

Examples of exam questions BIO344

- 1) Draw a growth cone with its cytoskeletal elements exposed to a source of an attractant.
- 2) Protrusion, engorgement and consolidation refer to which process in neural development?
axon growth cone motility (axon growth simply put)
- 3) How can retrograde neurotrophin signaling be demonstrated experimentally?
simply produce chimeric protein: GFP+neurotrophin like NGF and observe its trajectory in a cell culture of neurons. PALM.
- 4) Label the following statements as true or false:
 - a) Fetal alcohol syndrome is among the most frequent forms of inherited, non-syndromic mental retardation in the US. **FALSE - it is not inherited**
 - b) A significantly reduced ability to understand new or complex information and to learn new skills, which started before adulthood is characteristic for mental retardation. **TRUE - mental retardation is**
 - c) Like many mammals, humans are born with a mature nervous system. Therefore, Rett syndrome is a neurodegenerative disorders. **FALSE - it's not mature after birth** **molecularly characterized by the inability to form new synapses due to genetic mutations in neurotrophin, so no LTP for new synapse formation**
 - d) Autism is characterized by reduced social interactions and communication deficiencies. **TRUE**

autism: social: no formation or peer-to-peer relationships, does not share joy or happiness spontaneously, social and emotional reciprocity, avoids eye-to-eye contact

communication: no language development, impaired and/or late onset, usage of repetitive and stereotypic phrases, problems with maintaining or initiating a conversation, lack of varied spontaneous imitative play or make-believe play

behavioural: sticks to non functional routines or rituals, preoccupation with one object, repetitive or stereotypic movement, preoccupation with one or more patterns of interest