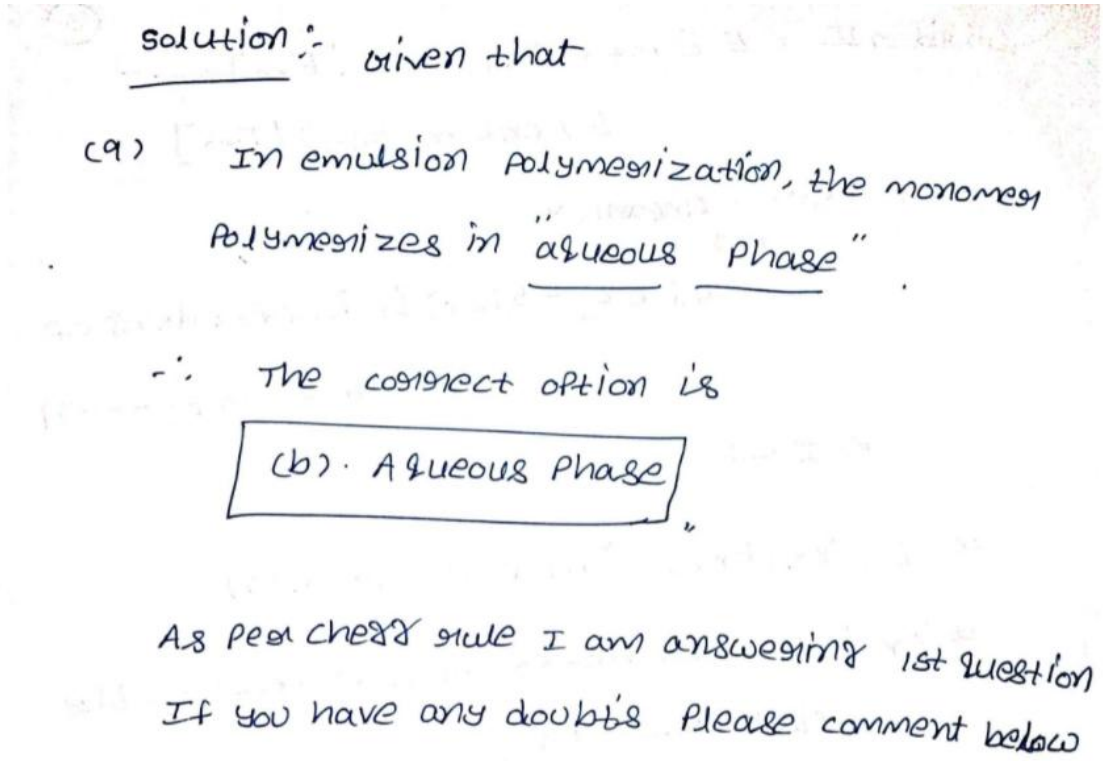
Polymer Science

Chapter 2,
In emulsion polymerization, the principal place where the monomer polymerizes is
a) monomer droplets
b) aqueous phase
c) swollen surfactant micelles
d) surface of reactor


Solution :- Given that

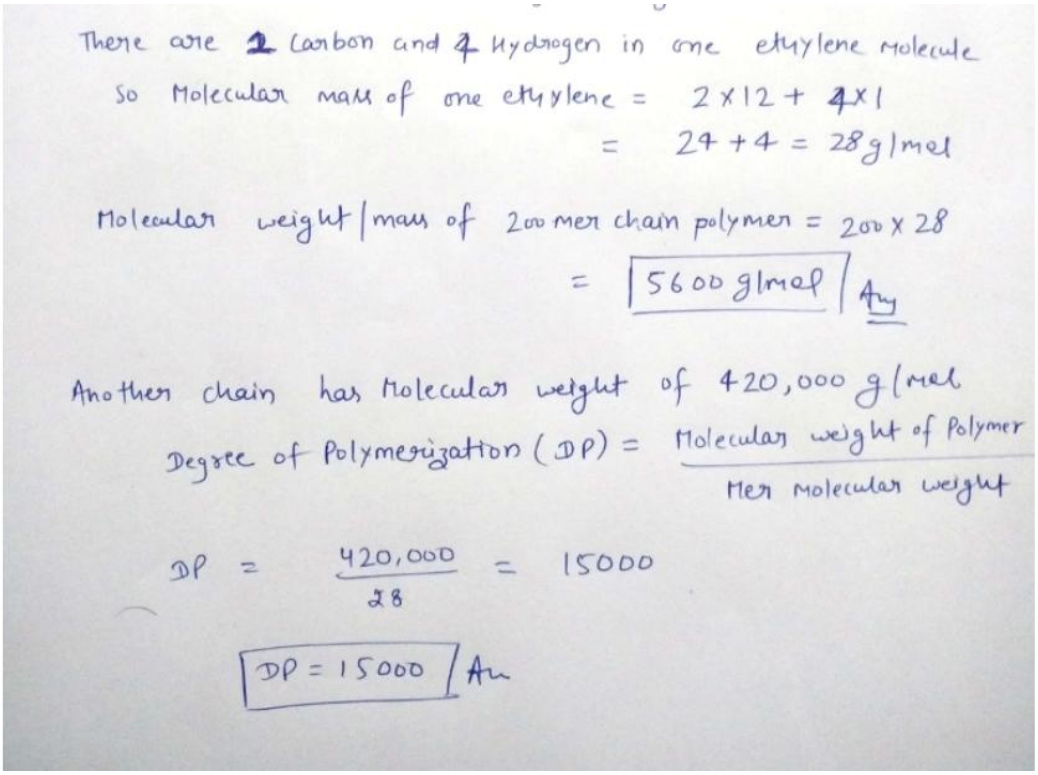
(a) In emulsion Polymerization, the monomer Polymerizes in "aqueous phase".

∴ The correct option is

(b). Aqueous Phase

As per chegg rule I am answering 1st question
If you have any doubts Please comment below

4) . If a polymer chain has a molecular weight of 280,000, how many ethylene units does it contain?



17) Which of the following polymers is least likely to be optically transparent?

a) atactic polystyrene

b) isotactic polystyrene

c) an ethylene/propylene random copolymer

d) a styrene/butadiene random copolymer

Option B

It is prepared by sintering and hot isostatic pressing. It has the glass transition temperature greater than 100^{o} C.

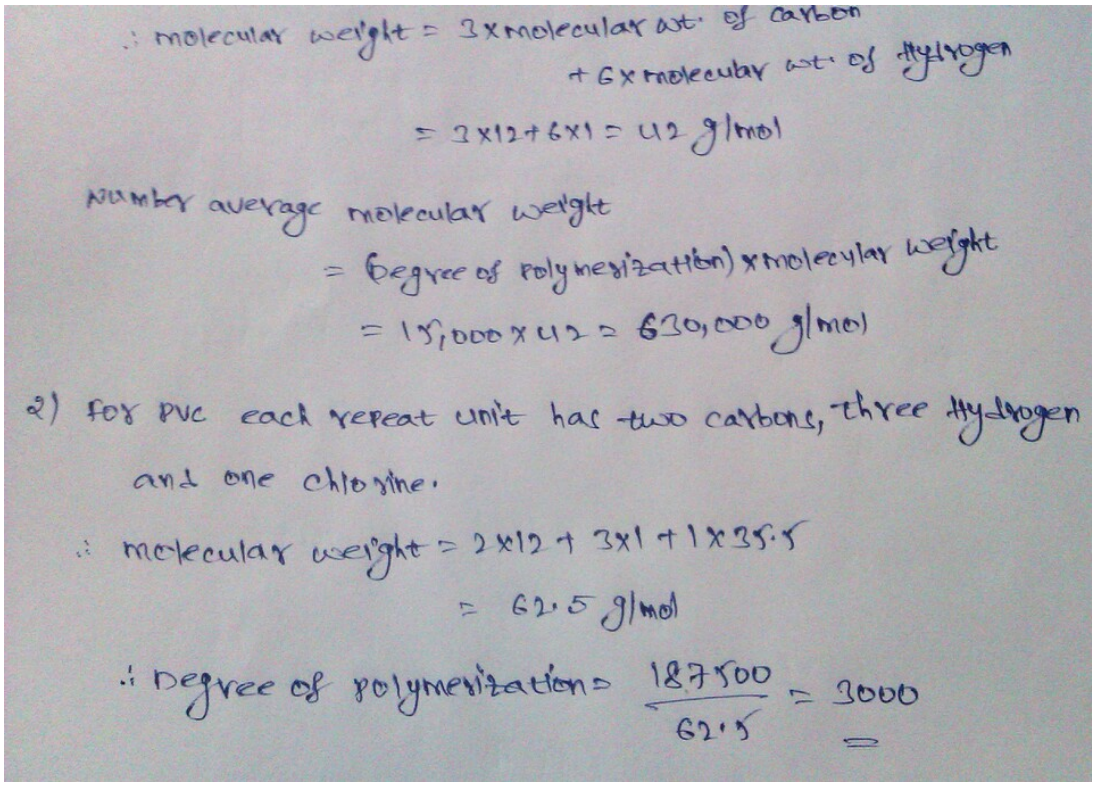
20. High pressure, high temperature free-radical polymerization of ethylene produces

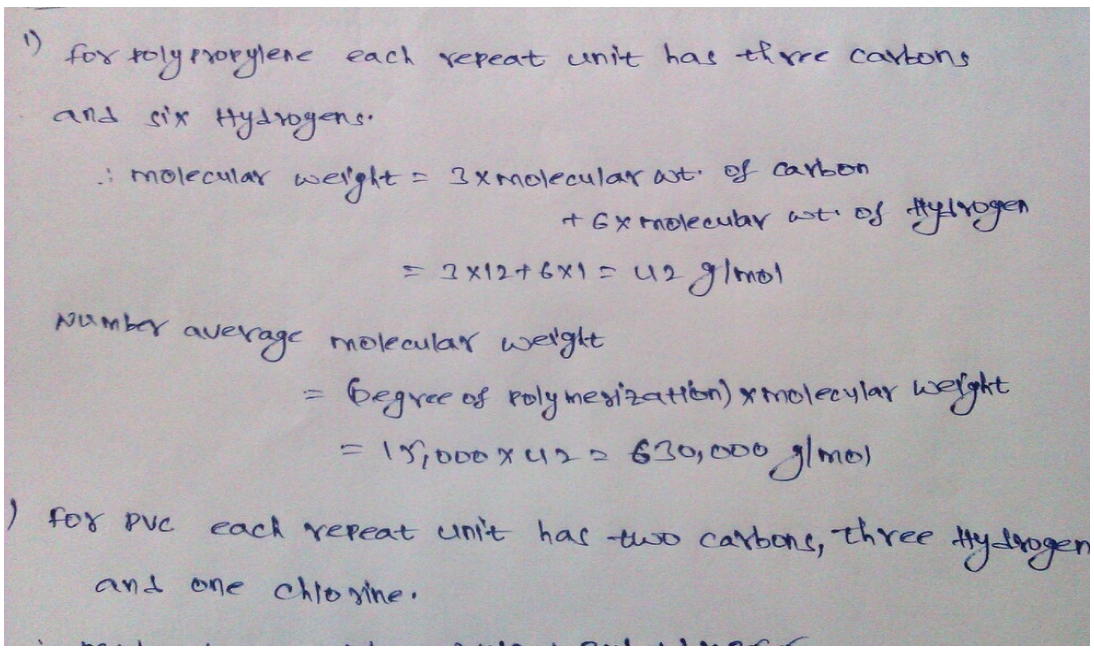
a) HDPE b) LDPE c) PP d) LLDPE

Answer is : LDPE

Calculate the molecular weights of the repeating units of polypropylene and PVC. Determine Mw for a polypropylene of average degree of polymerisation of 18,000. (Atomic masses of H = 1, C = 12, and Cl = 35). Answer: m(PP) = 42 g/mol; m(PVC) = 62 g/mol; w = 756x103 g/mol

Similar answer





The molecules of a sample of polystyrene can be divided into 5 groups in terms of their molecular weight with the same number of molecules in each group. The molecular weights of the molecules in the groups are 10,000; 20,000; 30,000; 40,000; 50,000. Calculate n. Answer: n = 30,000.

Solution :

Group	No. of molec	Molecular weight (g/mole)
1	1	50,000
2	4	100,000
3	5	200,000
4	3	500,000
5	1	700,000

Molecular wt. of a polymer

$$= \frac{1\times 50000 + 4\times 100,000 + 5\times 200,000 + 3\times 500,000 + 1\times 700,000}{(1+4+5+3+1)}$$

$$= \frac{50,000 + 400,000 + 10,00,000 + 15,00,000 + 700,000}{14}$$

$$= \frac{3650000}{14}$$

$$= 260714.28 \text{ g/mole.}$$ Ans