

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

Biochemistry Final Exam – Summer Semester 2012

- 1) which of the following is a control point in the citric acid cycle:
<c> isocitrate dehydrogenase.
<c> succinate dehydrogenase.
<c> malate dehydrogenase.

- 2) glyceraldehyde 3 phosphate dehydrogenase is involved in :
<c> reduction and phosphorylation of glyceraldehyde 3 phosphate to 3-phosphoglycerate.
<c> oxidation of NAD to NADH.
<c> neither a nor b.
<c> both a and b.

- 3) the conversion of N₂ to ammonia require:
<c+> 16 ATP.

- 4) the reaction fumerate -----> malate is:
<c+> Hydration.

- 5) ATP is an allosteric inhibitor of :
<c+> pyruvate dehydrogenase complex.

- 6) propionyl-CoA is product of :
<c+> oxidation of fatty acid with odd number of carbon atoms.

- 7) The first high energy intermediate in glycolysis is :
<c+> 1,3-bisphosphoglycerate.

- 8) the main source of NADPH is :
<c+> phosphate pentose pathway.
- 9) glycolysis contains:
<c+> 3 irreversible steps.
- 10) Which of the following is not in B-oxidation:
<c+> it starts at the methyl end.
- 11) The final product of catabolism of amino acids in birds is :
<c+> Uric acid.
- 12) Which of the following is not a part of acetyl-CoA carboxylase:
<c> Carboxyl Transferase.
<c> Biotin Carrier Protein.
<c+> Carnitine Acyltransferase -I
<c> Biotin Carboxylase
- 13) What is the rate limiting enzyme in cholesterol synthesis:
<c+> HMG-CoA reductase.
<c> HMG-CoA lyase.
<c> Mevalonate Synthase.
- 14) How many ATPs are produced when malate is oxidized to oxaloacetate and continued through the electron transport chain and oxidative phosphorylation:
<c> 1 ATP.
<c> 1.5 ATPs.
<c+> 2.5 ATPs.
- 15) Which of the following statements is TRUE?
<c+> hydrophobic interaction between G—C is more than between A—T >>

- <c> hydrophobic interaction between A—T is more than between G—C
- <c> hydrogen bond interaction between A—T is more than between G—C
- <c> hydrophobic interaction between A—T is the same as between G—C

16) Which of the following statements is TRUE?

- <c+> eukaryotic DNA is normally complexed with histones >>
- <c> prokaryotic DNA is complexed with histones.
- <c> eukaryotic DNA exists normally as a closed circle.
- <c> circular RNA is normally supercoiled.

17) How many moles of ATP are consumed in glycolysis of 1 mole of glucose:

- <c> 1 ATP
- <c+> 2 ATPs >>
- <c> 0; ATP is produced, not consumed in glycolysis
- <c> 4 ATPs.

18) How many molecules of ATP and GTP are needed to produce 1 mole of glucos using gluconeogenesis?

- <c> 2 GTP and 4 ATP.

19) What type of reaction is the conversion of fumarate to malate ?

- <c+> hydration >>
- <c> dehydrogenation
- <c> condensation
- <c> oxidative decarboxylation.

20) What is the coenzyme involved in the biosynthesis of glycine from serine?

- <c+> Tetrahydrofolate

<c> Biotin

<c> Pyrodoxial phosphate

21) What is the last electron acceptor in the electron transport chain?

<c+> O₂.

22) The precursor of Alanin comes from what pathway?

<c+> Glycolysis

<c> Glucogenesis.

23) What are the main products of the pentose phosphate pathway?

<c+> NADPH, ribose-5-phosphate.

24) The importance of carnitine is:

<c+> Carries the acyl group across the inner mitochondrial membrane.

25) -Which of the following amino acids cannot be produced from α -ketoglutarate?

<c> Glutamine

<c+> Glycine

<c> Arginine

<c> Proline.

26) Which one of the following is a rearrangement reaction?

<c> Glucose-6-phosphate \rightleftharpoons Fructose-6-phosphate

<c> Leucine \rightleftharpoons Isoleucine.

27) The reaction in which oxaloacetate is produced from the oxidation of malate is followed by:

<c+> condensation of oxaloacetate with acetyl-coA.

28) What is the product that Links the urea cycle with the citric acid cycle?

<c+> Fumarate.

29) In the cori cycle:

<c+> The glycolysis occurs in muscles and gluconeogenesis in liver.

30) The reactions that convert Isocitrate to succinyl-coA are in order:

<c+> two oxidative decarboxylations.

31) Which one is not part of the Pyruvate dehydrogenase complex?

<c> FAD

<c> TPP

<c> Biotin

<c> Lipoic acid.

32) Lipoic acid acts as:

<c> oxidizing-reducing agent

<c> Acyl group transfer

<c+> Both

<c> Neither.

33) How many types of subunits compose the F1 part of the ATP synthase?

<c> 8

<c+> 5

<c> 6

<c> 7

34) The number of ATP produced from glyceraldehyde-3-phosphate that undergoes glycolysis, TCA cycle and oxidative phosphorylation

<c> 32

<c+> 17

<c> 12.5

<13.5>

35) How many ATP are required in the transamination reactions :

- <c> 1
- <c> 2
- <c> 3
- <c+> 0

36) the source of oxygen in beta oxidation is :

- <c> water
- <c> co2
- <c> peroxide
- <c> co2.

37) The glycogen synthase is directly controlled by all of these except:

- <c> ATP
- <c> AMP
- <c> glucose
- <c> glucose 6 phosphate.

38) In fatty acid biosynthesis ..which is true:

- <c> condensation of acetyl and malonyl that are both linked to ACP
- <c> 2acetyl co-A and malonyl ACP
- <c> 3.acetyl ACP and malonyl co-A
- <c> 3.acetyl linked to the enzyme synthase and malonyl ACP

39) One of the following cant pass the inner m.m

- <c> oxaloacetate
- <c> succinyl co-A
- <c> citrate.

40) In the e.s transport chain, the reduction of O2 takes place

- <c> outer surface of inner m.m
- <c> matrix side of inner m.m
- <c> mitochondrial matrix
- <c> intermembranous space

- 41) One of the following is a rearrangement rxn in citric cycle
- <c> succinyl co-A to succinate.
 - <c> citrate to isocitrate
 - <c> G.6.P to F.6.P
 - <c> Oxidation reaction.
- 42) Prokaryotic dna. supercoiling:
- <c> negative
 - <c> need ATP
 - <c> requires DNA gyrase
 - <c> all are correct.
- 43) The first high energy intermediate in glycolysis is
- <c+> 1.3 bisphosphoglycerate
- 44) phosphorylation of glycogen synthase:
- <c> increase activity
 - <c> decrease activity
 - <c> no effect
 - <c> cant be phosphorylated .
- 45) Which is correct
- <c> Hydrophobic interaction is higher in G-C more than A-T
 - <c> Hydrophobic interaction is higher in a-t more than g-c
 - <c> Hydrogen interaction in t-a more than g-c
- 46) One of the following pair doesn't occur in RNA
- <c > A-G
 - <c> U-A
 - <c> G-C
- 47) Intermediate common in cholesterol synthesis and ketone bodies..
- <c+> HMG.CO.A

48) One of the following is not a cofactor in alpha ketoglutarate D.H

COMPLEX

<c> lipoic acid

<c> NAD+

<c> biotin

<c> TPP.

49) HOW many ATP PRODUCED FROM COMPLETE OXIDATION OF BUTANOIC ACID (C4):

<c> 24

<c> 20

50) How much atp produced from complete oxidation of G.1.P to CO₂ and H₂O

<c> 33.

<c> 32.

51) The compound that reacts with UTP in glycogen synthesis is:

<c> G6P

<c> G1P

52) .G1P reacts within glycogen synthesis

<c> UTP

<c> UDP

<c> ATP

53) In complex iv ..it oxidizes..... reduce pumps..

<c> coQ...O₂ ..proton

<c> cyt c..O₂ ..proton.

54) Proton pumping takes place in all of these except

<C> complex II

55) When there is 2,4-dinitrophenyl in e.s transport chain

<c> O₂ is still reduced

<c> energy dissipated ..which otherwise used to produce ATP

<c> still there is proton pumping..

<c> all are correct

56) In e.s trnsport chain..oxidation of 3 moles of NADH ..needs

<c> 2 moles of oxygen

<c> 1.5 mole

57) what is correct:

<c> circular RNA is normally supercoiled !!

<c> pro DNA is normally linked to histones

<c> Euk. DNA is normally circular

<c> Pro. DNA is normally as closed circle.

58) aDNA and bDNA are:

<c> Both right handed

<c> both left handed

<c> both has 10 base pairs each turn

<c> both has 11 base pairs each turn.

59) RNA that directs a.a sequence in protein sequence :

<c> tRNA

<c> rRNA

<c> mRNA

60) Which is correct about pyrimidine catabolism:

<c+> Uracil is reduced by NADH to dihydrouracil.

61) In cori cycle

<c> Glycolysis in liver and gluconeogenesis in muscle.

<c> glycolysis in muslce and gluconeogenesis in liver

62) Conversion of pyruvate to oxaloacetate occurs in:

- <c> mitochondrial matrix
- <c> inner m.m
- <c> intermembranous space.

63) The end product of purine catabolism in man is:

- <c> uric acid
- <c> allantoin

64) The urea cycle is primarily for :

- <c> production of arginine
- <c> conversion of toxic excess ammonia to urea

65) 3-phosphoglycerate is precursor of:

- <c> serine
- <c> cysteine
- <c> glycine
- <c> all are correct.

66) Which is not glucogenic a.a :

- <c> valine
- <c> proline
- <c> lysine

67) Which is produced from fatty acids biosynthesis..

- <c> NADH
- <c> NADPH

68) Which is wrong about beta oxidation:

- <c+> starts from methyl end

69) Which is a cofactor in nitrogenase complex:

- <c+> Fe – mo protein

70) How many ATP is needed to produce one ammonia from molecular nitrogen :

<c> 16

<c> 8

71) How many control points is there in the citric cycle:

<c+> 3 points

72) Control point in citric cycle are ..

<c> citrate synthase

<c> alpha ket glucose dehydrogenase.

<c> isocitrate dehydrogenase.

<c> aconitase

73) Inhibitor between coQ and cyt b

<c+> antimycin A

74) Conversion of isocitrate to succinyl coa needs

<c+> 2 succesive oxidative decarboxylation

75) One enzyme has role in getting acetyl coa out of mitochondria

<c+> citrate synthase.

76) what is the precursor of oxaloacetate :

<c> citrate

<c> fumarate

<c> malate

<c> succinyl coA.

77) The pair of enzyme and coenzyme that is needed in the first oxidation reaction in the Beta-oxidation of fatty acids :

- <c> acyl-coA dehydrogenase with FAD
- <c> hydroxyacyl-coA dehydrogenase with NAD
- <c+> trans2-enoyl-coA reductase NADH

78) $\text{NH}_4 + \text{glutamate} + \text{ATP} \dots\dots\dots > \text{glutamine} + \text{H}_2\text{O} + \text{ADP} + \text{Pi}$ what is the enzyme used in this reaction ?
<c+> glutamine synthetase.

79) which one of these enzymes is a ketogenic amino acid :
<c> glycine
<c> serine
<c+> leucine
<c> cysteine.

80) The glyoxylate cycle occurs in :
<c> plants & animals
<c+> plants & bacteria<>
<c> animals & bacteria
<c> plants only.

81) nucleoside contains all of the following except :
<c> sugar
<c> purine
<c> pyrimidine
<c+> phosphate group.

82) the RNA type that directs amino acid sequence of proteins is :
<c> tRNA
<c> rRNA
<c+> mRNA<>
<c> snRNA

- 83) How many polypeptide chains does the F1 type of ATP synthase contain :
<c+> 5.
- 84) what is the coenzyme used in pentose phosphate pathway :
<c+> NADPH.
- 85) How many peptide chain are there in the F0 part of ATP synthase?
<c> 5
<c> 7
<c> 8
<c> 9.
- 86) Which of the following is not a product of the citric acid cycle ...
<c> FMN
<c> Qh2
<c> CO2
<c> NADH.
- 87) Which of the followin is not an intermediate in the uric acid cycle :
<c> ornithine
<c> carnitine
<c> citrulline
<c> arginine
- 88) The precursor of beta-alanin is come from :
<c> glycolysis
<c> citric acid cycle.
- 89) Which statement is wrong about ketone bodies:
<c+> water insoluble.

- 90) Which one of the following isn't a part of electron transport chain:
<c> FADH₂
<c> coenzyme A
<c> coenzyme Q
<c> NADH.
- 91) Which enzyme is found in mitochondria:
<c+> pyruvate carboxylase.
- 92) Which of the following is an aerobic process:
<c+> citric acid cycle
- 93) Which enzyme is called condensing enzyme:
<c+> citrate synthase
- 94) What is the final acceptor in complex I:
<c+> ubiquinone.
- 95) Which molecule can accept only one electron at a time:
<c+> Cyt c.
- 96) Which one of the complexes in the electron transfer chain doesn't transfer hydrogen ions through the membrane?
<c+> complex II.
- 97) Which of the four complexes of the electron transfer chain consists of oxygen?
<c+> complex IV.
- 98) Complex I is also called:
<c+> NADH-coQ oxidoreductase.

99) The reaction of glyoxalate with acetyl-coA produces:

<c+> Malate.

100) One of the following is not a respiratory inhibitor:

<c> Amytal

<c> rotenone

<c> Antimycin A

<c+> Valinomycin

101) Which one of the following is a respiratory inhibitor for Cyt b, coQ?

<c+> antimycin A.

102) Which of the following is not a source of fatty acid?

<c> Breakdown of sphingolipids

<c> Breakdown of phosphoacylglycerols

<c> Internal biosynthesis

<c> Breakdown of triacylglycerols.

103) The main intermediate in the β -oxidation of uneven numbered fatty acids?

<c+> Propionyl-coA.

104) Metabolic water is a product of :

<c+> β -oxidation

<c> Glycolysis

<c> gluconeogenesis.

105) Which class of lipoproteins transports dietary lipids?

<c> HDL

<c> LDL

<c+> chylomicrons

<c> IDL.

106) Which one of the RNA Kinds is responsible for directing protein synthesis?

<c+> mRNA.

107) What is the last carrier of malonyl in fatty acid biosynthesis?

<c> ACP

<c> β -hydroxybutyryl-ACP hydratase

108) Cholesterol is a precursor for:

<c+> Aldosterone, Cortisone.

109) An important shared feature of A-DNA and B-DNA is:

<c+> both right-handed helices

<c> both left-handed helices

110) Complex IV oxidize _____, reduce _____ and _____ proton .

<c> Cyt c , CoQ , pump .

<c> CoQ , Cyt c , pump .

<c> Cyt c , O₂ , pump .

<c> Cyt c , O₂ , do not pump .

111) Which class of lipoproteins have the lowest density ?

<c> VLDL

<c> LDL

<c> HDL

<c> Chylomicrons.

112) The conversion of glucose-1-phosphate to co₂ +h₂o when it passes all aerobic pathways requires ?

<c> 2 ATP

<c> 32 ATP

<c> 33 ATP

<c> 3 ATP.

113) Which of these pathways requires energy ?

- <c> Glucoigenises & urea cycle
- <c> glycolysis &Glucoigenises
- <c> citric acid &Glucoigenises
- <c> urea cycle &citric acid.

114) What is the rate determining step in cholestrol synthesis ?

- <c+> Answer > HMG reductase

لجنة الطب البشري .. الفكرة التي تخيا على نبض قلوبكم

وهذا بعض السرّ الاجتماعي العظيم في الصوم،
إذ يبالغ أشد المبالغة، ويدقق كل التدقيق في منع الغذاء وشبه الغذاء عن البطن مدةً آخرها آخر
الطاقة..

فهذه طريقة عملية لتربية الرحمة في النفس..

ولا طريقة غيرها إلا النكبات والكوارث!

فهما (الصوم والكوارث) طريقتان كما ترى:

مبصرة وعمياء، وخاصة وعامة، وعلى نظام وعلى فجأة..

ومتى تحققت رحمة الجائع الغني للجائع الفقير، أصبح للكلمة الإنسانية سلطانها النافذ، وحكم
الوازع النفسي على المادة:

فيسمع الغني في ضميره صوت الفقير يقول: ((أعطني..))

ثم لا يسمع منه طلباً من الرجاء، بل طلباً من الأمر لا مفر من تلبيته والاستجابة لمعانيه،

كما يواسي المبتلى من كان في مثل بلائه ..

ألا ما أعظمك يا شهر رمضان! لو عرفك العالم حق معرفتك لسمّاك :

((مدرسة الثلاثين يوماً..))

~من كتاب وحي القلم للرافعي