

IV B.Tech I Semester Supplementary Examinations, April/May 2005
CERAMICS AND COMPOSITE MATERIALS
(Metallurgy & Material Technology)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Describe about the crystal structure of crystalline ceramic phases.
(b) Describe about the crystal structure of non-crystalline ceramic phases.
2. Give neat sketches of the following phase diagrams with complete labels and uses:
 - (a) SiO₂ - Al₂O₃ system
 - (b) SiO₂ - CaO system
 - (c) MgO - SiO₂ system
3. (a) Write a short note on refractory and insulating materials.
(b) Describe the mechanical behaviour of ceramic materials. How are they different from metals.
4. (a) Explain the various glass forming methods.
(b) Describe about the clay and clay products with respect to composition, characteristics and uses.
5. (a) What is a ceramet? What are the required properties of matrices and reinforcements in a composite?
(b) Briefly describe about the various types of fibers.
6. Describe briefly about metal matrix composites and their fabrication methods
7. (a) Discuss the dispersion strengthened composite material.
(b) Write a note on Carbon Carbon composites.
8. Write short notes:
 - (a) Cement
 - (b) Abrasives
 - (c) Composite materials produced from eutectic alloys
 - (d) Paltrusion technique
