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UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017

Program: B. Tech/MSNT **Semester – VII**
Subject (Course): Non-Ferrous Materials Technology **Max. Marks : 100**
Course Code: MTEG 401 **Duration : 3 Hrs**
No. of page/s: 2

SECTION – A

Note: Attempt all questions in this section (4 x 5 = 20). Provide neat diagrams as required

1. Name any two minerals of Aluminum and Copper
2. What features of non-ferrous materials make them attractive for industrial purposes
3. Provide notes on electronegativity and why do we need this concept of electronegativity
4. Elements are materials too, and this fact is often over looked. Explain this statement with concrete non-ferrous examples

SECTION – B

Note: Attempt all questions in this section (5 x 12 = 60). Provide neat diagrams as required

5. Discuss the various roles of Aluminum and Titanium alloys in the industry
6. Provide notes on some important aspects of secondary bonding in materials
7. Discuss the extraction of Copper, and provide any three important applications of Copper
8. What is the nature of the potential energy curve for materials having strong and weak bonding
9. (a) Explain the Pidgeon process for the extraction of Magnesium

(OR)

(b) Discuss in detail the Hall-Heroult process associated with Aluminum production

SECTION – C

Note: Attempt any question in this section (1 x 20 = 20). Provide neat diagrams as required

10. Discuss the Mond's process for the extraction of Nickel, along with applications of Nickel

(OR)

Define coefficient of thermal expansion. How is the coefficient of thermal expansion linked to the binding energy curve? Explain briefly how you arrive at the process involved for the force-distance curve in a potential energy diagram