1. Discuss the basic idea behind the Pure Theory of Public Expenditure. Also explain the theoretical rationale behind Lindahl Pricing.

**Ans**: The basic idea can be captured in a little simpler manner than using production possibility curve of the society and indifference curves of the individuals constituting society, which is the framework adopted by Samuelson. In contrast to general equilibrium framework, we are adopting here partial equilibrium framework. Let there be two individuals A and B in the society, which produces private good X and public good Y. Price of purchase of public good Y is in terms of X, call it tax. In the case of a pure private good, we know there prevails one single price at different individuals normally buy different amount. By contrast, we can see that there can be only one quantity of a pure public good, which is equally available to (or enjoyed by) everybody but they may pay different prices (taxes). In the case of a private good, we carry out horizontal summation of individual demand curves. The equilibrium quantity produced is allocated to different consumers at equilibrium price according to strength of their individual demand curves. Noting that demand curves reflect marginal revenues and supply curves reflect marginal costs, we may write the condition of equilibrium in a competitive market as \( MRA = MRB = MC \). In the case of a public good, we can carry out vertical summation of individual demand curves for whatever quantity is produced, because of non-rivalness in consumption, will be as a whole consumed, and therefore equally, by everybody. Which means that individual marginal revenues are summed up to equal the marginal cost of production. The competitive equilibrium condition could then be written as \( MRA + MRB = MC \). In terms of general equilibrium model, one may recall, for two private goods X1 and X2 and two individuals A and B the condition of equilibrium is \( MRS_A = MRS_B = MTS \). By contrast, for a world of a private good X and a public good Y and two individuals A and B, the condition of equilibrium would be \( MRS_A = MRS_B = MTS \). \( MRS \) and \( MTS \) stand respectively for marginal rate of substitution and marginal rate of technical substitution. Wicksell had long ago realized that the individual demand curves might be a pseudocharacter as people may be tempted to conceal their preferences. Whatever public good is supplied and in whatever quantity, it is all available by definition to all, an individual may keep quiet about his need as he can enjoy its fruit without paying. It may mean that public goods may be collectively underprovided. These things will be further discussed in due course.

The Lindahl Equilibrium is a method proposed by Swedish Economist Erik Lindahl for financing public goods or sharing of cost by different consumers. Let there be two consumers A and B. \( K=100 \)

![Diagram](image_url)

**Fig. 2.4: Lindahl Pricing for Public goods**

Assume that the in fig 2.4 vertical axis measures \( k \) or the fraction of unit cost contributed by A. Given the unit cost \( C \) and assuming it to be constant, \( kC \) is the price paid by A, and \( DA \) is the demand schedule for the public good S. Since B’s price equals \((1-k)C\), and since both share the same quantity of S, B’s demand curve drawn with regard to \( k \) is given by DB. Individual A may then look upon DB as showing the price at which various quantities of S are available to him, i.e. as a supply schedule for the public good which confronts him. B similarly may regard DA as his Supply curve. The fraction of the price which both are willing to pay (\( K \) for A and \((1-K)\) for B) adds to one at the intersection of DA and DB, at output OM. This approach is applicable to a bargaining situation with small numbers.