Topological Data Analysis

10 November 2022

Exercise

Find the homology groups with coefficients in $\mathbb{Z}$ of the abstract simplicial complex whose maximal faces are

$$(12)\ (13)\ (14)\ (23)\ (25)\ (36)\ (456).$$

Please deliver through Campus Virtual as a pdf file before November 17 at 10:00.

Longer exercise (optional)

Find the homology groups with coefficients in $\mathbb{Z}$, $\mathbb{Q}$ and $\mathbb{F}_2$ of the abstract simplicial complexes K and L whose maximal faces are, respectively,

(a) K: (124) (125) (135) (136) (146) (234) (236) (256) (345) (456);

(b) L: (014) (015) (023) (027) (035) (047) (126) (128) (148)
(156) (236) (278) (346) (348) (358) (467) (567) (578).

For this, you may use software of your preference. SageMath is recommended:

https://www.sagemath.org/

Longer exercises can be delivered until December 20.