

Examination – written part – May 23, 2017

1. A metallic resonator dimensioned 150x40x80 mm is partially filled by two lossless dielectrics, where relative permittivities are $\epsilon_{r1} = 8$ a $\epsilon_{r2} = 2$. FDTD method should be used. Specify:

- a) Space discretization step
- b) Time discretization step
- c) Resulting number of node variables
- d) Number of node updates needed to characterize the system from 100 MHz

At least 10 discretization steps per wavelength required. Fill in results here – possible calculations may be noted overleaf.

2. *What is the meaning of the following acronyms:*

FDTD

HB

FEM

3. Describe finite – difference method for stationary fields.