

علو مراد

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TANTA UNIVERSITY  
FACULTY OF SCIENCE  
DEPARTMENT OF CHEMISTRY

EXAMINATION for Seniors students (Fourth Year) students of Material science

1990	COURSE TITLE: Applied Polymer Chemistry تطبيقات البوليمرات	COURSE CODE: CH4222
DATE: MAY 25 <sup>TH</sup> 2015	TERM: SECOND	TOTAL ASSESSMENT MARKS: 100
		TIME ALLOWED: 2 HOURS

Answer the following questions:

- 1- Draw a comparison of release profiles for controlled release formulations with other methods of drug administration (therapeutic window). **10 marks**
- 2- Write notes on **Design of Controlled Release Systems** **10 marks**
- 3- **Diffusion-Controlled Controlled Release systems** **10 marks**
- 4- **write the chemical structure of Gutta-percha rubber** **10 marks**
- 5- **Classification of hydrogel** **10 marks**
- 6- **Chemical cross-linking as a Methods to produce hydrogel** **10 marks**
- 7- **The application of hydrogels for drug delivery** **10 marks**
- 8- **Ageing Agents as polymer additives** **10 marks**
- 9- **Two methods to produce hydrogel** **10 marks**
- 10- **Put the sign ( √ ) on the correct statement and the sign ( X ) on the incorrect statement** **10 marks**
  - a- Hydrogels are hydrophilic polymers that absorb water and are soluble in water at physiologic temperature ( )
  - b- Poly vinyl alcohol can be produced from poly vinyl acetate ( )
  - c- Smoke Suppressants is to increase smoke evolution ( )
  - d- Light stabilizers are effective as antioxidants at low and moderate temperature ( )
  - e- Drugs can also be cannot covalently conjugated to the hydrogel matrix ( )

EXAMINERS	Professor El-Refaie Kenawy		

علوم مواد ٤



TANTA UNIVERSITY  
FACULTY OF SCIENCE  
DEPARTMENT OF PHYSICS

EXAMINATION FOR FORTH YEAR MATERIALS SCIENCE

COURSE TITLE: MICROCONTROLLERS AND MICROPROCESSORS MS 4254

DATE: 23- 5- 2015

MARKS:

100

TIME 2 HOURS

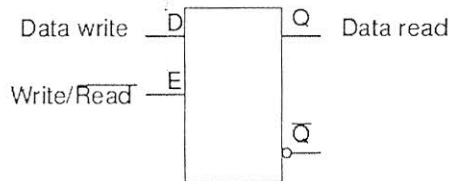
**Answer all the following questions:**

1- State the different applications of Shift registers and discuss in some details only two of these applications. (25 Marks)

2- Draw a block diagram for a **1 K –Byte** memory showing all possible input and outputs details ,and discuss briefly the use of both **Static** and **Dynamic** memories in computers (15 Marks)

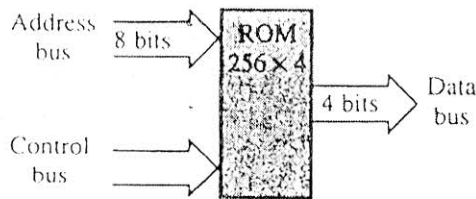
**Then answer only one of the following:**

(A) Using the following one bit memory block diagram show how the **Tristate** buffer is used to connect the data write (D) and data read (Q) can be connected to the same data line bus(in/out) (10 Marks)




(B ) Using the following block diagram of a memory of 256x4 bits ,show how this can be used for the two types of memory expansion

(10 Marks)



**Turn the Page**

	TANTA UNIVERSITY- Faculty of Science -Department of physics			
	EXAMINATION FOR LEVEL 4 STUDENTS OF MATERIALS SCIENCE			
COURSE TITLE:	Materials in Electronics		COURSE CODE: MS4244	
DATE:	6 JUNE 2015	TERM: SECOND	TOTAL ASSESSMENT MARKS: 100	TIME ALLOWED: 2 HOURS

**ANSWER THE FOLLOWING QUESTIONS:**

**First Question:**

- 1- Write the most important notes **about the materials** which are used for **printed electronics** and **substrates**. (15 Marks)
- 2- Compare between vapor-phase epitaxy and molecular beam epitaxy. (10 Marks)

**Second Question:**

- 1- Give examples of elemental semiconductors and compound semiconductors and some of their applications. (10 Marks)
- 2- Illustrate briefly Czochralski method and particularly liquid-encapsulated Czochralski method. (15 Marks)

**Third Question:**

- 1- What is the origin of magnetic properties in different materials? (5 Marks)
1. Write short points about :
  - a- Planck's theory of black body radiation.
  - b- De Broglie assumption.
  - c- Schrödinger wave equation.
  - d- The most important postulates (I, II and III) of quantum mechanics. (20 Marks)

**Fourth Question:**

- 1- Choose the right statement from between the brackets: (16 Marks)
  - a- The diamond structure can be thought of as an fcc lattice with an extra atom placed at  $(\frac{a}{2}+\frac{b}{2}+\frac{c}{2} - \frac{a}{4}+\frac{b}{4}+\frac{c}{4})$  from each of the fcc atoms.
  - b- In composites, the individual components (**completely interact - remain separate and distinct**) within the finished structure.
  - c- The chemical formula for perovskite compounds is  $ABX_3$ , where 'A' and 'B' are two (**anions - cations**) of very different sizes, and X is the (**cation- anion**) that bonds to both.
  - d- Off-centering of an undersized B ion within its (**tetrahedron - octahedron**) can occur and allows it to attain a stable bonding pattern and the resulting electric dipole is responsible for the property of (**ferroelectricity - ferromagnetism**) shown by some perovskites.
  - e- Soft ferrites have (**low -high**) coercivity whereas hard ferrites have (**low - high**) coercivity.
- 2- Define: (9 Marks)
  1. Magnetoresistance
  2. Giant magnetoresistance (GMR)
  3. Colossal magnetoresistance (CMR).

☺ ☺ BEST WISHES ☺ ☺

EXAMINERS	PROF. DR. S. A. SAAFAN
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