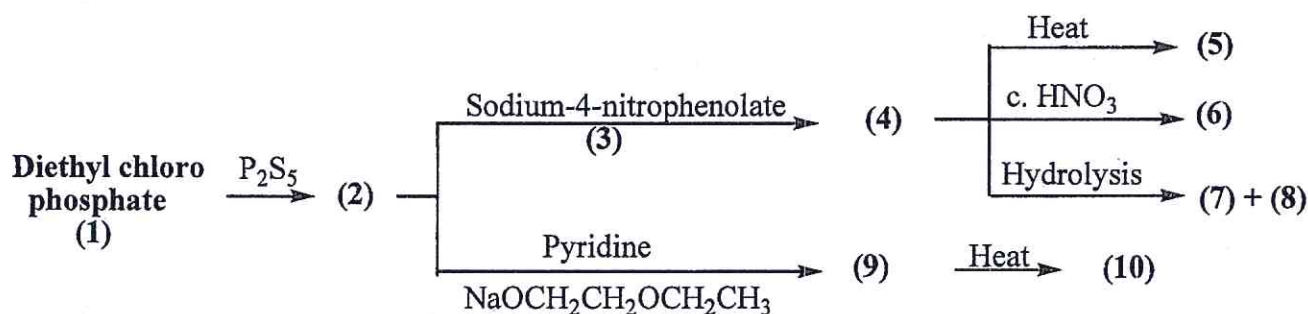
	Tanta University, Faculty of Science, Chemistry Department		
	Examination for Fourth Level (Credit hours) Students		
	Course Title	Pesticides	Course Code: CH4119
Date:	4 January 2023	Total Assessment Marks: 50	Time Allowed: 2 hrs

I) Write about each of the following: (10 Ms):

1. The metabolism of DDT
2. Merits and demerits of organophosphorus pesticides
3. The metabolism of Carbofuran

II) Complete with chemical equations the following scheme and name all products: (10 Ms)




III) Write one method for preparation of the following pesticides: (10 Ms)

1. Nicotine
2. Ethyl chloro benzilate
3. Trialkyl tin hydroxide
4. Bis(4-chlorophenyl) sulphonate
- 5- Sodium fluosilicate

IV) Mark (✓) or (×) for the following statements (10 Ms):

1. The complete breakdown of Pesticides forms carbon dioxide, water and minerals ()
2. Nicotine is less toxic than its salts ()
3. Pesticides applied indoors usually breakdown at faster rate due to the lack of sunlight ()
4. γ -Isomer of gammexane is the most toxic isomer to the insect ()
5. Thiolo isomer of parathione is more effective as insecticides than the thiono isomer ()
6. Carbamates are the newest group of synthetic compounds with high insecticidal activity ()
7. Acute toxic effect arises from long term exposure to small quantities of pesticides ()
8. Contact poison depends on the action of stomach and consumed through mouth parts ()
9. Methyl parathion is hydrolyzed 4.3 times slower in alkali than parathion ()
10. Bordeaux mixture is a mixture of calcium sulfate and copper oxide ()

See the second page

	Tanta University, Faculty of Science, Department of Chemistry		
	Final Exam of Solid State Chemistry [4 th Level] Chem-Bio, Micro, Bot, Ent, Geo, Zol, and Mat Science		
Course Title: Solid State Chemistry – جميع الشعب المذدوجه		Code: CH4143	
Date: 21-January -2023	1 st Semester		Time: 2 Hours

Part(I).....30 Marks

Answer the following:

Q1. True or False (√ & x), and if it is false correct it:20 Marks

- 1) Graphite is Sp^2 hybridization and good insulator.
- 2) Deliquescent materials are not vapor absorption matter.
- 3) Stoichiometric defects are belonging to point defect type.
- 4) Covalent crystals are bonded to each other by ionic bonds.
- 5) Interstitial defects are belonging to stoichiometric ionic solids.
- 6) Metal deficient defects are belonging to stoichiometric point defects.
- 7) Smectic liquid crystal phase is not ordered crystals.
- 8) Monoclinic crystals are maximum symmetry crystals type.
- 9) Conduction in solids is hole mechanism-only.
- 10) Liquid crystals (LC) are not obeying Bragg's law for X-ray diffraction.
- 11) Conductors have no energy gab (Eg).
- 12) n-type semiconductors are electron conduction mechanism.
- 13) Diamagnetic materials have no unpaired electron.
- 14) Polymerized crystalline arrays obey Bragg's law.
- 15) Potassium chloride is belonging to Ionic solids.
- 16) Population-inversion is the base of Laser-generation.
- 17) Semiconductors conduction is enhancing via raising of temperature.
- 18) Sol-Gel technique produces a microstructure better than other techniques.
- 19) Annealing rates controlled in the formed crystalline phases.
- 20) Volume of lattice cell is greater than volume of atoms present within lattice.

تابع باقى الاسئله..... خلف الورقه.....



QII. Write the Scientific Term/or Sentence equal to each of the following;(10 Marks)

- ❖ Allotrope
- ❖ Type of defects are present specially in ionic solids.
- ❖ Laser.
- ❖ The smaller ions are dislocated from its sites to interstitial sites.
- ❖ Bragg's law.
- ❖ Materials with the same chemical composition but differ in crystal form.
- ❖ Capability and efficiency of crystal form to insert more atoms.
- ❖ The zone in matter controlled in conduction mechanism.
- ❖ Application of electricity to produce chemical reaction.
- ❖ Crystalline Polymorphism.

Part (II).....20 Marks



QIII. Write a brief account on, Only Five Items:(10 marks)

- III.1. Photo-Voltaic Devices & Semiconducting Lasers.
- III.2. Polymorphism in iron/carbon.
- III.3. Atomic Packing efficiency (APF) .
- III.4. Doping in semiconductors (*n-type and p-type*) semiconductors.
- III.5. Techniques applied for solid state synthesis.
- III.6. Different phases of liquid crystal.

QIV. Compare with drawing between each couple of the following;.....(10 Marks)

1. Crystalline and Amorphous solids.
2. Diamond and Graphite.
3. Frenkel and Schottky defects.
4. Polymorphism in carbon and calcium silicates.
5. Linear defects, Edge and Screw dislocations.

Best Wishes
Prof.Dr. Khaled M. Elsabawy
Professor of Materials Sciences
2023

	TANTA UNIVERSITY FACULTY OF SCIENCE DEPARTMENT OF CHEMISTRY		
	FINAL EXAMINATION for 4th Year Double Majors Students		
كلية العلوم	COURSE TITLE: Bioinorganic Chemistry	CODE: CH4159	جامعة طنطا
DATE: 23 Jan., 2023	TERM: 1ST TERM	TOTAL ASSESMENT MARKS: 50	TIME ALLOWED: 2 HOURS

Answer all the following questions :-

I- Choose the most correct answer from the available selections:

(20 Marks)

- 1- is insoluble at physiological pH and is dangerous if free because it forms free radicals.
 A) Ferric (3+) and ferrous (2+), respectively B) Ferrous (2+) and ferric (3+), respectively
 C) Cobalt (2+) and cobalt (3+), respectively D) Copper (2+) and copper (1+), respectively
- 2- Magnesium has the ability to compete with for binding sites on proteins and membranes.
 A) iron B) calcium C) sodium D) potassium
- 3- poisoning can lead to neurological disease and kidney failure if left untreated.
 A) Iron B) Mercury C) Copper D) Plutonium
- 4- comes from a lack of vitamin B-12 (which contains a cobalt complex called cobalamin).
 A) Anemia B) Pernicious anemia C) Alzheimer D) Malaria
- 5- are all paramagnetic metals that are able to alter the tissue relaxation times and produce a contrast image.
 A) Cd(I), Hg(II), and Cu(II) B) Ca(II), Pb(II), and Se(III)
 C) Gd(III), Fe(III), and Mn(II) D) A, B and C
- 6- enters the plasma where it is bound to histidine and to serum albumin.
 A) Iron B) Copper C) Nickel D) Zinc
- 7- agents are commonly used in metal toxicity treatment.
 A) Oxidizing B) Reducing C) Chelating D) Both A and B
- 8- Sodium has been used since the early 20th century to treat rheumatoid arthritis.
 A) vanadate B) sulfate C) chloride D) phosphate
- 9- complexes containing gold, silver, and copper have good anti-cancer properties.
 A) Carbonyl B) Chlorate C) Phosphine D) Cyanide

- 10- has the ability to form chelates with important intracellular anionic-ligands, especially ATP.
 A) Sodium B) Potassium C) Strontium D) Magnesium
- 11- is largely associated with chloride and bicarbonate in regulation of acid-base equilibrium.
 A) Potassium B) Sodium C) Zink D) Calcium
- 12- Some elements such as are very similar in their inorganic chemical behavior, but they are very different in their biological activities.
 A) sodium and potassium B) sodium and iron
 C) potassium and iron D) no correct answer
- 13- is a mineral found in high concentration in the body than any other mineral.
 A) Sodium B) Potassium C) Magnesium D) Calcium
- 14- Metal complexes can be used in diagnostic medical
 A) for radioisotope imaging B) as contrast agents C) A and B D) none of A and B
- 15- utilized chiefly in the synthesis of Hb, myoglobin and certain respiratory enzymes.
 A) Iron B) Manganese C) Chromium D) Vanadium
- 16- of a metal center defines its chemical reactivity as a redox center in biomolecules.
 A) Spin state B) Electronic structure C) A and B D) Density
- 17- based compounds have been shown to specifically affect head and neck tumors.
 A) Thorium B) Uranium C) Plutonium D) Platinum
- 18- In intestinal mucosal cell, copper is associated with low molecular weight metal binding protein called
 A) hemosiderin B) ferritin C) metalothionein D) albumin
- 19- carbonate often used as a phosphate binder in patients suffering from chronic kidney disease.
 A) Iron B) Copper C) Lanthanum D) Zinc
- 20- poisoning can lead to gastrointestinal, kidney, and neurological dysfunction.
 A) Sodium and potassium B) Zink and iron C) Calcium D) Lead and cadmium

II- Put a sign (✓) in front of correct sentence or a sign (X) in front of wrong one. (10 Marks)

- 1- Metal complexes can be used in medicinal applications for only radioisotope imaging (from their emitted radiation). ()
- 2- Increased serum calcium is found in hyperparathyroidism patients, multiple myeloma, osteolyts tumors in the skeleton. ()
- 3- Potassium functions are different from sodium functions in the extracellular fluid. ()
- 4- Selenium has been found to be essential for certain animals, such as cattle, and chicken. ()
- 5- The reactivity of a metalloprotein is not affected by its coordination environment and molecular geometry. ()
- 6- Recently metals have been used to treat cancer, by specifically attacking cancer cells and interacting directly with DNA. ()
- 7- Known metalloenzymes number do not exceed hand fingers, until now. ()
- 8- Factors affecting absorption of magnesium are different from those affecting calcium absorption. ()
- 9- Iron porphyrins are present in some intracellular enzymes; respiratory enzyme systems: cytochrome oxidase, catalase, and peroxidase. ()
- 10- The bone crystals consist of calcium phosphate hydroxyapatite $\text{Ca}_{10}(\text{PO}_4)_6\text{OH}_2$. ()

III- Explain each of the followings : (20 Marks)

- 1- How does magnesium influences the activity of enzymes? (4 Marks)
- 2- Why has Mo (4d) rather than Cr (3d) been utilized more biologically? (4 Marks)
- 3- Iron absorption and transport in human body. (4 Marks)
- 4- The importance and function of inorganic phosphate in biological systems. (4 Marks)
- 5- Many metals play important roles in medicinal diagnosis. (4 Marks)

With Our Best Wishes

Examiners: Prof. Mohamed Gaber and Prof. Abdalla Khedr

Handwritten text, possibly a name or title, written in a cursive style.

$$\mu\mu = \tau + \rho V$$