Week 3

Question 1

The collision forces are determined by the following:

Motor torque at collision, kinetic energy and distance to decelerate

Question 2

What are the components of an effective payload?

Payload, robot mass and inertia

Question 3

The compression constant of the human hand is: \_\_ N/mm

75

Question 4

An Engineer is putting sensors in that place that monitors an area and senses if people enter the area. As a result, the robot should slow down if a person gets too close. What sensor should the Engineer use?

Zone Sensor

Question 5

Tasks in a traditional robot operation can be automated using collaborative robots. This delta has resulted in lower cost and risk in installing robots. Such an implementation is a result of the following.

Lean automation

Question 6

A company is considering using collaborative robots for a task involving payload of 1000 Kg. Also, the company is assuming that a cost of $250K per application station. You are a consultant tasked with providing advisory on company's decision, pick the correct analysis from following.

The collaborative robots can typically handle a payload of 1-5 kg and would cost around $30-40K per application station.

Question 7

An operator accidentally collided with a robot and got trapped. Identify the type of collision.

Quasi-static collision

Question 8

Identify the true statement about section 7 of ISO 15066 on verification and validation.

For robots falling under the category of power and force limiting, additional documentation is recommended.

Question 9

A 20 Newton or 2 Kg force is applied to a person's hand by a flat object. Would the same force be safe if it was pressing a needle into a person's hand?

No, since in the second scenario, the pressure (force per unit area) measure would exceed the safety limit.

Question 10

What measures did the University of Mainz, Germany develop to determine the safety of collaborative safety applications?

All of the above