

**BIOCHEMISTRY
ONE LINERS**

By- DaiWat N AniKet..

They inhibit A.C esterase through phosphorylation of active centre of enzyme.
→ hence A.C accumulates in Nerve endings & impulses transfer is prevented.

② Glucose is administered to relieve an attack of acute intermittent porphyria.
⇒ The treatment goal for acute attacks of porphyria is to decrease heme synthesis & reduce the production of porphyrin precursors.

→ High dose of glucose can inhibit heme synthesis & are useful for treatment of mild attacks.

→ Glucose inhibits ALA synthase & helps in treatment.

③ Enzyme are used as Therapeutic reagent.

→ streptokinase & urokinase → lyse intravascular clots. used in M.I

→ pepsin & trypsin → used in defective digestion.

→ Asparaginase → Anti-cancer Drug

④ Lipoprotein (a) is associated with M.I?

→ It is hypothesized that elevated LP-a reduces the breakdown of blood clots by interfering with plasminogen activation.

→ This results in intravascular thrombosis, and increased risk of heart attacks.

⑤ Lactulose is used for treatment of hepatic encephalopathy.

→ Lactulose used in hepatic encephalopathy as it converts ammonia (NH_3) in the lumen to ammonium ion (NH_4^+). This results in redn in the plasma NH_3 , since NH_4^+ ions are not easily absorbed.

Yellow colour of urine due to elevated excretion of bilirubin
 & clay coloured faeces due to absence of stercobilinogen

⑦ Viper bites causes severe hemolysis.

→ Snake venom is rich source of phospholipase A₂ which causes breakdown of cell membrane of RBC causes its lysis.

⑧ ↑ Alcohol consumption causes fatty liver?

→ Alcohol oxidized to acetaldehyde; this rxn produces increased quantities of NADH, which converts oxaloacetate to malate.

→ As the availability of oxaloacetate is reduced, the oxidation of Acetyl-CoA through citric acid cycle is reduced.

→ So fatty acid accumulates leading to TAG deposits in liver

Q1) Pg: 149

⑨ Glutamate is regarded as "collection center" of amino group.

→ In the process of transamination, the amino groups of most amino acids are transferred to α ketoglutarate to produce glutamate. Thus, glutamate serves as a collection centre for amino groups in biological system.

⑩ Dietary fibre should be consumed in Diet.

→ Prevents constipation

Eliminates bacterial toxins

Decreases GIT cancers.

Improves Glucose Tolerance

Reduce plasma cholesterol levels

Satiety value

⑪ t-RNA plays an important role in translation

→ They transfer amino-acids from cytoplasm to the ribosomal protein synthesizing machinery, hence tRNA plays imp. role in translation.

FirstRanker.com FirstRanker's choice
Biotin is present in egg white (Raw) has great affinity to biotin. www.FirstRanker.com www.FirstRanker.com

→ Hence biotin cannot be absorbed so intake of raw (unboiled egg) may cause biotin deficiency.

(13) For parkinsonism, L-Dopa is used for line of treatment rather than dopamine?

→ As the dopamine injection causes release of Dopamine which cannot cross the blood-brain barrier.

→ on the other hand, the L-Dopa which is a precursor of Dopamine synthesis ~~causes~~ cross the B.B.B and serves as treatment for parkinson-Disease.

(14) Albumin is used as antidote for heavy Metal-poisoning.

→ ~~Albumin~~ Only unbound fraction of heavy metals cause poisoning.
→ Albumin binds with heavy metals & nonspecifically carries it.
→ So Albumin is used as an antidote.

(15) Orotic aciduria is a disorder of pyrimidine metabolism.

→ Orotic aciduria is caused due to deficiency of OPRTase and OMP decarboxylase enzymes which are key enzymes of pyrimidine metabolism.

(16) Vitamin-K helps in Blood Coagulation.

→ As vit-K activates blood coagulation factors - II, VII, IX, X and causes formation of coagulum.

(17) Hyperuricemia is observed in Von Gierke's disease.

→ Glucose-6-phosphatase causes Von-Gierke's disease.

→ When this enzyme is deficient, glucose-6-phosphate cannot be converted to Glucose.

→ So more glucose is channeled into PPP pathway, resulting in increase availability of ribose-5-phosphate.

→ This would lead to increase formation of PRPP & leads to hyperuricemia.

Excess of glucose takes place leading to ↑ in F.F.A and formation of excess ketone bodies.
→ This leads to excretion of K.B in urine leading to ketonuria.

19) G6PD deficiency provides protection Against Malaria?

→ Because parasite that causes malaria are dependent on HMP Shunt & reduced glutathione for their optimum growth in RBC;

→ Therefore G-6-PD deficiency provides resistance against malaria.

20) Muscle glycogen does not contribute to blood glucose.

→ Glucose-6-phosphatase enzyme is absent in muscle, hence for glucose cannot be produce from glucose-6-phosphate.

21) Dyslipidemia in diabetes Mellitus?

→ Dyslipidemia is major risk factor for Cardiovascular disease.

→ characteristic feature of diabetic dyslipidemia are high plasma triglyceride, low HDL & high L.D.L concentration.

22) Pb toxicity causes Anemia.

→ steps catalysed by ferrichelataase & ALA dehydratase are inhibited by lead.

→ so, Pb toxicity causes Anemia.

23) IgG protects the developing fetus.

→ It can cross placental barrier and protects the newborn child from infections.

24) TCA cycle is a central Metabolic pathway.

→ Acetyl CoA is the key & common metabolite, produced from different fuel sources.

→ Acetyl CoA enters citric acid cycle & gets oxidised to CO_2 . Thus, citric acid cycle is the final common metabolic pathway for the oxidation of all foodstuffs.

(26) Biochemical basis of cyanide poisoning.

→ Cyanide is probably the most potent inhibitor of ETC. It binds to Fe^{3+} of cytochrome oxidase blocking mitochondrial ~~electron~~ respiration leading to cell death.

→ Cyanide poisoning causes death due to tissue asphyxia.

(27) Essential fatty acids prevent fatty liver.

→ Essential fatty acids prevent fat accumulation in liver helps in preventing fatty liver.

→ Essential fatty acids act as lipotropic factor.

(28) p53 is guardian of genome.

→ It is tumour suppressor protein and prevents formation of cancer.

→ Activate DNA repair proteins & initiate apoptosis.

(29) Monoclonal Antibodies are preferred than polyclonal antibodies?

→ These antibodies act against cancer by :-

(i) Marks cancer cell.

(ii) Block Growth factor

(iii) Stops New Blood vessels from forming.

(30) Dietary fiber prevents hypercholesterolemia.

→ Fiber decreases the absorption of dietary cholesterol from the intestine. Further, fiber binds with the bile salts & reduces their enterohepatic circulation.

→ Thus degradation of cholesterol to bile salts & its disposal from the body is increased.

(31) Fasting hypoglycemia is seen in Von Gierke's disease.

→ Due to defect in enzyme Glucose-6-phosphatase, enough free glucose is not released from the liver.

→ Thus Von-Gierke's disease leads to fasting hypoglycemia.

whether a person with breast cancer is likely to respond well to therapy with tamoxifen, which binds to the receptors blocking the action of estrogen.

→ Thus as level of estrogen rises high, we detect early & treat it.

(33) Denatured proteins are biologically inactive.

→ There is non-specific alterations in 1st, 2nd & 3rd structure of protein molecules.

→ During this process, solubility is decreased while precipitability of protein is increased. It then causes loss of biological activity.

(34) Nitric oxide is called as a double edge sword.

→ NO act as therapeutic agent for angina pectoris; also regulates the blood flow & the blood pressure; also mediates bactericidal actions of macrophages.

→ NO also, as a free radical, is cytotoxic, which causes mutations in DNA, inhibitory of respiratory enzymes, nitration of proteins, etc.

→ Thus, NO has a beneficial & dangerous role; it is called as double edge sword.

(35) Acetyl CoA considered the molecule for metabolic integration.

→ Acetyl CoA is the key & common metabolite, produced from different fuel sources (Carbohydrate, fats, Amino acids).

→ Thus it is considered as molecule for metabolic integration.

(36) Incidence of pellagra is more common in women.

→ The enzyme kynurenine hydroxylase is inhibited by estrogen, hence women, in general are more susceptible to pellagra.

→ Niacin synthesized from tryptophan is kynurenine hydroxylase is enzyme of Tryptophan metabolism; thus niacin not formed & pellagra occurs.

- Homeostasis of iron in the body is maintained by regulating iron absorption, & not by its excretion.
- ~~There~~ In normal people, about 10% of dietary iron is usually absorbed; therefore...

(38) Vitamin K is used as antidote to warfarin poisoning.

- Warfarin is a synthetic analogue that can inhibit Vitamin K action & reciprocally same as Vitamin K action; therefore it is used as antidote to warfarin poisoning.

(39) The action of enzyme telomerase is linked with ageing.

- In ~~germ~~ germ cell: Gap left in leading strand is filled by telomerase but in somatic cell gap present because of telomerase activity is not there.
- So further division of somatic cell, telomere shortening increases & cell divisions stops further after some divisions.
- Responsible for ageing & death.

(40) RNA synthesis is not as meticulously monitored as DNA synthesis.

- After DNA synthesis or replication, the proofreading is done to correct mistakes by DNA polymerase enzyme which has 3'-5' exonuclease activity.
- These enzymes are absent during RNA synthesis.

(41) Neonates are more susceptible to develop vit-k deficiency.

- Newborns, have relative vit-k deficiency. This is due to lack of hepatic stores, limited oral intake (breast milk, has very low levels) & absence of intestinal bacterial flora.

FirstRanker.com
FirstRanker's choice
www.FirstRanker.com
www.FirstRanker.com
It is used as antiseptic drug or to inhibit their activity (disinfectant, which destroy the microorganisms).
→ It is transported to lymphatic system of our body.

43) Incidence of Pellagra is ↑ in people whose staple food is Maize.

→ Pellagra is seen among people whose staple diet is maize.
→ In Maize, niacin is present; but it is in a bound form, and is unavailable and tryptophan is also absent which is precursor of Niacin.

44) Lipotropic Agents & fatty liver.

→ Lipotropic factors are substances the deficiency of which cause fat to accumulate in liver.
→ These include :- choline, betaine, Methionine, inositol, etc.

45) High Fibre diet is beneficial for Diabetics.

→ It improves glucose tolerance.
→ It is mainly done by a diminished rate of glucose absorption from the intestine.

46) Vit. B12 deficiency causes anemia.

→ Vitamin B12 deficiency causes ^{due to} autoimmune destruction of gastric parietal cells, that secrete Intrinsic factor;

Hereditary malabsorption;

Partial or Total gastrectomy;

Insufficient production of IF

As due to above causes Vitamin B12 is deficient; & leads to pernicious anemia

→ Pernicious anemia characterized by low Hb levels, decreased no. of erythrocytes & neurological manifestations

→ So During estimation of serum potassium, false values of potassium are obtained.

(48) Deficiency of enzyme Tyrosinase causes Albinism.

→ Due to Tyrosinase deficiency; there is defective synthesis of melanin; & ocular fundus is hypopigmented & iris may be gray or red & that causes Albinism.

(49) Copper level in blood is lowered in Wilson disease.

→ In Wilson's Disease, ceruloplasmin level is ↓ (~~T~~ Cu containing protein)

→ Mutation in a gene encoding a Cu binding ATPase in cells.

→ So copper accumulates in brain & liver causing toxicity and its level in blood decreases.

(50) Cyanide poisoning Causes tissue anoxia.

→ Cyanide inhibits Cytochrome Oxidase by that it inhibits ETC cycle & due to that less energy produced causes tissue anoxia.

→ Cyanides competes with oxygen to bind with hemoglobin; & due to that cyanohemoglobin forms & it resist the transport of oxygen to tissues causes tissue Anoxia.

(51) Hyperammonemia is toxic.

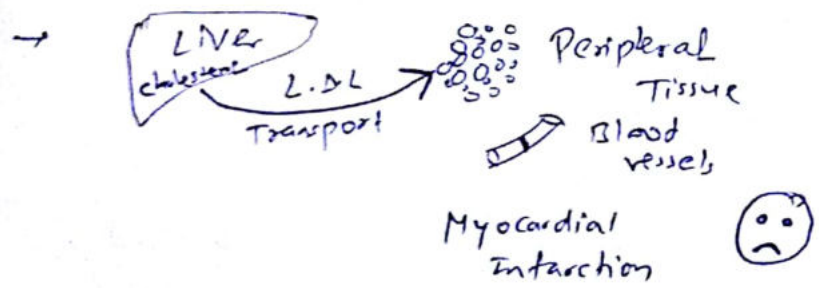
→ Ammonia Toxicity → Depresses TCA cycle

→ Affects Cellular Respiration

→ ↓ form of GABA.

→ Tryptophan enters brain & ↑ level of Serotonin.

52] LDL BAD CHOLESTEROL





- 54) G6PD deficiency leads to hemolytic anemia.
- Primaquine stimulates peroxide form inside RBC.
 - In G6PD deficient cells, the level of NADPH is low, hence further production of peroxide will lead to cell lysis.
- 55) Prostaglandins act as local-hormone.
- They are most potent biological active substances.
 - Present in almost all tissues.
 - Causes smooth muscle contraction.
 - Physiological roles of PG is responsible for role as local hormones.
- 56) Role of Glutathione as detoxifying agent.
- Glutathione helps to deboxify several compounds by transferring the cysteinyl group; e.g.: Oxoguanophosphorus compounds, heavy metals, etc.
- The reaction is catalyzed by Glutathione-S-transferase.
- 57) Methotrexate is an anticancer drug.
- Methotrexate inhibits the dihydrofolate reductase required for conversion of THFA.
 - So stops cell division & DNA synthesis.
 - So, Methotrexate is an anticancer drug.
- 58) Primary excess of carbonic acid causes respi. acidosis.
- A primary excess of H_2CO_3 is the cardinal feature of respi. acidosis.
 - It is due to CO_2 retention as a result of hypo-ventilation.
 - Ratio of bicarbonate to carbonic acid will be less than 20.

→ This is called semi-conservative type of DNA replication.

(60) Tyrosine is an essential A.A for patients of phenylketonuria.

→ In phenylketonuria, phenylalanine cannot be converted to tyrosine.

→ So, phenylalanine accumulates. (Def. of phenylalanine hydroxylase)

→ So, Tyrosine is provided as essential A.A for phenylketonuria patients.

(61) In vitamin C deficiency, there is delayed wound healing.

→ In Vitamin C deficiency; there is defect in hydroxylation of proline & lysine; therefore collagen is abnormal and the intercellular cement substance is brittle; therefore delayed wound healing occurs.

(62) DNA fingerprinting can reveal the identity of a person.

→ DNA fingerprinting is used to reveal the tandem repeats (TR) in chromosomes.

→ These short sequences of DNA varies from person to person but unique for a particular person.

(63) Proteins can be separated by electrophoresis.

→ Different proteins have different charges, size & mass & based on that it is separated by Electrophoresis.

(64) Iodine deficiency leads to goitre.

→ Due to lack of dietary iodine, Thyroxine amount is low due to that TSH level ↑.

→ which stimulates thyroid gland to ↑ proliferate and cell growth of gland.

→ So, UBG is absent in urine.

(66) Rapoport - Leubering pathway is important in RBC.

→ Rapoport - Leubering cycle, therefore is a shunt pathway of glycolysis to dissipate or waste the energy not needed by erythrocytes.

→ 2,3 BPG is not a waste molecule in RBC. It combines with hemoglobin (Hb) & reduces Hb affinity with oxygen. Therefore, in the presence of 2,3 BPG, oxyhemoglobin unloads more oxygen to the tissues.

(67) Deficiency of lecithin leads to Respiratory Distress Syndrome.

→ Lecithin is a component of surfactant & surfactant decreases the surface tension in alveoli & prevent the collapsing of lungs; therefore its deficiency leads to more surface tension & Respiratory Distress Syndrome.

(58) Sucrose gives negative Benedict Test

→ Sucrose is not a reducing sugar, it is because the linkage involves 1st carbon of glucose & 2nd carbon of fructose and free reducing groups are not available.

(69) Mitochondria are known as Power house of cell.

→ Mitochondria is responsible for production of ATP and certain metabolic pathways takes place in it.

(70) Inulin is used for assessment of Glomerular function.

→ It is used to find Renal clearance value and GFR.

can glucose level over previous 10-12 weeks.

- Normally the level of HbA1c is less than 5.5%.
- An elevated level indicates poor control of D.M.
- So, therefore gly hb is used for monitoring of D.M.

(72) Liver can synthesize ketone bodies but liver cannot use them.
 → Liver can synthesize ketone bodies but cannot use them because of deficiency of enzyme Thiophorase ~~is that~~ in liver & that is required for utilization of glucose.

(73) Person may suffer from Respiratory alkalosis while climbing to high altitude.

- At high altitude, PO_2 is decreased. ~~due to that~~
- Also outer O_2 is low which causes hyperventilation.
- So people may suffer from respi. alkalosis at high altitude.

(74) Phlorizin causes glycosuria.

- Phlorizin, an inhibitor of Na^+ -dependent co-transport of glucose, especially in P.C.T. of kidney.
- It produces renal damage and results in renal glucosuria.

(75) Processed food with Trans fatty acid are injurious to health.

- Trans fatty acid containing food contains low HDL and high L.D.L cholesterol.
- Therefore ↑ risk of C.A.D. (& Injurious to health)

(76) Though cellulose is not digested in human GIT, it is an imp. component our diet.

- Cellulose is not digested but it is a dietary fibre used to prevent
 - (i) Constipation
 - (ii) hypercholesterolemia
 - (iii) Improve Glucose Tolerance

They are easily absorbed compared to long chain F.A. So, they do not face any obstruction in intestine during obstructive - Jaundice.

78] Carboxy Hb and Carbamino Hb are different.

⇒ Hemoglobin bind with Carbon-Monoxide → Carboxy-Hb
 ⇒ Hemoglobin bind with Carbon-dioxide → Carbamino Hb

79] Brown - adipose Tissue is imp. for New born babies.

⇒ Brown adipose tissue helps to produce heat. The function of the brown fat in newborn infants is to protect them from hypothermia.

→ Hypothermia is a serious problem for premature newborns, and a major cause of death.

80] Kussmaul's respiration is seen in diabetic ketoacidosis.

→ In diabetic ketoacidosis, there is accumulation of acetoacetate & β -hydroxy butyrate, (K.B)

→ Due to that there is high anion-gap Metabolic acidosis.

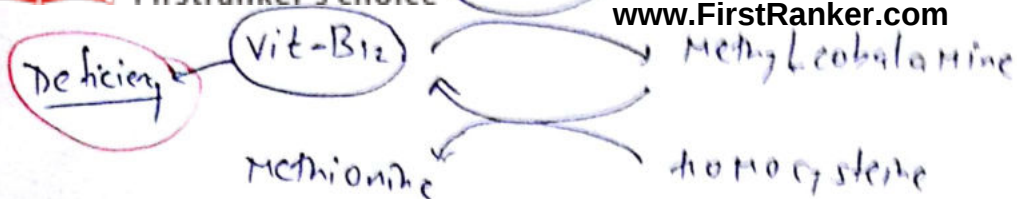
→ Therefore, compensatory mechanism produces hyper-ventilation and thus kussmaul-respiration is seen.

81] Hyperuricemia is seen in patients of Leukemia on chemotherapy.

⇒ Leukemic patients during treatment with chemotherapy.

→ It causes breakdown of nuclear proteins leading to ↑ blood levels of xanthine & hypoxanthine.

→ which finally increase blood uric acid level causing hyperuricemia,



FOLATE-TRAP

83] Same RNA acts as enzymes.

→ Ribozymes are RNA molecules that are capable of catalyzing specific biochemical reactions, similar to the actions of protein ~~synthesis~~ enzymes.

→ Within the ~~ribosome~~ ribosome, ribozymes function as part of the large subunit ribosomal RNA to link amino acids during protein synthesis.

84] Nucleotide analogues are used in treatment of cancer.

→ Nucleotide analogues like 5-Fluorouracil, 6 mercaptopurine, etc. are used in treatment of cancers because these compounds get incorporated in DNA and block cell proliferation.

85] Urine of alcaptonuria patients turns black on exposure to air.
⇒ Urine becomes black on standing due to contact with oxygen or when it becomes alkaline.

→ It is accelerated on exposure to sunlight and oxygen.

→ Homogentisic acid is oxidized & polymerised to black coloured alkapton bodies.

86] Chargaff's rule is applicable in DNA not in RNA.

→ Due to single stranded nature of RNA; there is no specific relation between purine & pyrimidine contents.

→ Thus the guanine content is not equal to cytosine (as in the case of DNA).

→ They act synergistically to ↓ lipid peroxidation.

(88) Deficiency of α -1 Antitrypsin can cause emphysema.
 ⇒ In AAT deficiency, unopposed action of elastase will cause damage to lung tissue.
 → It leads to Emphysema.

(89) Ethanol is antidote of Methanol poisoning.
 → Methanol $\xrightarrow[\text{dehydrogenase (ADH)}]{\text{Alcohol}}$ Formaldehyde $\xrightarrow[\text{dehydrogenase (ADH)}]{\text{Alcohol}}$ Formate
 Very harmful to body
 → Ethanol saturate ADH enzyme
 → no metabolism of methanol to form formic acid.

(90) Glycolysis in RBC ends in lactate production.
 → In RBC; mitochondria is not there; therefore anaerobic glycolysis occurs.
 → And an anaerobic glycolysis ends as lactate product

(91) Tyrosine is an essential for patients of phenylketonuria
 → Phenylalanine $\xrightarrow[\text{hydroxylase}]{\text{Phenylalanine}}$ Tyrosine
 ↓
 deficiency causes Phenylketonuria.
 therefore: Tyrosine is not formed & becomes essential

(92) Calcium deficiency leads to osteomalacia.
 ⇒ In Osteomalacia, Ca^{2+} deficiency is seen due to insufficient Ca^{2+} absorption from intestine.
 → Due to that there is softening of bones in children & Adults.
 → vit-D deficiency is also seen.

→ Other causes :- ↑ Intracranial pressure
Brain stem Injury

94] Cellulose cannot be digested and absorbed by humans.
→ Due to absence of Cellobiase enzyme.

95] Methylation of DNA is imp. in functioning of mismatched repair.
→ Original DNA contains Methylated residue while newly formed strand do not have Methylated bases.
→ So enzymes can recognize the original DNA from new DNA
→ And mismatched bases can be removed.

96] Uronic acid pathway is related with detoxification.
⇒ The uronic acid is used by body for conjugation with insoluble molecule to make them soluble in water for detoxification purpose.

97] LDH is not the preferable test in Myocardial infarction.
→ Along with Myocardial Infarction; high level of LDH is also seen in hemolytic anemia, hepatocellular damage, muscular dystrophy, etc.
→ Therefore it is not the preferable test.

98] Fluoride is used as an anticoagulant for blood sugar estimation.
→ Fluoride inhibits glycolysis by inhibiting enolase; therefore correct or ~~but~~ proper blood sugar is maintained for several time; so that we can estimate proper blood sugar.



Prove statins choice other "statin" group of drugs are competitive inhibitors of HMG Co-A reductase so ↓ cholesterol level in blood.

(10) Person with sickle cell trait are resistant to Malaria caused by *Plasmodium falciparum*.

⇒ (i) sickle cell - Trait provides resistant to Malaria.
= (i) ↑ lysis of sickled cells interrupts the parasite cycle.

(ii) Malarial parasite increases the acidity of RBC's.

→ The lowered pH ↑ the sickling of RBC.

→ Therefore, entry of malarial parasite promotes sickling leads to lysis of RBC's.

(iii) Lower K^+ concentration in sickled cells.

→ Unfavourable for parasite to survive.

Best of Luck

Daiwat & Aniket