E-5

water : t_0 = 1.16 min t_0 = 1.15 min

water : 76 s 75 s 75.5 s

Table 1: Viscosity measurement data

S. No.	Concentration, C (g/mL)	E_{flux} time, t (sec)			$\eta_r = t_s/t_0$	$\eta_{sp} = \eta_r - 1$	$\eta_{red} = \eta_{sp}/c$
		t_1	t_2	$t_s = t_1 + t_2/2$			
1	0.01	79	84	81.5	1.08	0.08	8
2	0.03	103	105	104	1.38	0.38	12.67
3	0.05	137	134	135.5	1.79	0.79	15.8

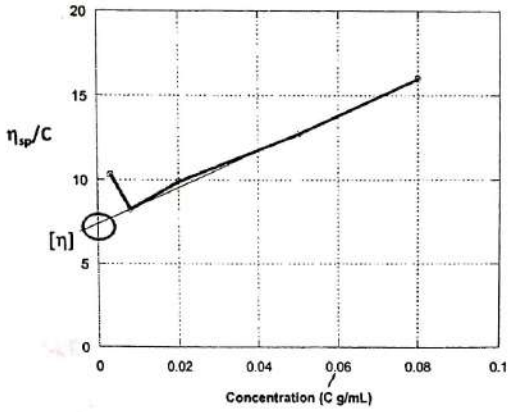

Fig. 1. Concentration (C g/mL) Vs η_{sp}/C

Calculations:

$$[\eta] = KM_v^{\alpha}$$

∴Molecular weight of the given polymer (M_v) =

$$M = \text{Anti ln} \frac{\ln [\eta] - \ln K}{a}$$

Constants for PEG in water K = 0.0428 and a = 0.64

Result:

(a) E_{flux} time for pure water (t_0) = _____ sec.

(b) Intrinsic viscosity of the polymer (η) = ---------

(c) Molecular weight of the given polymer (M_v) = --------- 5541.055

Evaluation of Result:

Sample number	Skill value M_v	Calculated M_v	Error %	Marks awarded

21/05/5/2/2020