Country | Team

ID Code: 1) | 2) | 3)

2013 india ijso 10th International Junior Science Olympiad, Pune, India

Time : 3 hrs
Marks : 40

Experimental Tasks A + B + C

Task C : Extraction of lycopene from tomato — Total Marks: 6.0

Absorbance of extract:

C.Q1 Observation Table C.1 **[3.5 Marks]**

	Current in mA	Blue LED	White LED
1	I_s	0.8 – 1.0 mA	0.6 mA and above
2	I_l	0.0 – 0.08 mA	~ 0.4 mA
Percentage of light transmitted		0 to 8% [0.25]	30 – 70% [0.25]

Is (Blue LED) 0.8 – 1.0 mA [1.5]
Is (Blue LED) 0.6 – 0.8 mA and 1.0 – 1.2 mA [0.75]

Is (White LED) 0.6 mA and above [1.5]
Is (White LED) 0.3-0.6 mA [0.75]

Percentage transmitted in each case [2 x 0.25 = 0.5]

Questions

C.Q2 **[1.0 Mark]**

If the test tube **Ab** (containing the solvent) was removed from between the photodiode and the white LED,

a) The current measured would be less than I_s
b) The current measured would be more than I_s
c) The current measured would be equal to I_s

Write the correct option in the box below. **a)**

Experimental Tasks A + B + C

C.Q3 **[1.5 Marks]**

Which of the following can you *deduce from your observations in the experiments* on transmitted light. Indicate your answers as YES (Y) or NO (N) in the table below.

a) Lycopene absorbs more blue light relative to other parts of the visible spectrum.
b) Lycopene preferentially absorbs light in the red and yellow parts of the spectrum.
c) Lycopene is an antioxidant.
d) Red and yellow parts of the spectrum are absorbed relatively less compared to blue parts of the spectrum.
e) Blue light passes through the solution better compared to red light.
f) Lycopene absorbs light equally across the spectrum.

a)	**Y**
b)	**N**
c)	**N**
d)	**Y**
e)	**N**
f)	**N**

Each correct option [0.25]