Questions marked with * are not obligatory.

1. Explain what is the Kuramoto synchronization index.
2. Derive the phase model for SNIC oscillator (*).
3. What is Hebbian learning?
4. Explain the Oja rule. What problems of Hebbian learning does it solve?
5. Explain the Bienenstock-Cooper-Munro (BCM) synapse
6. Describe the principles of Spike timing dependent plasticity (STDP)
7. Sketch the concept of polychronous groups