Roll No: ----------

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Term Examinations – MAY, 2020

Program/course: B.Tech: APE (Gas) | **Semester : VIII**
Subject: Air Fractionation & Gas Purification | **Max. Marks : 100**
Code : PTEG 372 | **Duration : 3 Hrs**
No. of page/s: 2

Note: Assume Suitable and necessary data if required and Justify

Section-A (Marks: 30)

Answer ***all*** the questions

1. List out Industrial applications of liquid nitrogen [5] [CO1]

2. What are the sources of Hydrogen in Refinery_____ [5] [CO4]

3. The factors affecting Argon recovery from air separation plants are:____ [5] [CO3]

4. The gas phase composition of a component A is 0.65 and its relative volatility is 2.Then liquid phase composition is_____ [5] [CO2]

5. Which method is not used for Air Separation [5] [CO1]
a. Fractionation b. Adsorption c. Absorption d. Membrane Separation

6. Palladium membranes have infinite H_2 selectivity. (True/False) [5] [CO5]

Section-B (Marks: 50)

Answer ***all*** the questions and ***any one*** in question ***no: 11***

7. What is the selection criteria for Adsorbents in separation of gases [10] [CO5]

8. Discuss Lachmann principle in terms of saving energy [10] [CO3]

9. Explain the different losses which occurs in the different components of gas liquefaction systems. [10] [CO1]

10. Describe the operation control in Air Fractionation column [10] [CO2]

11. What are the Advantages & Disadvantages of Adsorption?. [10] [CO4]

OR

Explain in detail the usage of Hydrogen in Refineries

Section-C (Marks: 20)

12. Explain in detail the advantages and limitations of membrane separation technique over conventional process. Discuss about types of membranes used for Gas Separation Processes

[20][CO5]