Transfer prepared standard solution and unknown solution into different colorimetric test tubes

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Take image of all test tube solution using smart phone camera

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Open the image processing app

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Go to gallery, open the image stored in app and extract RGB values for each image/conc.

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Process the RGB values (R/G) or (R/B) or (G/B) etc., till to get linear response

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Plot the calibration curve using RGB linear response vs concentration

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Find the unknown conc using the calibration curve

Table 1: Experimental Data

S. No.	Data collected from Colorimetric device		Data collected from smartphone device*					
	Conc. (ppm)	Abs (Y- axis)	R	G	B	R/G	G/B	R/B
1.	1	0.124	153	90	39	1.7	2.3	3.9
2.	2	0.243	162	70	19	2.3	3.7	8.5
3.	3	0.378	141	38	5	3.7	7.6	28.2
4.	4	0.516	148	48	14	3.9	3.4	10.6
5.	Unknown	0.342	166	67	10	2.5	6.7	16.6

* Corresponding ratio that is linearly increasing with analyte concentration is used for plotting Fig. 2.

Result:

(i). Concentration of Fe in steel sample (using colorimetry) = 2.7 ppm (mg/L)

(ii). Concentration of Fe in steel sample (using digital imaging) = _____ ppm (mg/L)

Evaluation of Result:

Sample number	Experimental value (ppm)	Actual value (ppm)	% of error	Least error % value	Marks awarded
6	**Colorimetry method**				
	Digital-imaging method				