Microeconic Analyses of Old Indian Texts
Summer 2015

You have to accomplish this test within **60 minutes.**

PRÜFUNGS-NR.:

STUDIENGANG:

NAME, VORNAME:

UNTERSCHRIFT DES STUDENTEN:

ANFORDERUNGEN/REQUIREMENTS:

Lösen Sie die folgenden Aufgaben!/Solve all the exercises!
Schreiben Sie, bitte, leserlich!/Write legibly, please!
Sie können auf Deutsch schreiben!/You can write in English!
Begründen Sie Ihre Antworten!/Give reasons for your answers!

1	2	3	4	5	6	$\sum$

Problem 1 (10 points)
Comment on this matrix:

		state of the world	
		good luck	bad luck
Arjuna	fighting	prevail and enjoy the earth	be killed and attain heaven
	not fighting	shameful loss of reputation	shameful loss of reputation

Problem 2 (10 points)
A *Cārvāka* king challenges the future Buddha:

> "If the next world is not a bogey man for children,
> and if you think I should believe in it,
> then give me five hundred nishkas
> and I'll return you a thousand in another life!"

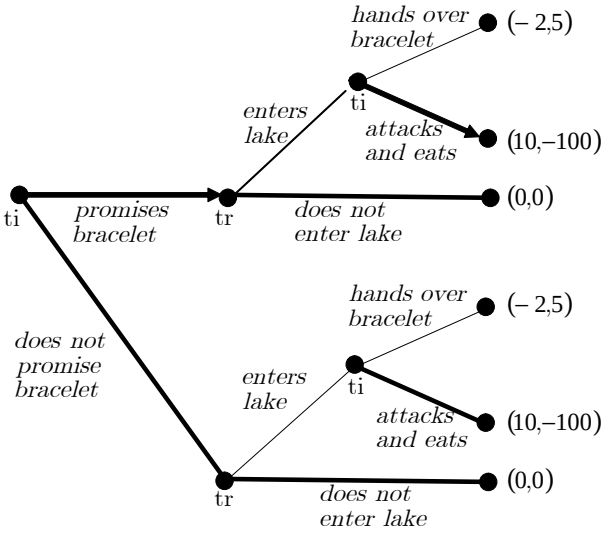
Let p_{asti} be the probability that the next world exists.

a) Describe the lottery L_{loan} offered to the Buddha!

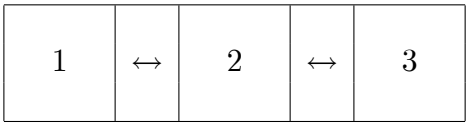
b) Determine the lottery's expected value!

c) If the Buddha tried to maximize his expected value, would he accept the lottery?

Problem 3 (5 points)
Comment on the following game:



Problem 4 (15 points)
Consider the neighbourhood structure $\{1 \leftrightarrow 2, 2 \leftrightarrow 3\}$ that is also depicted below:



a) Find all the possible fighting structures!

b) Is country 1 a friend of country 3 against 2 at $\{2 \leftrightarrow 3\}$?

c) Are the following strategy combinations equilibria?

- each country attacks every other country with a common border
- country 1 attacks country 2, countries 2 and 3 do not attack
- countries 1 and 3 attack country 2, country 2 does not attack

Problem 5 (10 points)
In the model of Kautilya's market tax, we have a trader who

1. incurs production cost C for one unit of a good,
2. pays the cost of market entry F
3. declares the value V of the good to the market authorities and
4. auctions off the good for the highest bid p where p's density function is given by f (which is constant at $\frac{1}{m-n}$ between n and m).

Two questions:

- What is the market tax T?
- Explain the profit function

$$\Pi = -F + \delta\Pi \int_n^V f(p)\, dp + \int_V^m (p - C - T)\, f(p)\, dp$$

Problem 6 (10 points)

From the ordeal model, explain the equation

$$\sigma = \gamma\left[(1-\rho)\,\alpha\right] + (1-\gamma)\left[\rho + (1-\rho)\,\alpha\right]$$

with these parameters:

- σ is the probands' historical success rate.
- γ is the percentage of guilty ordeal takers.