Part 1 :

Questions :

1- 3 moles of acetyl CoA in the TCA cycle produce

2- enzymes that undergo oxidiative decarboxylation in the TCA cycle

3- glutamate produces both of the urea nitrogens by

4- Picture of Urea cycle: enzyme of rxn. 3

5- Picture of Urea cycle: molecules of the same class

6- catabolism of serine produces

7- essential amino acids

8- true about PKU

9- Other reactants and products of the reaction between CO2 and NH3

10- which is not antioxidant

11- after 14-hour, milky looking plasma indicates

12- binds the scavenger receptor class b1 in the liver

13- familial hypercholestorolemia

14- true about acetyl CoA carboxylase

15- wrong about HMG CoA (reductase)

16- Wrong about de novo synthesis of pyrimidines

17- a child with severe combined immunondeficiency, the enzyme involved converts

18- a fat free diet reduces production of

19- Vitamin D is synthesized from

20- Picture of bile acid: rate limiting step of its synthesis

21- Wrong about H2O2 22- Wrong about deoxyribonuclotides

23- wrong about Purine degradation

24- Amonia is mostly transported in blood as

25- an enzyme that fixes free ammonia to the substrate

26- Wrong about alocoholic fermentation

27- true about ketonbodies

28- true about gluconeogenisis

29- not consistent with maintaining sufficient glucose to brain during fasting

30- to make shpingomyelin from ceramide we need

31- to cut the phoshpocholine from lecithen we need

32- Orlistat inhibits

33- someone prevented from a chlorophyll-rich diet because of

34- Wrong about TAG synthesis in the adipose tissue

35- true about converting 3-Hydroxyacyl CoA to 3-ketoacyl CoA

36- Nieman-pick disease is

37- wrong about homocysteine

38- wrong about lactose synthase

39- wrong about monosacharide metabolism

40- a galactose free diet, where do we get galactose from

41 - high blood glucose in diabetics causes problems becasue

42- Products of converting malate to pyruvate

43- conversion of phosphatidylethanolamine to phosphatidylcholine requires

44- a product of nucleotide salvage pathway

45- Wrong about pentose phosphate pathway

46- Wrong about propionyl CoA

47- beta oxidation of Oleic acid produces

48- Wrong about the nonoxidative reactions of PPP

49- true about acetate's fate produced from ethanol metabolism

50- not a coenzyme of pyruvate dehydrogenase

51- wrong about hormone sensitive lipase

52-wrong about purine de novo synthesis

Answers:

1-3 FADH2

2- Isocetrate and alpha ketoglutarate dehydrogenase

3- oxidative deamination and transamination

4- mitochondrial ornithine carbamoyltransferase

5- G, B, C, E (amino acids)

6- pyruvate

7- Leucine, lysine, valine

8- if not treated, mental retardation

9- none of above *maybe*

10- Cysteine

11- Chylomicron remnant defective absorption by liver

12- HDL

13- Defective LDL receptors

14- its product inhibits fatty acyl coa entry to mitochondria

15- active when phosphorylated

16- UTP made from CTP

17- adenosine to inosine

18- arachidonic acid

19- 7-dehydrocholesterol

20- 7-hydroxylase

21- is a free radical

22- made from dPRPP

23- X.O. has H_2O_2 as substrate

24- glutamine and alanine

25- alpha ketoglutarate to glutamate

26- produces 1 ATP

27- fully oxedized in the heart to CO_2

28- activated in the kidney after prolonged fasting

29- activating pyruvate dehydrogenase

30- phosphatidylcholine

31- phospholipase C

32- pancreatic lipases

33- deficient alpha oxidation

34- glycerol 3 phosphate is produced by glycerol kinase

35- in the mitochondria

36- deficient sphingomyelin degradation

37- source of the carbon skeleton of cysteine

38- joins UDP-galactose and CDP-glucose

39- hereditary fructose intolerance is due to deficient frucktokinase

40- epimerisation of UDP-glucose

41- converted to sorbitol

42- CO_2 and NADPH

43- 3 S-adenosylmethionine

44- GMP form Guanine

45- Activated by NADPH

46- a product of peroxisomal very long chain fatty acid oxidation

47- 7 $FADH_2$

48- transaldolase transfers 2-c

49- activated to acetyl CoA by many tissues

50- pyredoxine

51- extracellular

52- sulfonamides strongly inhibit nucleotide synthesis in humans

Part 2:

1) a fatty acid with 10 molecules: what is true about its synthesis? 8NADPH
2) what is true about the chemiosmotic theory? asymmetric pumping of protons
3) what is true about ATP consumption in the cell (Nafith)? all of the above
4) if we inhibit csuccinate dehydrogenase what product will decrease? fumarate
5) all the of the dehydrogenases produce NADH except for? succinate dehydrogenase
6) a well appearing baby arrives to your clinic, reducing sugar positive in urine? fructokinase deficiency
7) sever hypoglecemia which deficiency? glucose 6 phosphatase deficiency
8) which one of the following is not true about PPP? can produce NADPH from the reversible reactoins
9) what is the amide bond in sphingomyelin? serine
10)tay-sachs disease? accumulation of sphingolipids
11) what are the products of ALT? pyruvate and glutamate
12) which of the following cannot be found in urea cycle? urea synthetase
13) what gives blood creamy appearance? chylomicrons
14) what is true about apoliporotein C2? if deficient chylomicrons will persist in the blood
15) to make glucose 6 phosphate from ribose 6 phosphate? 7sedoheptulose is an intermediate
16) a picture of feransyl phosphate? genaryl + isoprpyl
17) what is wrong about leish nyhan disease? decrease in de novo synthesis
18) a kid comes with orotate aciduria what should you do? administer uridine
19) which of the following is not an antioxidant? nicotinamide
20) which of the following is not correct about G6PD deficiency? severe hypoglycemia
21) which of the following is a product in cholesterol metabolism or something like that? 7dehydrocholesterol
22) which of the following is wrong about TAG digestion in intestines?(Phosphotidic acid is an intermediate cause it is not)
23) which of the following is wrong about ACC? oxidation reduction reaction
24) which of the following is the phenton reaction? $Fe^{2+} + H_2O_2 \rightarrow FE^{3+} + OH$ (Radical) + OH(ion)

25) which of the following is wrong about uric acid? H2O2 is a substrate
26) which of the following produce H2O2? very long chain fatty acid oxidation
27) which of the following is true about cholesterol esterification in plasma? phosphatidylcholine is the second substrate
28) which of the following is wrong about leucine, isoleucine, and valine? all produce succinyl CoA
29) wrong about digestion of proteins? elastase works on bulky amino acids
30) true about both alcohol fermentation and lactate formation? both produce NAD+
31) which of the following is not a cofactor in succinate dehydrogenase? ATP
32) wrong about hydrolysis of fat in adipose tissue? enzyme is extracellular
33) HMGCoA reducatase? inhibited by phosphorylation
34) a baby is born white skin red eyes.. etc? def in copper dependent tyrosinase
35) which of the following is wrong about purine synthesis? CPT is used
36) what is wrong about PKU deficiency? tyrosine hydroxylase deficiency
37) which of the following is produced after breaking down serine? N5,N10 methylene tetrahydrophate
38) which of the follwing is the cause of anemia in B12 def? inability to regenerate the carrier (THF)
39) what is true about glucorconic acid? important constituent in GAG
40(lingual lipase wrong ----> requires emulsification

Part 3 : (For Dr.Diala only)

1-mismatching: serotonin-threonine

2-wrong about PKU: deficiency of PKU carboxylase

3-true about conversion Mono to Di: base specific Mono the general Di

4-lesch-nyhan syndrome : deficiency of HGPRT

5-hydroxyurea & RR: inhibit thus treatment of leukemia cancer

6-wrong about purine degradation: nucleosidases remove phosphate group

7-true about gout: urate crystals in joints

8-wrong about porphyrins synthesis: Fe addition by ferrochelatase (it just enhance spontaneous adding)

9-true about heme degradation: conjugation to glucuronic acid to increase solubility

10-true about Jaundice: newborns have deficiency of glucuronyltransferase

11-wrong about MOE: it's the only enzyme in catecholamines degradation

12- mismatching: purine-ribose adding lately // pyrimidine-ribose adding firstly

13-WRONG about purine degradation pathway? Purine degradation results in beta alanine & beta hydroxybutyrate

14-True about methionine >> can be regenerated from homocysteine in the presence of B12

15-True about pancreatic lipase? Deficiency affect el degradation not absorption

16-Non-essential AA..??

17-True about salvage pathway >> GLY can be synthesized from serine and THF will be the hydroxyethyl acceptor

18-All are inhibitors of purines and pyrimidine Synthesis Except >> PRPP 19-Deficiency of cystathionine synthase diagnosis >> homocystinurea

20-True about folate 1. It is active form is THF 2. C5 and /or C10 r the methyl carriers

21-True statement proline, Leu, isoleucine are derived from keto acids?

22-Conversion from glutamate to glutamine what is the wrong statement? It affectts el conversions from Glu to alpha ketoglutarate

23-wrong about ubiquitin-proteasome pathway: both ubiquitin & target protein are degraded.

24-true about protein degradation & absorption: AA's are absorbed into portal system

25-wrong about urea cycle: happens in mitochondria

26-mismatching: serine-Glu-ketogenic

27-something true about folic acid: THF is the activated form

28-something true about nonessential AA's: Gly from Ser & THF accepts (C-OH)

29-activator for both purine & pyrimidine synthesis: PRPP

30-Mismatch pairs, each AA with its precursor:

A. Tyrosine - melanin

B. Tyrosine - norepinephrine

C. Threonine -serotonin

D.histidine –histamine

E. arginine and glycine, creatine

Answer C

Part 4 : (For Dr.Diala only) للقطاعات فقط

1-A patient who has a glutamine synthetase deficiency would have all of the following EXCEPT:

A. Glutamate amination to glutamine is compromised

B. Transport of ammonia from most tissues to liver is hindered

C. Toxic levels of ammonia may accumulate in the patient's tissues and/or blood

D. Transport of ammonia from muscle cells to the liver is not affected

E. Transamination of α–ketoglutarate to glutamate is downregulated

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3-A new born who refuses feeding has been diagnosed with cystathionine-β- synthase deficiency. What is the diagnosis of his condition?

A. Albinism

B. Homocystinuria

C. Maple syrup urine disease

D. Hyperammonemia

E. Alkapronyria

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5-Protein digestion is continued in small intestine after partial digestion begins in stomach. Celiac disease is a malabsorption disease due to immune-mediated damage of intestinal cells. Which of the following describes protein digestion and absorption at the small intestine?

A. Pancreatic trypsin and chymotrypsin are exopeptidases that cleave the N-terminus of a polypeptide

B. The intestinal aminopeptidase cleaves the C-terminus of a polypeptide

C. The resulting free amino acids are absorbed by an H+ -linked transport system

D. The di- and tripeptides are absorbed by an Na+ -linked transport system

E. Absorbed amino acids are transferred to liver via portal circulation Protein digestion is continued in small intestine after partial digestion begins in stomach.

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7-Which of the following is the INCORRECT match? Amino acid Catabolic intermediate Glucogenic and/or ketogenic

A. Tyrosine Fumarate Glucogenic and ketogenic

B. Proline α-ketglutarate Glucogenic

C. Serine Glutamate Ketogenic

D. Arginine α-ketglutarate Glucogenic

E. Threonine Succinyl-CoA Glucogenic

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9-A patient with Lesch-Nyhan syndrome has visited your clinic. He has a lesion on his lip. In this syndrome, nucleic acid metabolism is compromised. Which of the following describes his condition?

A. Purine denovo synthesis is reduced but purine salvage is increased

B. HGPRT enzyme deficiency results in an inability to salvage guanine and hypoxanthine

C. APRT enzyme deficiency results in an inability to salvage adenine

D. Purine degradation is decreased resulting in hypouricemia

E. AMP, GMP and IMP levels are all reduced

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11-Phosphorylation of nucleoside monophosphates to nucleoside triphosphates occurs as follows:

A. Base-specific nucleoside monophosphate kinases phosphorylate nucleoside monophosphates in a two-step reaction

B. Base-specific nucleoside diphosphate kinase phosphorylates nucleoside monophosphates

C. General nucleoside monophosphate kinases phosphorylate nucleoside monophosphates followed by the base-specific nucleoside diphosphate kinase

D. Base-specific nucleoside diphosphate kinase phosphorylates purine nucleoside monophosphates

E. Base-specific nucleoside monophosphate kinases phosphorylate nucleoside monophosphates followed by nucleoside diphosphate kinase

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13-All of the following are inhibitors of purine or pyrimidine denovo synthesis EXCEPT:

A. PRPP B. 5-FdUMP

C. Methotrexate

D. GMP

E. AMP

14-All of the following are inhibitors of purine or pyrimidine denovo synthesis EXCEPT:

A. PRPP

B. 5-FdUMP

C. Methotrexate

D. GMP

E. AMP

1	2	3	4	5	6	7	8	9	10	11	12	13	14
	E		B		E		C		B		E		A