

**Department of Geology & Geophysics
Mid-Spring-Semester Examination 2010**

**Subject Name: Adv Techniques in Min Exploration
1st year M.Tech (Exploration Geosciences)
Total marks: 60**

**Subject No. EX60001
No. of students: 6**

Answer all the questions

Marks

- Q1. How are subjective geological information quantified to be analyzed along with geophysical and geochemical anomalies to prepare mineral potential maps? Answer with reference to Weight of Evidence as a spatial data modeling technique adopted to achieve such goals. [15]
- Q2. Briefly highlight the capabilities of satellite digital image data to distinguish features associated with mineralization and implications to mineral exploration citing a case study. [10]
- Q3. What is gravity anomaly? How will you calculate gravity anomalies for (i) a point mass, (ii) a buried sphere and (iii) complex shapes? Explain them with diagrams. [8]
- Q4. Define local and regional gravity anomalies. How will you separate out the residual gravity anomaly from the regional one? Give an example with diagram. [8]
- Q5. Discuss about the application of different geophysical methods for metallic luster minerals and show different applicable methods for different geological attributes in a tabular form. [4]
- Q6. Explain geochemical mobility of elements and dispersion patterns thereof. [7]
- Q7. Explain the concepts of element association and pathfinder elements. [4+4=8]

Dr. P. Sengupta

Prof. S. Tripathy

Prof. M. K. Panigrahi