

**R09**

Code No: 56103

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**

**B. Tech III Year II Semester Examinations, December - 2017**

**MASS TRANSFER OPERATIONS**

**(Petroleum Engineering)**

**Time: 3 hours**

**Max. Marks: 75**

**Answer any five questions  
All questions carry equal marks**

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- 1.a) How do you estimate diffusivity of gases and liquids? Explain.  
b) Explain about molecular diffusion and the equation of continuity. [7+8]
- 2.a) Discuss about mass transfer coefficients in turbulent flow.  
b) What is eddy diffusion and momentum eddy diffusivity? Explain. [6+9]
- 3.a) Write the differences between tray and packed towers.  
b) Write the end effects and axial mixing of concurrent flow of gas and liquid. [5+10]
4. Explain Mc-Cabe Thiele method for multistage tray towers. [15]
5. Explain azeotropic distillation and extractive distillation and also write the differences between them. [15]
- 6.a) What are the factors are influencing the choice of solvent in liquid-liquid extraction?  
b) What is LLE? Explain. [7+8]
- 7.a) What is the nature of adsorbents?  
b) What is effect of temperature on adsorption?  
c) Explain about adsorption Isotherms. [5+5+5]
8. Explain the following:  
a) Ultra filtration  
b) Dialysis  
c) Concentration polarization. [5+5+5]

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