[This question paper contains 6 printed pages.]

2258 *Your Roll No.* .....

M.A. Winter Semester **A**

ECONOMICS

Course 902 – Issues in Economic Systems and Institutions

(Admissions of 1999 and onwards)

Time : 2½ Hours *Maximum Marks : 70*

(Write your Roll No. on the top immediately on receipt of this question paper.)

Answer **two** *questions each from Part* **A** *and Part* **B.**

PART A

Answer any **two** *questions.*
Each question carries **15** *marks.*

1. Using the theory of cheap talk, explain why rights can promote the interests of those who confer them, even when those who receive these rights may pursue different objectives. In particular, discuss (a) decentralized decision making rights (b) right to information (c) right to free speech.

2. Explain two strategic reasons that may lead to herd behaviour, i.e., situations where most decision makers ignore their own information and mimic the choices of a few. Why are such outcomes inefficient? Mention a few specific types of agents (e.g., mutual funds managers) who you think are likely to exhibit herding, and why.

P.T.O.

3. Discuss how racial or gender discrimination can arise in hiring even if different races or sexes have the same statistical distribution of capabilities, and employers do not have a taste for discrimination. Will affirmative action policies like job reservations improve the negative stereotypes of victimized groups ?

PART B

Answer any **two** *questions.*
Each question carries **20** *marks.*
Show your reasoning and, derivations.

4. (a) This question is based on the Crawford-Sobel model of cheap talk with uniform-quadratic preferences. The state-of-the-world θ is uniformly distributed on $[0,1]$. Its realization is private information to the sender, who sends a costless message m to the receiver, potentially containing some information about θ. The receiver takes an action $a \in [0,1]$, and preferences are given by

$$U_R = -(a + \theta)^2$$

$$U_S = -(a + b - \theta)^2$$

where b is the sender's bias parameter. Find the range of values of b for which the most informative equilibrium has 6 intervals in its partition. (3)

(b) Suppose $b = -\frac{1}{24}$. Find all the Perfect Bayesian equilibria. (7)

(c) Consider the following model of verifiable evidence along the lines of Milgrom and Roberts. A seller has an indivisible good whose quality can be either high, medium or low. The value of the good to the buyer, v, and the *ex ante* probability distribution p over possible quality levels, is given by

	Low	Medium	High
v	0	1	2
p	$\frac{1}{1+x+x^2}$	$\frac{x}{1+x+x^2}$	$\frac{x^2}{1+x+x^2}$

where $x > 0$ is a parameter. Suppose the seller has a quality certificate which accurately identifies the quality of his product, but it is his choice whether to show it to the buyer. If the buyer buys the good from the seller at a price w, his payoff is $u = -(v - w)^2$. The buyer chooses w to maximize his expected payoff. Find the equilibrium disclosure strategy, i.e., which seller types will produce their quality certificate ? (3)

(d) Consider a noisy version of the evidence disclosure model above, with the following modification. With probability $\epsilon > 0$, the seller of any type may not have a quality certificate, but this is private information to the seller. Find a lower bound on the value of ϵ that will cause the unraveling result to break down. (7)

P.T.O.

5. This question is based on the Feddersen-Pesendorfer model of strategic voting. A defendant is either guilty (G) or innocent (I), with equal probability *ex ante*. Each of n jurors receives a conditionally independent private signal taking the value g or i, with probability distribution

	g	i
G	p	$1-p$
I	$1-p$	p

The decision d can take two possible values: acquit (A) or convict (C), which is chosen by voting. Jurors must cast a vote based only on their private information (i.e. communication is not allowed). All jurors have a common payoff function:

$$u(s,d) = \begin{cases} -q & \text{if } s = I, d = C, \\ -(1-q) & \text{if } s = G, d = A \\ 0 & \text{otherwise,} \end{cases}$$

where $q \in (0,1)$ is the threshold of doubt.

(a) Suppose $n = 3$, $p = 0.8$, $q = 0.5$ and simple majority is required to convict. Find the symmetric, responsive Bayesian Nash equilibrium, and calculate the probabilities of convicting the innocent and acquitting the guilty arising from this equilibrium. (3)

(b) Take the same parameter values as above but change the voting rule: the defendant is now

convicted if and only if all voters vote to convict (unanimity). Find the symmetric, responsive Bayesian Nash equilibrium and calculate the two kinds of error probabilities arising from this rule. (10)

(c) Under which rule is the probability of convicting an innocent defendant higher ? Intuitively explain how, in general, tougher conviction standards affect the probability of conviction. (5)

(d) Which rule gives a higher *ex ante* payoff to the jurors ? (2)

6. Consider the following reputational cheap talk game. A decision maker choosing a binary action a must either hire ($a = 1$) or reject ($a = 0$) a job candidate who comes from a minority group. The candidate's quality is denoted by θ and he is either competent ($\theta = 1$) or incompetent ($\theta = 0$). The decision maker intially believes that $\theta = 0$ or 1 with equal probability. The true value of θ is known to an advisor. The advisor sends a cheap talk message about the candidate's quality to the decision maker, whose payoff is dependent on the candidate's quality and the decision in the following way :

	$\theta = 0$	$\theta = 1$
$a = 0$	1	0
$a = 1$	0	1

P.T.O.

The advisor can be one of two types: good or bad, with a prior probability μ that he is good. The good advisor receives identical payoffs from the appointment as the decision maker herself, while the bad advisor gets a payoff of 1 when $a = 0$, and 0 when $a = 1$. That is, the bad advisor is prejudiced and never wants the candidate to be hired regardless of competence. Both advisors get an additional reputational payoff from being perceived as a good advisor, given by the function $f(\hat{\mu}) = \alpha \log(1 + \hat{\mu})$, where $\alpha > 0$ is a parameter and $\hat{\mu}$ is the decision maker's belief that the advisor is good after listening to his advice (but before learning the true quality of the candidate).

(a) Find parametric conditions under which the following truth-telling equilibrium exists: the good advisor's message fully reflects the candidate's true quality. Characterize such an equilibrium. (10)

(b) Find parametric conditions under which the following politically correct equilibrium exists: the good as well as the bad advisor always claim the candidate is competent. Characterize this equilibrium. (5)

(c) Comment on the following statement : "Political correctness is a cultural trap, not an inevitability." (2)

(d) What are the social costs and benefits of political correctness ? (3)