Answer all of the following questions. The answers should be entirely your own work. Your exam should be submitted via e-mail by midnight February 26. Your entire set of answers should be less than eight pages long.

When answering short answer and essay questions be sure to give your interpretation of the question as part of the answer. After completing the exam, email your pdf or doc answer file to roger.congleton@mail.wvu.edu, with a header Public Econ 2 Exam. **Your exam's file name should be**: ECON 742_your last name_exam

I. Concepts and Definitions (5pts each, 4-5 sentences):

    i   Externality

    ii   Club Good

    iii   Neutral Tax

    iv   Tullock Contest Success Function

    v   Median Voter Theorem

    vi

II. Public Finance Review

1. (5 pts) Taxation

    i   Determine marginal and average tax rates for the following tax schedule:

$$T = C + BY$$

    ii   Is this tax progressive, regressive, or proportional? Explain.

2. (10 pts) Al's marginal benefit curve for a pure public good is $MB_a = 300\text{-}6Q$ and Bob's MB curve is $MB_b = 200 - 4Q$. Suppose that the Al provides the public service and that it can be produced at constant costs with MC = 100.

    i   Characterize the free rider (high demander) output of the pure public good.

    ii   Characterize the Pareto optimal level of this pure public good

    iii   Determine the Pigovian subsidy rate which can induce Al to produce the Pareto optimal level of the pure public good.

3. (10 pts) Suppose that 10 individuals have the same underlying utility function for private and public goods $U = u(V, G)$ where V is a pure private good, and G is a pure public good. Let $144 = V^2 + G^2$ be the production possibility frontier faced. Derive the Samuelsonian conditions for the optimal level of public good G.

III. Public Choice

1. (15 points) Analyze the concept of rent seeking.

   i   Carefully define rent seeking.

   ii   Construct a 3-person rent seeking contest using a Tullock contest success function. Define all variables, determine the strategies of each player and the Nash equilibrium of your contest.

   iii Under what circumstances, if any, are rents completely dissipated by socially wasteful expenditures? (Consider, for example, the Hillman and Riley (1989) alternative to the Tullock characterization of influence contests.)

   iv   Do institutions matter in determining the degree of rent dissipation? If so, illustrate and/or discuss how such effects can be incorporated into your model..

2. (15 points) Essay: (a) contrast the pure public good and insurance rationale's for government services in democracies, when policies are determined by the median voter. Are there cases in which their predictions are similar? Are different? (b) Discuss why neither theory can fully account for the rapid growth of the welfare state between 1960 and 1990. [About one page, be sure to site relevant literature.]

IV. True False (5 points each, short answer 4-8 sentences)
Determine whether each of the following statements are true, false, or uncertain. Explain your reasoning very briefly in four to eight sentences. (The explanation is generally more important than the answer given.) Include a carefully labeled diagram if it helps to clarify your reasoning.

   i   The median voter model is completely incompatible with sustained growth in the size of government.

   ii   The existence of deregulated industries contradicts the Olson-Stigler's capture model of regulation.

   iii Lindahl taxes tend to be preferred in democracies to all other tax systems.

   iv   Pigovian taxes do not have a deadweight loss associated with them.