Name:

Enrolment No:

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, April/May 2018

Course: MTEG 302 Non-Ferrous Materials Technology **Semester: VI**
Program: B. Tech MSNT
Time: 03 hrs. **Max. Marks: 100**

Instructions: Provide neat diagrams as required

SECTION A

S. No.		Marks	CO
Q 1	Define ionization potential, electronegativity and electron affinity	**4**	**CO1**
Q 2	What factors may contribute towards the properties of a material	**4**	**CO1**
Q 3	What are the advantages and applications of aluminum and it's alloys	**4**	**CO2**
Q 4	Are complex liquids such as crude oil considered materials? Explain your reasoning	**4**	**CO1**
Q 5	In the manufacture of a light bulb, the bulb is evacuated of air and then filled with argon gas. Explain the purpose of this evacuation	**4**	**CO3**
	SECTION B		
Q 6	Briefly discuss the general categories of bonding with relevant examples	**10**	**CO1**
Q 7	Discuss various possible applications of magnesium and copper alloys	**10**	**CO3**
Q 8	Name any two ores of nickel, and discuss the Mond's process of refining nickel	**10**	**CO4**
Q 9	Name any two ores of silicon. Also thoroughly discuss the extraction and refining process of silicon **OR** Draw a typical potential energy curve and using this potential energy curve: 1. How can you qualitatively obtain the information about the Young's modulus 2. Discuss in-detail the relation between the shape of the potential energy well and the melting point	**10**	**CO4** **CO1**
	SECTION-C		
Q 10	What are some prominent ores of zinc? Discuss the extraction processes associated with zinc along with some applications **OR** What is the role of intermolecular forces and derive the mathematical expression involved with the Lennard-Jones potential	**20**	**CO4** **CO1**

Q 11	Name three ores of titanium. Discuss various extraction processes of titanium along with some prominent applications	**20**	**CO4**