(1) What is market concentration?

A. Market concentration is a criterion that can be used to rank order various distributions of firms' shares of the total production or total capacity or total reserves in a market.

(2) What is modeling in economics?

A. In economics a model is a theoretical construct representing economic processes by a set of variables and a set of logical and/or quantitative relationships between them.

(3) Explain the uses of model.

A. the use of models includes:

- Forecasting economic activity in a way in which conclusions are logically related to assumptions;
- Proposing economic policy to modify future economic activity;
- Presenting reasoned arguments to politically justify economic policy at the national level, to explain and influence company strategy at the level of the firm, or to provide intelligent advice for household economic decisions at the level of households.
- Planning and allocation, in the case of centrally planned economies, and on a smaller scale in logistics and management of businesses.
- In finance predictive models have been used since the 1980s for trading (investment, and speculation), for example emerging market bonds were often traded based on economic models predicting the growth of the developing nation issuing them. Since the 1990s many long-term risk management models have incorporated economic relationships between simulated variables in an attempt to detect high-exposure future scenarios (often through a Monte Carlo method).

(4) Explain stochastic modeling. .

A. **A stochastic model represents a situation where uncertainty is present. In other words, it's a model for a process that has some kind of randomness.** In this model ranges of value in the form of probability distribution are used. In other words we can say that **stochastic modeling concerns the use of probability to model real-world situations in which uncertainty is present.** Stochastic modeling is a form of financial modeling that includes one

or more random variables. The purpose of such modeling is to estimate how probable outcomes are within a forecast to predict conditions for different situations. The Monte Carlo simulation is one example of a stochastic model; when used for portfolio evaluation; various simulations of how a portfolio may perform are developed based on probability distribution of individual stock returns.

Stochastic models are formulated using stochastic processes. They model economically observable values over time. Most of econometrics is based on statistics to formulate and test hypotheses about these processes or estimate parameters for them. A widely used bargaining class of simple econometric models popularized by Tinbergen and later Wold are autoregressive models, in which the stochastic process satisfies some relation between current and past values.

(5) Explain stochastic model in investment.

A. Stochastic investment models attempt to forecast the variations of prices and returns on assets and asset classes, such as bonds and stocks, over time. In the investment world, stochastic models can be classified differently, having different models for single assets and multiple assets. Such modeling is, much of the time, used for financial planning and actuarial work that allows investors and traders to optimize asset allocation as well as asset-liability management.

The significance of stochastic modeling is extensive and far-reaching. The importance of being able to view a variety of outcomes and factor in a variety of variables is unparalleled, and in some industries, it may mean the success or bankruptcy of a company. Because new variables may come into play at any time, and because the number of variables that may have an effect could be high, stochastic models are sometimes run hundreds or even

thousands of times, offering potential outcomes for nearly every situation a business, industry, portfolio or agency may face.

In deterministic models, the output of the model is fully determined by the parameter values and the initial conditions. Stochastic models possess some inherent randomness. The same set of parameter values and initial conditions will lead to an ensemble of different outputs. Obviously, the natural world is buffeted by stochasticity. But, stochastic models are considerably more complicated