

Course No: NUTR2305
Course Title: Nutritional
Biochemistry
Date: 17/01/2016
No. of Questions: (4)
Time: TWO hours
Using Calculator (Yes)

University of Palestine

Final Exam
First Semester 2016/2017
Total Grade: 30 Marks

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Student No.: _____
Student Name: _____
College Name: _____
Dep./Specialist: _____
Using Dictionary (No)

Question (1)(A) Put the sign (\checkmark) against the right sentences and the sign (X) against the wrong sentences: (10 Marks)

- (----) All proteins, are constructed from the same set of 20 amino acids.
- (----) All 20 of the common amino acids are α -amino acids.
- (----) The amino acids in protein molecules are exclusively L stereoisomers.
- (----) Cystine is oxidized to form a covalently linked dimeric amino acid called cysteine.
- (----) Oxytocin (9 amino acids), which is secreted by the posterior pituitary and inhibits inflammation.
- (----) Pancreatic hormone insulin, which contains 2 polypeptide chains, one having 15 amino acids and the other 12.
- (----) In the thalassemias, caused by a single nucleotide alteration (a point mutation) in the gene for β -globin.
- (----) Proteins are generally too large to be absorbed by the intestine.
- (----) Entry of dietary protein into the stomach stimulates the gastric mucosa to secrete the hormone gastrin.
- (----) Celiac disease is a disease of malabsorption resulting from immune-mediated damage to the small intestine in response to ingestion of gluten.

(B) Complete the following :

-----and-----, secreted by the pancreas, hydrolyze dietary RNA and DNA. In the liver, the pathway of ----- can use the pyruvate to synthesize glucose. 2 amino acid molecules can be covalently joined through a substituted amide linkage, termed a -----.

Peptides have characteristic titration curves and a characteristic -----.

----- refers to a group of conditions in which a defect in tyrosine metabolism results in a deficiency in the production of melanin.

-----, -----, and ----- are biologically active (biogenic) amines. The most abundant form of glycosylated hemoglobin is-----.

The lifetime of an RBCs in sickle cell anemia is less than -----, compared with ----- for normal RBCs; hence, the anemia.

Pepsin is acid-stable ----- is secreted by the chief cells of the stomach as an -----.

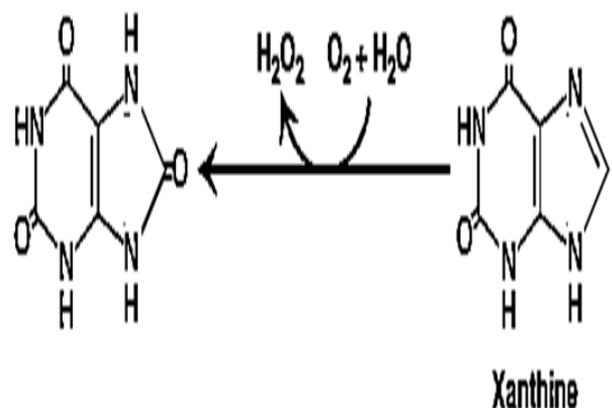
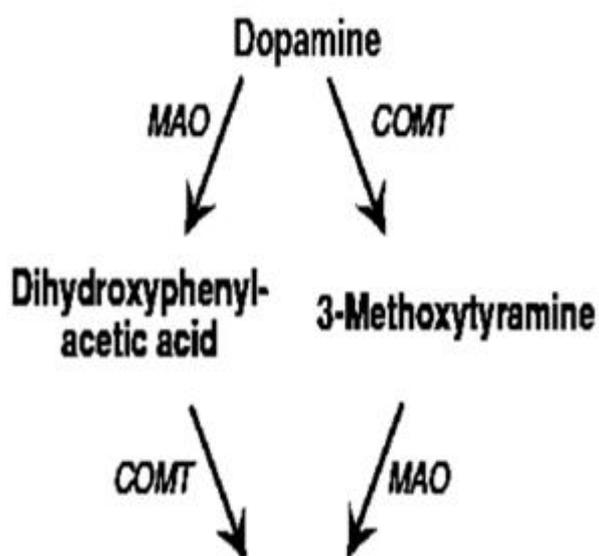
The release and activation of the pancreatic zymogens is mediated by the secretion of --- ----- and -----, two polypeptide hormones of the digestive tract.

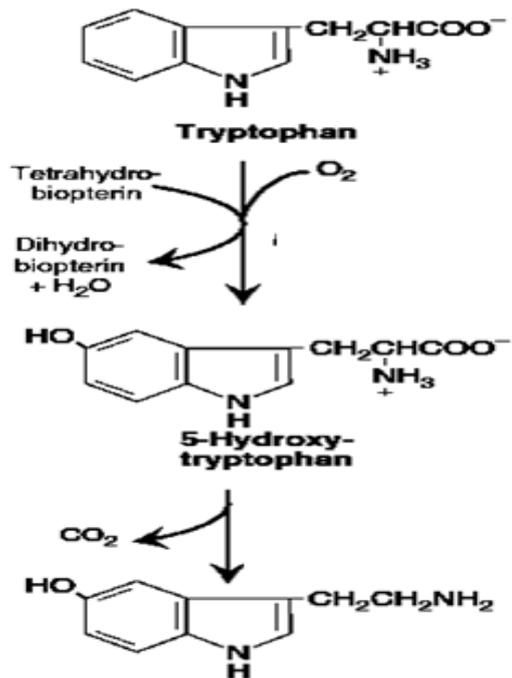
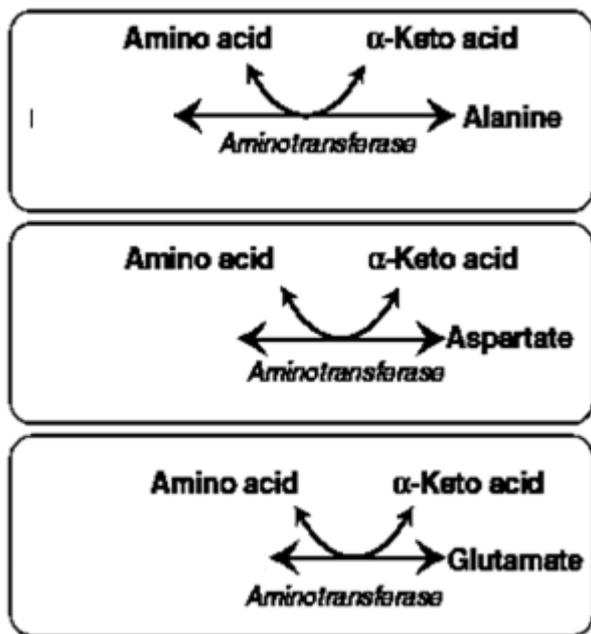
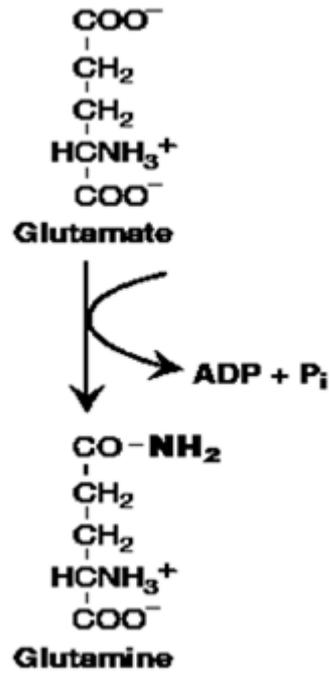
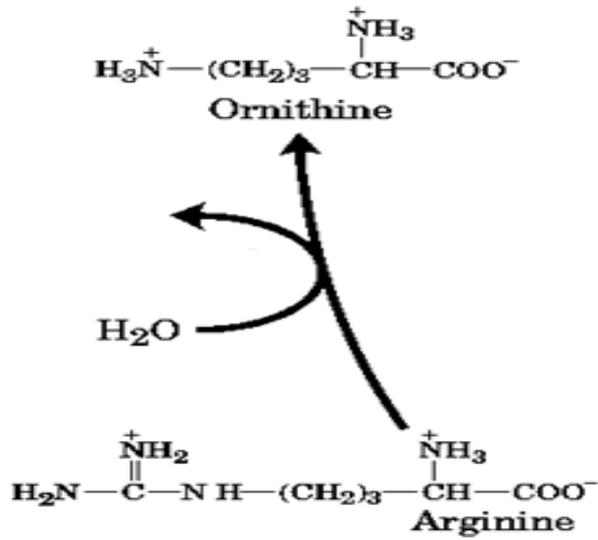
Question (2) Select and circle the correct answer from the following:(10 Marks)

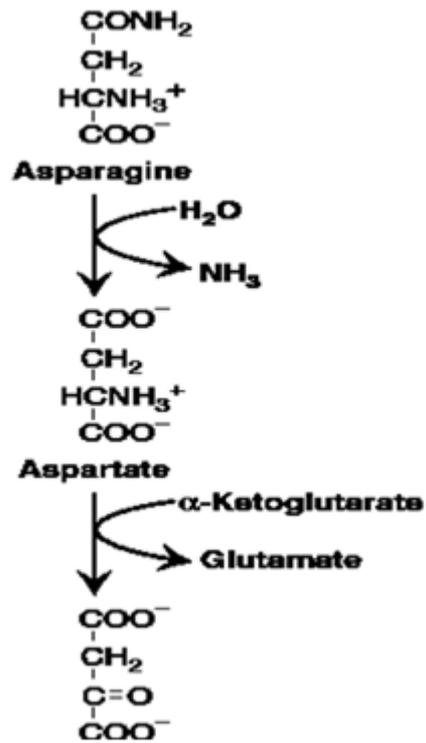
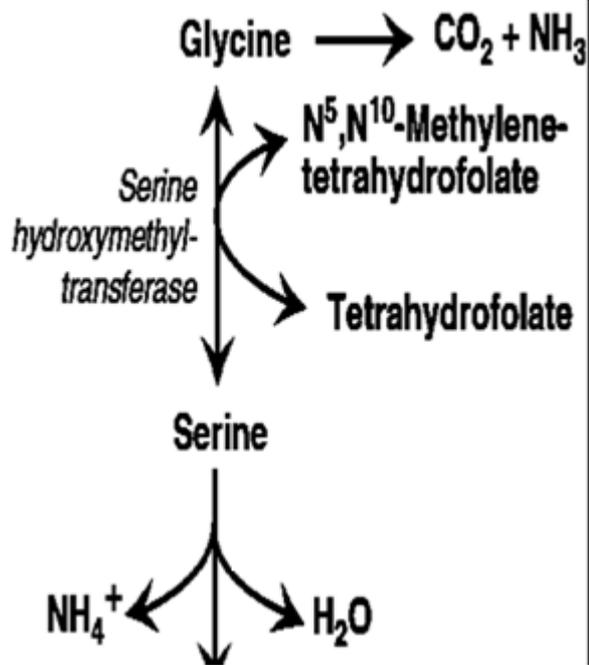
1-	Sulphur containing amino acid is	
(a)	Methionine	(b) Leucine
(c)	Valine	(d) Asparagine
2-	An aromatic amino acid is	
(a)	Lysine	(b) Tyrosine
(c)	Taurine	(d) Alanine
3-	An essential amino acid in man is	
(a)	Aspartate	(b) Tyrosine
(c)	Methionine	(d) Serine
4-	Non-essential amino acids	
(a)	May be synthesized in the body in diseased states	(b) May be synthesized in the body from essential amino acids
(c)	Have no role in the metabolism	(d) Are not components of tissue proteins
5-	A ketogenic amino acid is	
(a)	Valine	(b) Cysteine
(c)	Leucine	(d) Threonine
6-	An exopeptidase is	
(a)	Trypsin	(b) Chymotrypsin
(c)	Elastase	(d) Carboxypeptidase A
7-	Control of urea cycle involves the enzyme:	
(a)	Carbamoyl phosphate synthetase	(b) Ornithine transcarbamoylase
(c)	Argininosuccinase	(d) Arginase
8-	A compound serving a link between citric acid cycle and urea cycle is	
(a)	Malate	(b) Citrate
(c)	Argininosuccinate	(d) Fumarate
9-	The 2 nitrogen atoms in urea are contributed by	
(a)	Ammonia and glutamate	(b) Glutamine and glutamate
(c)	Ammonia and aspartate	(d) Ammonia and alanine
10-	The number of ATP required for urea synthesis is	
(a)	0	(b) 1
(c)	2	(d) 3
11-	The rate limiting step in the biosynthesis of catecholamines is	
(a)	Decarboxylation of phenylalanine	(b) Hydroxylation of phenylalanine
(c)	Hydroxylation of tyrosine	(d) Oxidation of dopamine
12-	The enzyme dopamine β-oxidase which catalyses conversion of dopamine to norepinephrine requires	
(a)	Vitamin A	(b) Vitamin C
(c)	Vitamin E	(d) Vitamin B12
13-	The amino acids involved in the synthesis of creatine are	
(a)	Arginine, glycine, active methionine	(b) Arginine, alanine, glycine
(c)	Glycine, lysine, methionine	(d) Arginine, lysine, methionine

14-	The compounds produced from degradation of methionine are		
(a)	Serine	(b)	Homocysteine
(c)	Homoserine	(d)	Threonine
15-	Ammonia is transported from muscles to liver mainly in the form of		
(a)	Free ammonia	(b)	Glutamine
(c)	Asparagine	(d)	Alanine
16-	Histamine is formed from histidine by		
(a)	Deamination	(b)	Dehydrogenation
(c)	Decarboxylation	(d)	Carboxylation
17-	In humans end product of purine catabolism is		
(a)	Uric acid	(b)	Urea
(c)	Allantoin	(d)	Xanthine
18-	Gout is characterized by increased plasma levels of		
(a)	Uric acid	(b)	Urea
(c)	Creatine	(d)	Creatinine
19-	All of the following statements about allopurinol are true except		
(a)	It increases the urinary excretion of xanthine and hypoxanthine	(b)	It can prevent uric acid stones in the kidneys
(c)	It is a structural analogue of uric acid	(d)	It is a competitive inhibitor of xanthine oxidase
20-	Maple syrup urine disease is an inborn error of metabolism of		
(a)	Sulphur-containing amino acids	(b)	Aromatic amino acids
(c)	Branched chain amino acids	(d)	Dicarboxylic amino acids

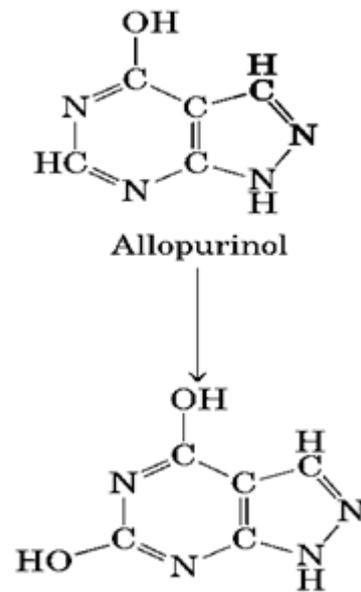
Question (3) Complete the following: (5 Marks)







	Glucogenic	Glucogenic and Ketogenic	Ketogenic
Nonessential	Alanine Arginine Asparagine Aspartate Cysteine Glutamate Glutamine Glycine Proline Serine		
Essential	Histidine Methionine Threonine Valine		



Question (4)(A)What are the Zinc deficiency symptoms? (2 Marks)

(B)Complete the following:(3 Marks)

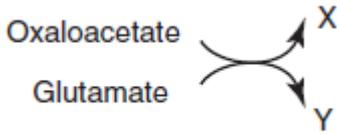
Medical condition	Defective process	Defective enzyme	Symptoms and effects
Alkaptonuria		Homogentisate 1,2-dioxygenase	
Homocystinuria		Cystathionine synthase	
Phenylketonuria			Neonatal vomiting; mental retardation

End of Questions
Good Luck

ملاحظة : الأسئلة التالية هي أسئلة إضافية للطلبة اللذين لم يتقدموا لامتحان النصفى الاول او الامتحان النصفى الثانى:

Question (1) Choose and explain the ONE correct answer.

In the transamination reaction shown below, which of the following are the products, X and Y?



A.	Alanine, α -ketoglutarate
B.	Glutamate, α -ketoglutarate
C.	Aspartate, α -ketoglutarate
D.	Pyruvate, aspartate
E.	Pyruvate, alanine

Question (2) Choose and explain the ONE correct answer.

Which one of the following statements about the urea cycle is correct?

A.	The two nitrogen atoms that are incorporated into urea enter the cycle as ammonia and alanine.
B.	Urea is produced directly by the hydrolysis of ornithine.
C.	ATP is required for the reaction in which argininosuccinate is cleaved to form arginine.
D.	Urinary urea is increased by a diet rich in protein.
E.	The urea cycle occurs exclusively in the cytosol.