

CODE NO: R05011801

**2008 JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY**

**I B.TECH II SUPPLEMENTARY EXAMINATIONS  
METALLURGICAL ANALYSIS  
(METALLURGY&MATERIALTECHNOLOGY)**

AUG/SEP 2008

**TIME:3HOUR  
MARK:80**

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**ANSWER ANY FIVE QUESTIONS ALL QUESTIONS CARRY EQUAL MARKS .**

**MARK [16\*5=80]**

1. (a) Explain the advantages and disadvantages of instrumental methods of analysis.  
(b) What is metallurgical analysis? Explain its scope.
2. (a) Give the essential requirements for the successful application of spot tests for the identification of radicals.  
(b) How are the following detected? Give the necessary chemical reactions
  - i. Iron.
  - ii. Chromium.
3. Write the procedure for finding the Phosphorous content in Phosphor bronzes and Gun metals.
4. Write a short note on the following:
  - (a) Cr estimation in high Cr & high Ni steels.
  - (b) Ni determination from Cast Irons by Gravimetric method.
5. How are the furnaces for assaying process are broadly divided. Explain their working principle with the help of suitable figures.
6. (a) Explain the need for instrumental analysis in metallurgical analysis.  
(b) List the different instrumental techniques used in analysis of metallurgical samples.  
(c) State and explain Beer Lambert law.
7. (a) Discuss determination of the absorption curve and concentration of a substance (potassium nitrate) method.  
(b) What is the chief advantage of colorimetric and spectrophotometric methods?
8. Write short notes on:
  - (a) Electro - Analysis.
  - (b) Conductometry.