

## Reading Comprehension Passage 27

This sample text has been prepared for the Master of Electrical Engineering entrance exam by Alpha Consulting Group.

While the use of various nanoparticles for delivering drugs use of various nanoparticles for delivering drugs to specific targets in the body has been with us for a decade now and has already created a billion-dollar industry for itself, this marks the first time that magneto electric nanoparticles (MENs) have been used for ovarian cancer therapy. The basis of nano- enabled drug delivery has typically involved connecting the nanoparticle to some antibody that is attracted to a tumor and sending the nanoparticle through the bloodstream to find its target. There has been some question about the efficacy and specificity of this antibody approach. This new technology developed appears to be more specific because it separates the cancer cells from the healthy cells by exploiting differences in the electrical properties of the two kinds of cells' membranes.

**This separation is achieved because of the unique properties of the MENs. Unlike typical magnetic nanoparticles (MN), which can be controlled by a remote magnetic field, the MENS can have their intrinsic electric fields controlled by the external magnetic field. This means that the MENs can operate as localized magnetic-to-electric-field nano-converters. In other words, the MENs can generate the electric signals that govern molecular interactions. By creating a particular electric field, the MENs change the membrane properties of the cancer cells and not the healthy cells making them more porous. As the Scientific Reports article describes it: "The interaction between the MENs and the electric system of the membrane effectively serves as a field-controlled gate to let the drug-loaded nanoparticles enter specifically the tumor cells only."**

## Questions

**1. Based on the passage, what is the main advantage of MENs over other techniques?**

- 1) It is easier to use.**
- 2) It works faster.**
- 3) It is more cost efficient.**
- 4) It treats cancer while sparing healthy cells.**

**2. Which statement is TRUE?**

- 1) MENs can be controlled by an external magnetic field.**
- 2) MENs is a more specific approach than antibody approach.**
- 3) In nano-enabled drug delivery, the nanoparticle is attached to a tumor by itself.**
- 4) With the MENs approach, the drug-loaded nanoparticles may enter the healthy cells.**

**3. What does the word “porous” in the paragraph 3 mean?**

- 1) Damaged**
- 2) Spongy**
- 3) Sensitive**
- 4) Thinned**

**4. What does “its” in “its target” in the second paragraph refer to?**

- 1) Antibody**
- 2) Drug**
- 3) Nanoparticle**
- 4) Tumor**

## Answers

1==> 4

2==> 1

3==>2

4==>3