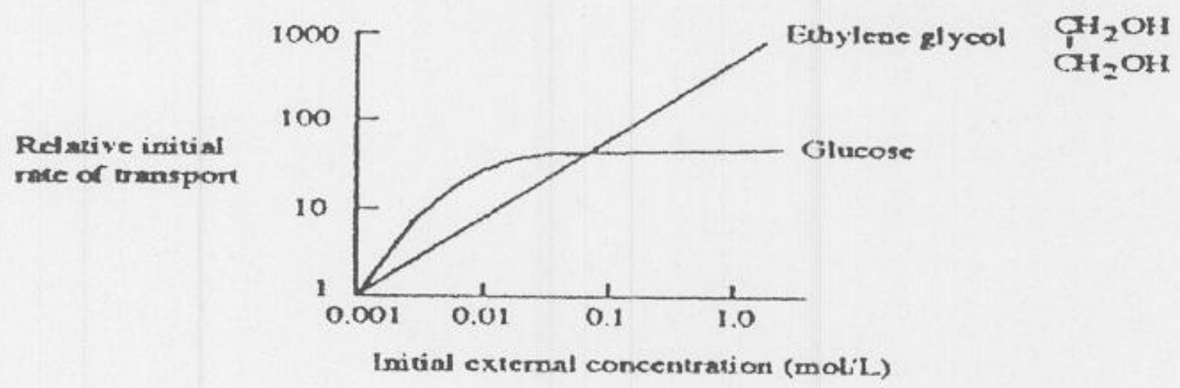
1. Discuss the action of insulin in maintaining glucose concentrations in blood. (10%)
2. How can you discriminate apoptosis from necrosis? (10%)
3. Name a few post-translational modifications found in nuclear histones and discuss the possible functions of these modifications. (10%)
4. Explain the following terms: kinetochores, aneuploidy, cleavage furrow, caspase. (10%).
5. Give the three types of fibers in cytoplasm that support framework and form tract in eukaryotic cells. (6%) Briefly describe two methods to identify them. (4%)
6. In the chemotactic model of cell movement (through activation of intracellular signaling pathway), how does the intracellular calcium concentration regulate the remodeling of cytoskeleton? (10%)
7. Inside eukaryotic cells, microtubules are dynamically instable. Explain how tubulin concentration, GTP, GDP, Colchicine and Taxol influence in vivo growth and shrinkage of individual microtubule. (10%)
8. Briefly describe how cell adhesion molecules (CAM) bind cells to each other and to the extracellular matrix (4%). Give three kinds of CAM and show their interactions (homophilic or heterophilic). (6%)
9. Explain briefly the signal hypothesis proposed by Gunter Blobel for secretory proteins. (6%)
10. Briefly compare the roles of COP1-coated, COPII-coated and Clathrin-coated vesicles in protein trafficking. (6%)
11. Membrane vesicles trafficking proceeds from Golgi to ER is called as: A) anterograde transport, B) retrieval transport, C) retrograde transport, or D) escaped transport. (2%)
12. The rate of transport of glucose and ethylene glycol from the exterior to the interior of human red blood cells are shown in the figure below. Explain briefly the differences between the two curves (no more than 100 words). (6%)



試題隨卷繳回