Instruction: *Answer one question in one place only. Use of any symbol needs to be clearly mentioned. Assume any parameter or variable value, if required. No quarries during examination.*

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1. Sara's preferences for consumption and leisure can be expressed as   **(8)**
$$U(C, L) = (C - 200) * (L - 80)$$
   Where C is commodity consumption and L is leisure. There are 168 hours in a week available to split between work and leisure. Sara earns $5 per hour after taxes. She also receives $320 worth of welfare benefits each week regardless of how much she works.

   a. Graph Sara's budget line.
   b. What is Sara's marginal rate of substitution when L = 100 and she is on her budget line?
   c. What is Sara's reservation wage?
   d. Find Sara's optimal amount of consumption and leisure.

2. Assume the production function for a firm is $f(E, K) = 4K^{1/2} + 2E^{1/2}$ **(4)**
   Where K=capital, E= labour, w =wage rate, r =price of capital, p= price of output.

   What is the firm's profit maximizing level of labour demand E as a function of output price p and input prices r and w?

3. Who are the key actors in the labour market? What motives do economists typically assign to workers and firms?   **(3)**

4. Why does a profit-maximizing firm hire workers up to the point where the wage equals the value of marginal product? Show that this condition is identical to the one that requires a profit-maximizing firm to produce the level of output where the price of the output equals the marginal cost of production.   **(5)**

5. Discuss the impact of the minimum wage when there are two sectors in the economy: the covered sector (which is subject to the minimum wage) and the uncovered sector (which is not). Discuss can minimum wage be an effective policy for reducing poverty.   **(6)**

6. Suppose the hourly wage is $10 and the price of each unit of capital is $25. The price of output is constant at $50 per unit. The production function is $f(E,K) = E^{0.5}K^{0.5}$

   Where E, and K stand for employment and capital respectively. If the current capital stock is fixed at 1,600 units, how much labor should the firm employ in the short run? How much profit will the firm earn?   **(4)**

END