

**EE520 – Test2 – 2023-2024 Sem 2 – Time Allowed 1 hr 15 min**

**25% for each question**

**Question 1**

Explain why in auto-tuning for motion applications, only P-I control is adequate, and there is no need for PID control. Draw a motor control block diagram to explain your answer.

**Question 2**

Draw the block diagrams of a self tuning regulator (STR) and a Model Reference Adaptive Control (MRAC). Compare their operating features, advantages/disadvantages, and application areas.

**Question 3**

Explain what is Class 1,2,3 and 4 robotic types. For each of the class give one typical application example.

**Question 4**

Explain:

- (a) What is the difference between EMI and EMC?
- (b) 5 most important methods to avoid EMI/EMC problems in PCB design.
- (c) 3 effective ways to generate noise to test EMC on a product.