

Department of Biochemical Engineering and Biotechnology  
BEL 721 Bionanotechnology  
Minor II (II<sup>nd</sup> Semester 2015-2016)

Max. Marks: 20  
Max. Time 1 hrs

✓1	How will you prepare Shell Cross-linked Knedel's (SCKs)? What are super amphiphiles? How nanocapsule synthesis can help in oral delivery of insulin? [2+1+1]
2	How does the size and arrangement of magnetosomes helps in magnetotaxis? [3]
✓3	What is the basic principle used in designing viral nanoelectronics? Give steps involved in developing viral battery with diagrammatic presentation. [1+3]
✓4	Write the design principle for interfacing carbon nanotubes with simple protein systems with redox centres close to protein surface. What modifications are required in case redox centre is embedded deep within the protein? [2+3]
✓5	What are luminescent quantum dots? How will you synthesize them? Write their applications in biological labeling and advantages. [1+2+1]