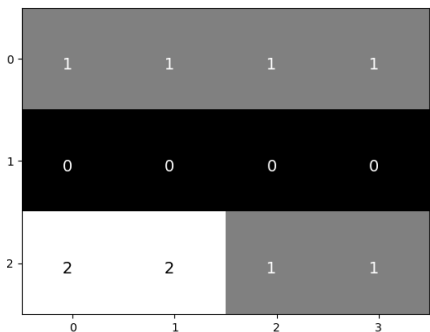Practice example exam, January, 2022.

For each of the 7 lectures there are 3 MCQ questions + 1 Open question, yielding $4 \times 7 = 28$ questions in total. There is one correct answer for each MCQ question. Mark the answer on the answer sheet (note the ordering of the A,B,C,D options). Closed book exam: No books, notes, phones, etc allowed. Good luck!
(Note: In the actual exam the number of questions will be different and the rubric will not be given.)

Question 1	*Lecture 1*	*Histograms and color*

From the RGB cube, the color plane defined by fixing the coordinate R to 1 (ie: R=1) looks like:

☐**A:** Green, Blue, White

☐**B:** Red, Purple, Black

☐**C:** Red, Yellow, White

☐**D:** Yellow, Purple, Black

☐**E:** Yellow, Red, Black

☐**F:** Red, Blue, Black

Question 2	*Lecture 1*	*Histograms and color*

Consider these color pairs: RGB(1, 0, 0)-HSI(0, 1, 1); RGB(1, 1, 1)-HSI(0, 0, 1); RGB(0, 0, 0)-HSI(0, 0, 1); RGB(0, 0, 1)-HSI(0, 1, 1/3). How many pairs represents the same color?

☐**A:** Only 1 pair

☐**B:** 2 pairs

☐**C:** 3 pairs

Question 3	*Lecture 1*	*Histograms and color*

Using point processing on pixels with a typical 8-bit per channel RGB encoding, which operations do we need to apply to each channel to obtain an image with inverted colours? (x is the pixel from the input image)

☐**A:** Subtract 255 from x

☐**B:** Multiply x by -1 and add (255*3)

☐**C:** Multiply x by -1 and add 255

☐**D:** Subtract 128 from x

Question 4	*Lecture 1*	*Histograms and color*

Open question: For this 3x4 intensity image and its pixel values.

Draw its histogram and apply histogram equalization. Give all the performed steps.

End of exam.