

III B.Tech I Semester Supplementary Examinations, November 2005**POWDER METALLURGY
(Metallurgy & Material Technology)****Time: 3 hours****Max Marks: 80****Answer any FIVE Questions
All Questions carry equal marks**

1. (a) Define and Explain the term powder metallurgy.
(b) Explain in detail the major steps involved in the manufacture of a powder metallurgy component. [16]
2. (a) What are the various powder making techniques available? Explain in detail the manufacture of metal powders by atomization method.
(b) Compare and contrast powder metallurgy with hot forging [16]
3. (a) Define apparent density. Explain how it varies with particle characteristics.
(b) Explain how particle size affects the properties of products of powder metallurgy. [16]
4. Compare and contrast mechanical and hydraulic compacting presses with respect to advantages, disadvantages applications and working principles with the help of neat sketches. [16]
5. (a) Compare the technique of hot pressing with conventional compacting and sintering processes.
(b) Write in detail about size measurements of metallic powders by different methods. [16]
6. (a) What is sintering? What conditions must be satisfied for obtaining a good quality sintered product.
(b) Explain material transport mechanism of sintering. [16]
7. (a) With a neat flow sheet explain the production of self lubricating bearings.
(b) Explain the following secondary sintering operations. [16]
 - i. Sizing
 - ii. Coining
 - iii. Machining.
8. Write short notes on the following:-
 - (a) Sintering furnaces
 - (b) Powder rolling
 - (c) Isostatic pressing. [16]
