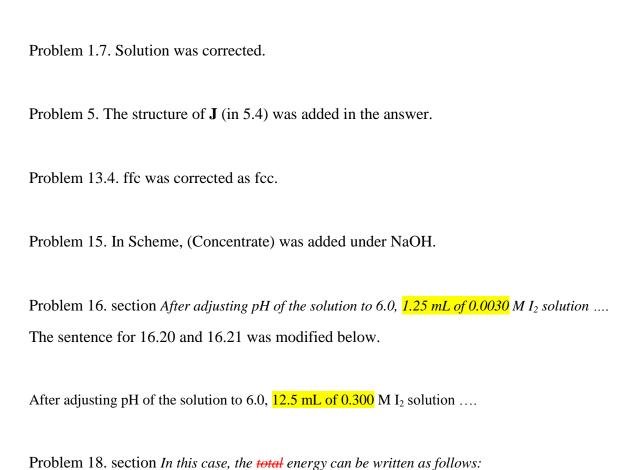
Differences between first and second editions of Preparatory Problems for IChO 2020

Problem 7. Data of ¹H NMR were deleted. Nevertheless, this correction cannot affect the solution of the problem.

Differences between second and third editions of Preparatory Problems for IChO 2020



The sentence was modified.

Problem 21. section *One of the common theoretical approaches to explain KIE is the primary KIE. In the primary KIE approach, ...*

The sentence was modified below.

In one of the common theoretical approaches to explain KIE,

Problem 22. The answer (in 22.5) was corrected.

$$[C] = 1.80 \, mol \, dm^{-3}$$

Problem 24.3. Formula was corrected.

$$\varphi_{AO-DNA} - \varphi_{AO} = \Delta \varphi$$

Differences between third and fourth editions of Preparatory Problems for IChO 2020

Problem 1. Transformation of E to D in Scheme was modified. Hydrolysis of nitrile group as 1) H_2SO_4 (cat), EtOH; 2) H_3O^+ .

Problem 13. The following corrections were made in the section before 13.8.

$$\mu_{eff} = \sqrt{\frac{3kX_mT}{L\mu_0x\mu_B^2}} = 0.7977\sqrt{X_mT} \text{ and } 1\mu_B = \frac{eh}{4\pi m_e} = 9.27 \times 10^{-24} JT^{-1}$$

Where k = Boltzmann constant; L = Avogadro number; $\mu_0 = \text{vacuum permeability}$; $T = \text{temperature in Kelvin and } X_m \text{(molar magnetic susceptibility)} is in <math>cm^3 mol^{-1}$.

Problem 13.8. The solutions were corrected.

$$X_m = (5.500/0.7977)^2/298.15 = 0.159 \frac{cm^3}{mol} for Mn^{2+}$$

$$X_m = (3.138/0.7977)^2/298.15 = 0.052 \frac{cm^3}{mol} for Ni^{2+}$$

Magnetic susceptibility of 0.01 mol doped samples:

$$1.59 \times 10^{-3} \, cm^3 \, for \, Mn^{2+}$$

$$5.20 \times 10^{-4} cm^3 for Ni^{2+}$$

Problem 14.16. Structure of ormaplatin was corrected.

Problem 16. section "controlled oxidation of sulfur trioxide by MnO_2 ...was corrected.

Problem 16.16. Structure of H₂SO₄ was deleted in solution.

Problem 21.5. Sentence "It is assumed that entropy is constant." was added.

Problem 21.9. k_D was corrected as 2.0×10^2 .

Problem 25.3. k in table was corrected as sec⁻¹.