

**This Exam Includes Two Exercises, It is Inscribed on Two Pages Numbered 1 and 2.
The Use of a Non- Programmable Calculator is Allowed.**

Answer The Two Following Exercises:

**First Exercise (10 points)
Mineral – Vitamin Supplement: MAGNÉ B₆**

Magnesium is a mineral naturally present in all the cells of the human body. It is essential for the life of the cells. It regulates the nerve impulse and the muscular contraction. Magnesium deficiency results in muscular cramps, nervousness, fatigue and insomnia.

Daily need of magnesium, for an adult is: 300-400 mg.

The excess of magnesium, in case of kidney failure, may cause a severe fatigue and a slowdown of the heart rate.

One of the supplements used in case of Magnesium deficiency is MAGNÉ B₆

The Composition of one coated tablet of MAGNÉ B₆ is given below :

- Magnesium lactate Dihydrate: 470mg (containing 48 mg of magnesium), Pyridoxine chlorhydrate (Vitamin B₆) : 5mg
- Excipients: sucrose, carboxypolymethylene, talc, magnesium stearate

Questions

- 1- Referring to the text , answer the following questions:
 - 1.1- List the symptoms of magnesium deficiency
 - 1.2- Deduce the effect of an excess of magnesium in case of kidney failure.
- 2- One of the excipients of MAGNÉ B₆ tablet is sucrose.
 - 2.1- Name the chemical elements that constitute sucrose.
 - 2.2- Complete the following word equation with the convenient monosaccharides:
Sucrose + water → +
 - 2.3- Specify the class of sucrose.
- 3- The two classes of vitamins are: hydrosoluble vitamins and liposoluble vitamins.
 - 3.1-Give the meaning of each term.
 - 3.2- Indicate the class of the vitamin B₆.
 - 3.3- Name one vitamin of the other class.
- 4- An adult suffering from a muscular cramp has taken 7 tablets of MAGNÉ B₆ per day.
 - 4.1- Calculate the quantity of magnesium (in mg) consumed by this adult.
 - 4.2- Specify whether this quantity has exceeded the daily need of magnesium.

Second Exercise (10 points)
Anesthesia: Gain without Pain

Modern surgery can be performed painlessly by using current, safe and effective anesthesia methods...

The type of anesthesia used depends on several factors: patient, surgeon, extent of procedure, organ to be treated.

General anesthesia technique produces complete loss of consciousness and pain ...

Local anesthesia is used for minor or touch up procedure only ...

Intravenous sedation (twilight sleep) with local anesthesia is safer than a general anesthesia because it minimizes post-operative recovery time as well as nausea and vomiting; moreover, a local anesthesia requires no breathing tube and as a result no sore throat ...

Twilight sleep may be used for liposuction, facial surgery and breast surgery....

Questions

- 1- Referring to the text , answer the following questions:
 - 1.1- Indicate the two types of anesthesia.
 - 1.2- List the factors that affect the choice of the suitable type of anesthesia.
 - 1.3- Complete the table below :

Type of anesthesia	Consequences
	Complete loss of consciousness
	post-operative recovery time minimized
	sore throat

- 2- Define an anesthetic medicinal drug.
- 3- Specify whether the effect of anesthetics on the nerves is permanent.
- 4- Indicate the type of anesthesia, commonly used , in each one of the following surgeries:
Liposuction, open heart, dentistry and brain tumor.
- 5- Give two possible consequences of an overdose of a general anesthesia.
- 6- Antibiotics, like anesthetics, constitute a medicinal drug category.
 - 6.1- Name four other categories of medicinal drugs.
 - 6.2- Explain the following two terms: bactericidal and fungicidal.
 - 6.3- Identify the case in which the physician prescribes a narrow spectrum antibiotic or a large spectrum antibiotic.

First exercise (10 points)
Mineral – Vitamin Supplement: MAGNÉ B₆

Part of the Q	Answer	Mark
1.1	The symptoms of magnesium deficiency are: muscular cramps, nervousness, fatigue and insomnia.	1
1.2	The excess of magnesium, in case of kidney failure, may cause a severe fatigue and a slowdown of the heart rate	1
2.1	The chemical elements that constitute sucrose are: carbon, hydrogen and oxygen.	1
2.2	The equation of this hydrolysis : Sucrose + water → glucose + fructose.	1
2.3	Sucrose is an oligosaccharide(disachharide) since it is formed from two monosaccharides	1
3.1	Hydrosoluble vitamins: soluble in water Liposolubles vitamins: soluble in lipids	1.5
3.2	Vitamin B ₆ is a hydrosoluble vitamin.	0.75
3.3	Liposoluble vitamins: A or D or E or K	0.75
4.1	The quantity of magnesium consumed by this adult is : 7× 48 mg = 336 mg	1
4.2	No it does not exceed the daily need ,since 336 mg is between the range of daily need of magnesium for an adult [300-400 mg]	1

Second exercise (10 points)

Anesthesia: Gain without Pain

Part of the Q	Answer	Mark								
1.1	The two types of anesthesia are : local anesthesia and general anesthesia	1								
1.2	The factors that affect the choice of the suitable type of anesthesia are: the patient, the surgeon, the extent of procedure, the organ to be treated.	1								
1.3	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 50%; text-align: center;">Type of anesthesia</th> <th style="width: 50%; text-align: center;">Consequences</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">General</td> <td style="text-align: center;">Complete loss of consciousness</td> </tr> <tr> <td style="text-align: center;">Local</td> <td style="text-align: center;">post-operative recovery time minimized</td> </tr> <tr> <td style="text-align: center;">General</td> <td style="text-align: center;">sore throat</td> </tr> </tbody> </table>	Type of anesthesia	Consequences	General	Complete loss of consciousness	Local	post-operative recovery time minimized	General	sore throat	1.5
Type of anesthesia	Consequences									
General	Complete loss of consciousness									
Local	post-operative recovery time minimized									
General	sore throat									
2	Anesthetics are substances that produce anesthesia , a state of being unable to feel pain , heat , cold....	1								
3	No , it is action is reversible , when the drug is eliminated by metabolism or excretion its action is terminated and the nerve resume completely normal function.	0.5								
4	Local anesthetic : Liposuction , dentistry . General anesthetic : Open heart ,brain tumor .	1								
5	The two possible consequences of an overdose of a general anesthesia: Coma and death .	1								
6.1	The other current classes of medicinal drugs are: analgesics, antacids, Antidepressants , anti inflammatory and tranquilizers .	1								
6.2	Bactericidal : antibiotics that kill bacteria. Fungicidal : Antibiotics that kill fungi .	1								
6.3	A narrow spectrum antibiotic is prescribed when the invading microorganism is identified . A large spectrum antibiotic is prescribed when the invading microorganism is unknown.	1								