




المستوى الثالث

كيمياء حيوى

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|  | TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY | | | |
| | FINAL EXAMINATION FOR ALL DOUBLE MAJOR THIRD LEVEL STUDENTS | | | |
| | COURSE TITLE: | (Coordination Chemistry) | | COURSE CODE: CH3246 |
| DATE: | 1, JUNE 2017 | TERM: SECOND | TOTAL ASSESSMENT MARKS 50 | TIME ALLOWED: 2 HOURS |

Answer the following Questions:

1-) For each complex define the following: (Total marks 20)

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| 1- Name | 2- The type of isomerism |
| 3- The type of hybridization | 4- Calculate the magnetic moment |
| I-) $[\text{Mn}(\text{H}_2\text{O})_6]\text{Cl}_2$ (5marks) | II-) $\text{K}_2[\text{Zn}(\text{CN})_4]$ (5marks) |
| III-) $\text{K}_2[\text{Ni}(\text{NO}_2)_4]$ (5marks) | IV-) $\text{Na}_3[\text{CoCl}_6]$ (5marks) |

2-) A-) Iron ion forms an inner diamagnetic complex ion containing the cyano ligand. Derive the formulae of the complex. (4marks)

B-) Discuss the effect of central metal ion and its charge on Δ_o value. (4marks)

C-) Manganese (II) ion forms inner complex ion with cyano ligands. Calculate the magnetic moment value of the complex. (4marks)

D-) Discuss the hydration isomerism with example. (3marks) (Total marks 15)

3-) A-) Write full account on Jahn-Teller effect with examples (5marks)

B-) What is the formula of the following complex: (2marks)
Tetrammine copper (II) hexachloro copperate (II)

C-) For the two complexes: 1-) Hexammine cobalt(III) chloride (8marks)

2-) Potassium hexacyano ferrate (II)

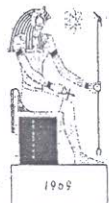
a-) Draw the d-orbital splitting indicate the number of electrons in t_{2g} and e_g

b-) Calculate the CFSE value and magnetic moment for each complex. (Total marks 15)

Note : (Atomic number for Mn 25, Fe 26, Co 27, Ni 28, Cu 29 & Zn 30)

Good Luck

Examiners: Prof. Dr : Kamal Elbaradie, Prof. Dr: Ekhlas Abd Elhay



TANTA UNIVERSITY
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DEPARTMENT OF CHEMISTRY

EXAMINATION FOR JUNIOR (THIRD YEAR) STUDENTS OF CHEMISTRY/BIOCHEMISTRY AND SPECIAL BIOCHEMISTRY

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| COURSE TITLE: | HORMONES | COURSE CODE: BC3206 | |
| DATE: 08.06.2017 | TERM: SECOND | TOTAL ASSESSMENT MARKS: 100 | TIME ALLOWED: 2 HOURS |

Answer all the following questions (questions are on two pages)

- I. **Give an account of the following :** (20 marks)
1. Functions of calcium in body.
 2. Vasopressin secretion disorders.
 3. Control of GH secretion.
 4. The mechanism of steroid hormones.
- II. **Compare between each of the following:** (20 marks)
1. Hydrophilic and hydrophobic hormones.
 2. Paracrine and Endocrine cell signaling
 3. Goiters and Hashimoto's diseases
 4. Direct and indirect effect of growth hormone
- III. **A. Indicate whether each of the following sentences is true (T) or false (F) and comment on your results:** (10 marks)
1. The primary effect of mineralocorticoids is decreased blood sodium levels ().
 2. The primary stimulus for the release of cortisol is increased blood glucose levels ().
 3. As cortisol secretion increases, protein anabolism will decrease ().
 4. The hormone epinephrine causes the kidney to conserve sodium and excrete potassium ions and indirectly helps to maintain systemic blood pressure ().
 5. An increase in blood glucose and an anti-inflammatory effect are important actions of aldosterone ().
 6. Levels of ACTH are high in Addison's disease because levels of glucocorticoids are high ().
 7. A "moon face," and heavy fat deposition over the scapula, "buffalo hump" suggests that a person has chronically high levels of cortisol ().
 8. Low blood glucose levels cause an increased secretion of insulin ().
 9. Insulin triggers the breakdown of glucose in skeletal muscles for use in producing ATP ().
 10. The cause of type I diabetes mellitus seems to be that the receptors on the target cells become no longer responsive to insulin ().
- B. A 48 year-old male had an unremarkable medical history until 6 months prior to admission when he was found to have hypertension that has been difficult to control with variety of antihypertensive medications. In addition, he presents with persistent headaches, excessive sweating, and palpitations (noticeably rapid, strong, or irregular heartbeats). In addition, he presents with paleness that is obvious on the face. A 24 hour urine collection showed vanillylmandelic acid (VMA), 9.8 mg (normal ≤ 6 mg), metanephrine, 169 μg (normal 45-290 μg), normetanephrine, 2807 μg (normal 85-500 μg), epinephrine, 14 μg (normal 2-24 μg), and norepinephrine, 784 μg (normal 15-100 μg). A CT scan and a MRI of the abdomen revealed a 4 cm mass in the region of the left adrenal gland. A fine needle biopsy of the mass showed

