بسم الله   قياس

Back to the Arabian Science Future

Minia University Faculty of Eng. CSE Dept. Lab. 4 Total Marks: 120		4th Year Final Exam Jul. 2020 Code: CSE411 Time: 3:00 hrs

1. **[30 Points]** Magnetic levitation techniques apply a magnetic field to levitate or suspend a magnetic object based on the interaction between the magnetic object and the magnetic field.

   a. What is the magnetic levitation in physics?

   b. Draw the Simulink model for the magnetic levitation system shown in Fig. 1.

   c. Define and write all the requirements to calculate and compute the following terms using Equations and MATLAB instructions.
   1. Gain crossover frequency, Phase crossover frequency,
   2. Gain margin, Phase margin,
   3. Bandwidth,
   4. Settling time, Rise time,
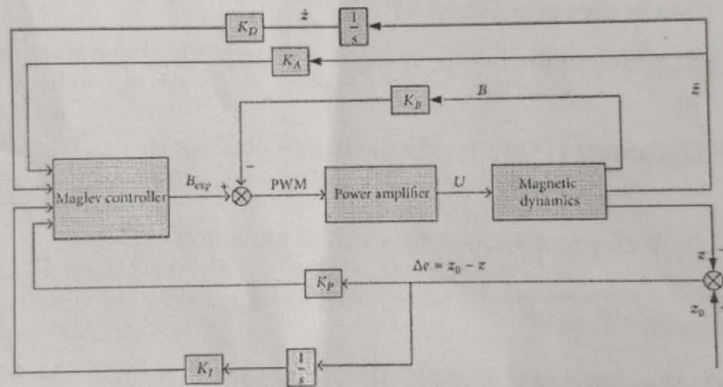   5. Steady state error.

Fig. 1. Mag Lev. System block diagram.

2. **[30 Points]** The IoT is not separate from the Internet, but rather, a potentially huge extension and expansion of it. The things that form the basis of the IoT are objects.

   a. How does the Internet of Things (IoT) work?

   b. Which are the two skills that help with IoT prototyping?

   c. What are the two requirements that used to connect a smart device to a home wireless network?

   d. What are the risks and challenges that we should be aware of, when it comes to the Internet of Everything?

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3. [*30 Points*] JavaScript is high-level, often just-in-time compiled, and multi-paradigm scripting language that can be inserted into HTML pages and is understood by web browsers.

a. What is the difference between *Attributes* and *Property*?

b. Name some of the built-in methods and the values returned by them in JavaScript within this table?

Built-in Method	Values
CharAt()	
Concat()	
forEach()	
indexOf()	
length()	
pop()	
push()	
reverse()	

c. Choose the correct answer?

1. which of the following tag is used to mark a beginning of paragraph?
   A. <TD>   B.
      C. <P>D. <TR>

2. Correct HTML tag for the largest heading is..........
   A. <head>   B. <h6>   C. <heading> D. <h1>

3. Web pages starts with which of the following tag?
   A. <Body>   B. <Title>   C. <HTML>   D. <Form>

4. [*30 Points*] The embedded devices are the objects that build the unique computing system. However, these devices can connect through the internet connection, and able communicate through other network devices.

a. What is the difference between IoT and embedded systems?

b. Define and explain what is the Hardware/Software Co-Design? (Hint: use graphs or flowchart).

c. What are the differences between the System on Chip (SoC), and Microcontroller?

d. What are the differences between the ASIC, and FPGA?

Good luck

@Ass. Prof. Dr. Hassan_Youness

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