

**BEL 721 Bionanotechnology**  
**II<sup>nd</sup> Semester 2009-2010**  
**Major Test**

Max. Marks: 20  
Max. Time 2 hrs

1	Draw the diagram of receptor ion channel found in neuromuscular junction and show the typical recording of current channels during open and closed states. What are different ways in which patch clamp technique has been used? [2+2]
2	What is the basic principle of molecular imprinting? What are different approaches to make molecularly imprinted polymers/proteins [2+2]
3	What are the challenges in technical application of bacteriorhodopsin? Using bacteriorhodopsin how will you develop artificial retina? Write the principle of read out in 3-D memories using bacteriorhodopsin? [1+2+1]
4	How will you prepare Shell Cross-linked Knedel's (SCKs)? What are the applications of stimuli responsive nanocapsules? (2+1)
5	Discuss the role of docking system and magnetic nanoparticles in drug delivery. Discuss the strategies for delivery of protein pharmaceuticals to targets tumors, lungs and brain. (2+3)