

University of Technology
Department of Applied Sciences
Final Examination 2015/2016



Subject: Biochemistry
Branch: Applied Chemistry
Examiner: Abdunnasser M. Al-Gebori

Class: 4th year
Time: 3 hour
Date: 22/5/2016

Answer four questions (each question 25 marks)

Q₁:

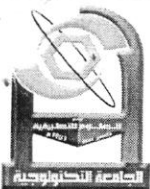
- Give the structure of thyroid hormones.
- Fatty acids are activated before being catabolized, illustrate with equation.
- There are three actions of hormones are defined, clarify.
- What is the role of fructose 1.6- biphosphatase in gluconeogenesis?
- What are the physiologic effects of parathyroid hormone?

Q₂:

- List the major hormones synthesized and secreted by the anterior pituitary gland, its target organ, and major physiologic effects.
- Acetyl-CoA formed by β -oxidation may undergo several fates, clarify.
- All hormone receptors can be categorized into one of two types, based on their location within the cell, give it in table showing classes and mechanism of action of each type.
- Glycolysis is regulated at three steps; give the enzymes that catalyze these steps.
- There are two important terms are used to refer to molecules that bind to the hormone-binding sites of receptors, clarify in details.

Q₃:

- There are two groups of hormones derived from the amino acid Tyrosine, clarify.
- Fatty acids are activated before being catabolized, illustrate with equation.
- There are two fundamental mechanisms by which a hormone can change its target cell, clarify.
- Give in figure the lactic acid (Cori) cycle and glucose-alanine cycle.
- Clarify the role of the pentose phosphate pathway in the glutathione peroxidase reaction of erythrocytes.



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Q4:

- a- Give the steps of entire synthetic process of thyroid hormones.
- b- The pathway of glycogen biosynthesis involves a special nucleotide of glucose, illustrate.
- c- Parathyroid hormone accomplishes its job by stimulating at least three processes, clarify in details.
- d- Give the final reaction of glycolysis under anaerobic conditions.
- e- What are the physiologic effects of calcitonin?

Q5:

- a- Classify hormones with example of each.
- b- Give in figure the overview of fatty acid metabolism showing the major pathways and end products.
- c- Clarify the Second Messenger Systems with its types.
- d- What is the enzyme that catalyzed the formation of malonyl-CoA?
- e- Give nonoxidative reversible phase phase of pentose phosphate pathway.



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Subject: Pollution
Branch: Applied Chemistry
Examiner: Dr. Salih A. Al-Bakri:

Class: 4th year
Time: 3:0 hrs
Date: 7/6/2016

ملاحظة: اجب عن أربعة أسئلة، (25) درجة لكل سؤال.

س1: هل للعوامل أدناه تأثير سلبي على البيئة، ماهي هذه العوامل، وهل هي فيزيائية أو أحيائية أو كيميائية، بين ذلك، موضحاً تأثيرها على سلامة البيئة وصحة المجتمع مع الإشارة إلى عانديتها العلمية وبالاصطلاحات أينما يستوجب ذلك:

Herpes simplex viruses / أ
Hepatitis viruses / ب
Cestodes / ت
Mycobacteria / ث
Clostridia / ج

س2: خطط مع الإصطلاحات والشرح الذي يظهر العلاقة مع البيئة ولما يأتي أدناه:

أ/ مستويات طيف التنظيم.
ب/ إستهلاك طبقة الأوزون.
ت/ الغازات الدفينة.
ث/ العوامل الكيميائية الفعالة سطحياً.
ج/ طرائق مراقبة التلوث وفوائده.

س3: للتحسس الثاني دور مهم في مراقبة ورصد التلوث البيئي فما هو؟ وما هي مميزاته الأساسية؟ وماهي الأنظمة المطبقة والمستعملة فيه؟

س4: صنف التلوث، وإشرح بالتفصيل التصنيف النمطي الأساسي له.

س5: إشرح تفصيلاً لما يأتي أدناه، وخطط تأثيرها الإمراضي مع ذكر دورها السلبي كعامل مايكروبي ضار في بيئة المياه والغذاء وبالمصطلحات اللازمة والمستوجبة:

أ/ضمات الكوليرا.

ب/عصيات السالمونيلا.