enkephalin
317. In Acute MI which amino acid level rises in blood - Homocysteine
318. FIGLU is a metabolite of - Histidine
319. Which is a fructosan - Inulin
320. Which fatty acid is not synthesized by Mna - stearic acid
321. Saponification means hydrolysis of fats by - Alkali
322. In pregnancy amount of glucose used in GTT - 100mg
323. Total number of genes in a human being is - 50,000
324. Naturally occurring amino acid - hydroxyproline
325. Northern blot is - amplification of mRNA
326. Source of ammonia in urine is - Glutaminase
327. Bilirubin is produced from - hemoglobin/myoglobin
328. Pyruvate utilisation in tissues is decreased in - Beri-Beri
329. Amino acid used in the synthesis of purines - Glycine
330. Selenium is an essential component of - Glutathione peroxidase
331. In porphyria cutanea tarda the type of porphyrin excreted in urine is  
- type 1&3 uroporphyrins

332. Which one of the following is present intracellularly in muscle cells - corticosteroid
333. Early stage of trauma is characterised by - catabolism
334. Chromosomal nomenclature is based on - position of centromere
335. Not seen in - thiamine deficiency - cerebellar dysfunction
336. Warm auto antibodies are seen in - SLE
337. Biological value of protein is related to - essential amino acid content
338. DNA selected for genetic information because - it is stable/double stranded compared to RNA/two strands are complementary/semi-replicating
339. Abnormal gene removed and new inactivated gene inserted the process is known as - knockout
340. Person on a fat free carbohydrate rich diet continues to grow obese, which of the following lipoproteins is likely to be elevated in his blood - VLDL
341. Xeroderma pigmentosum is produced as a result of defect in - DNA ligase
342. Fatty acids does not produce glucose due to absence of - phosphoenolpyruvate kinase
343. Best indicator of iron deficiency - serum ferritin
344. Chylomicrons belong to group - Apo-B
345. In the fasting state glucose is obtained from - muscle glycogen
346. Steroid biosynthesis occur at - smooth endoplasmic reticulum
347. At higher temperature most of the mammalian enzymes become inactive due to - loss tertiary structure
348. Tocopherols are derivatives of - Tocol
349. Highest quantity of lipid & lowest concentration protein are found in - chylomicrons
350. Ketone bodies are formed in the - Liver
351. Enzyme glutathione peroxidase requires which trace element - selenium
352. New DNA synthesis occurs in - interphase
353. Membrane phospholipid that does not contain glycerol is - Sphingomyelin
354. Antioxidants - vit A, C, E
355. Which of the following corticosteroid has maximum glucocorticoid activity - Dexamethasone
356. End-product of the action of salivary amylase is - Maltose
357. RDS in premature infants is due to inadequate secretion of which one of the following lipids - dipalmitoyl phosphatidylcholine
358. Severe muscular exercise causes - Lactic acidosis

359. Vitamin A is stored mainly as retinol esters in - liver
360. Idiopathic nyctalopia is due to a hereditary - absence of rod function
361. Which of the following situation will lead to inc. viscosity of blood - multiple myeloma
362. Side effects of a drug arise due to the interactions of the drug to molecules other than the target. These effects of a drug can be minimized by its high - specificity
363. Secretory proteins are synthesized in - first in Endoplasmic reticulum & then in cytoplasm
364. Consumption of raw egg may lead to deficiency of - Biotin
365. Amino acid which is associated with atherosclerosis is - Homocysteine
366. Which of the following inhibits complex 4 - Cyanide
367. Example of a reverse transcriptase - Telomerase