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A: Social choice = decisions involving more than one decision maker. E.g. voting

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Q: What are Utils?

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A: Utils are number we use to reflect our preferences over outcomes

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A: a is the degree of optimism, where
 $1 = \text{maximal optimism.}$

Q: Explain the following 3 principles.

- i) Principle of maximising expected monetary value
- ii) Principle of maximising expected value
- iii) Principle of maximising expected utility

A:

St Petersburg Paradox is where a fair dice is tossed repeatedly until tail appears. You win $\$2^n$, where n is no. of tosses that are not tails when you play.

How much would you pay to play this game?
Here the paradox lies wherein that the **expected value** of the game is infinity but in reality people maximise expected utility and would pay about \$4.

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Q: What are the 4 Von Neumann-Morgenstern axioms?

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A: If it is false that $x > y$ and false that $y > z$, then it is false that $x > z$.

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A: Its expected profit should be
zero.

Q:

_____, max the sum of
total utility.

_____, believe equality
should be taken into account in the
decision making process.

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Q: What is a SWF – Social Welfare Function? Give an example.

A Social welfare function is any decision rule aggregating a set of individual preference orderings. **E.g.**
Majority rule

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Q: Draw the decision matrix for
BoS.

- i) **strict:** an equilibrium action is strict if each player's action is better than all her other possible actions
- ii) **best response of player i** = set of player i's best actions

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Q:
A player's action _____

dominates another action if the first action is **at least as good as** the second action, no matter what the players do.

A:

Perfect information: sequentially played game where each player knows all previous moves made by other players when making a decision. E.g.

Chess

Imperfect information: while making a move, a player may not know at which branch of the game tree she is. E.g. matching pennies

Q: What is the difference between a strategic game with ordinal preferences and a strategic game with VnM preferences?

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A: VNM preferences mean we can assign probabilities p and q to the deterministic outcomes.