

**After the exam of 18.03.2016:
Typical errors, comments etc.**

QUESTION 1

ERROR: unsuccessful investigation of convergence of the integral in t .

PENALTY: 5(+5) points.

COMMENT: amazingly, several students try to *calculate* the integral just for investigating its convergence. I wonder, do they also calculate the sum of a series, being asked whether it converges or not?

QUESTION 2

Item (a)

ERROR: no proof that D_1u, \dots, D_nu are harmonic.

PENALTY: 7 points.

Item (b)

ERROR: just “the same as Item (a)”.

PENALTY: 7 points.

QUESTION 4

ERROR: $\int_G(\dots)J_\psi$ appears.

CLARIFICATION: the generalized Jacobian J_ψ is relevant when integrating a function, and irrelevant when integrating a differential form.

PENALTY: 15 points.

ERROR: a chart (G, ψ) with the correct $\psi(x, r)$ but wrong G (a rectangle instead of disk).

PENALTY: 7 points.

PARTIAL SUCCESS: the integral of $x dr$ over the circle is reached (but not calculated).

REWARD: 30 points.

PARTIAL SUCCESS: $\int_M dx \wedge d\sqrt{y^2 + z^2}$ (or $\int_{\partial M} x d\sqrt{y^2 + z^2}$) is reached (but not calculated).

REWARD: 15 points.

GRADES STATISTICS

| Total | Question 1 | Question 2 | Question 3 | Question 4 |
|-------|------------|------------|------------|------------|
| 105 | 25 | 40 | 40 | |
| 100 | 30 | | 40 | 30 |
| 98 | 40 | | 40 | 18 |
| 85 | 33 | | 40 | 12 |
| 79 | 39 | | 10 | 30 |
| 73 | 30 | | 35 | 8 |
| 69 | 30 | | 39 | 0 |
| 68 | 28 | | 40 | |
| 66 | 40 | 26 | | 0 |
| 65 | 30 | | 35 | 0 |
| 45 | 20 | 10 | | 15 |
| 40 | 40 | 0 | | 0 |
| 32 | 32 | 0 | | 0 |
| 30 | 10 | | 10 | 10 |
| 0 | | | | |