Hey peers,

I had my OE exam on 23.03.2016 and want to share my experience and especially the new questions. The setting and atmosphere was the same as for all the others, I suppose. The first part of the exam went quite good, whereas the second half was more like guessing and approaching the correct answer slowly. So my feeling after the exam (before I got my grade) wasn't the best, but that's definitely nothing to worry about. The final mark should be better than you would expect.

I prepared basically with looking up the important topics and reading through old protocols. In the following list I will only present the questions that seemed to be somehow 'new' to me, because that's probably the information what you are looking for. My topic was the camera which I could chose easily (he just asked me if I had any optical system that I liked to talk about).

Ok, here we go:

- 'free' question: additionally: What is scientific about this method or better: What does scientific mean in this context.
  A: scientific means that one approaches systematically the demanded solution

- What is the big advantage of a pinhole camera?
  A: large depth of field and very easy construction which means, that it's cheap and robust (as an engineer one should always design the easiest possible solution)

- Why did I choose to buy a f/2.8 objective even though my pixel size is ~ 4µm and a smaller airy disc doesn't increase the resolution
  A: It can decrease the depth of field what is desired by photographers e.g. for portrait photography

- Why is the depth of field of a smartphone camera very large?
  A: small aperture (and also small focal length), a bit contradictory, since the f-number is of the same order, but check the equation for depth of field, it depends on f^2

- How can one change the depth of field of a camera (additionally to changing the f-number)?
  A: closer objects have a narrower depth of field

- What benefits do you get from a larger sensor?
  A: Less noise and smaller depth of field

- How do you measure wave aberrations and how to get PSF from wave aberrations?
  A: Subtract the real wavefront from the ideal. This yields a function that will be expressed by a sum of weighted Zernike polynomials.
  He asked some more stuff about how to calculate and measure those aberrations what I didn't completely understand (neither the question nor the answer)

The answer for the last question was not very satisfying but it’s also beyond the level of this course I think. He admitted that he didn’t talk about it in the lecture in enough detail. Not knowing this stuff didn’t really influence the result of the exam in a bad way.

Good luck!