Exam

Incentives in Organizations and Innovation

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Choose **either** question Question I **or** Question II.

Question I

A principal hires a risk averse agent. The expected utility of the agent is $EU = E(w) - 0.5e^2 - 0.5rVar(w)$, where w denotes the wage, e the effort and r the coefficient of absolute risk aversion. The reservation utility of the agent is equal to zero. The production function is $q = e + \epsilon$, where ϵ is a normally distributed random variable with the expected value $E(\epsilon) = 0$ and $Var(\epsilon) = \sigma_\epsilon^2$. The principal can observe q, but not e. Additionally, she can observe a signal μ that is normally distributed with the expected value $E(\mu) = 0$ and $Var(\mu) = \sigma_\mu^2$. The random variables ϵ and μ are correlated. The wage of the agent is $w = \alpha(q + \gamma\mu) + \beta$, where α, β and γ are set by the principal. Let $\sigma_\mu^2 = \sigma_\epsilon^2 \equiv \sigma^2$.

I.1 Identify the participation constraint and the incentive-compatibility constraint.

I.2 Identify α, β and γ.

Question II

Please discuss the strategic aspects of managerial performance pay under Bertrand competition and under Cournot competition.

Please note: If you answer both questions, we will only consider Question I.