

**These questions and answers should help you to think about, revise and consolidate the material covered in Lecture 2.**

1. What should an effective Supply Chain Planning and Control System seek to achieve?
2. Why do we need to forecast for supply chain and operations planning?
3. Explain the difference between qualitative (subjective) forecasting methods and quantitative (objective) forecasting methods and outline two qualitative forecasting approaches.
4. Inventory may be held for economic reasons and/or as a buffer against uncertainty in supply or demand. Explain why and give examples of each case.
5. What do we mean by ABC classification of inventory items and why is it important?
6. Define what is meant by the capacity of an operational system.
7. What is the difference between design capacity and effective capacity?
8. What is meant by utilisation of capacity and why is it important?

### **Sample answer**

**Q4. Inventory may be held for economic reasons and/or as a buffer against uncertainty in supply or demand. Explain why and give examples of each case.**

#### **Economies of scale**

Inventory may be held in a supply chain to exploit economies of scale, which occur in several ways:

Economies of scale may occur in **purchasing** where an organisation purchases large volumes of a commodity product that it needs in its pipeline (e.g. standard screws used in the assembly of products) to benefit from a low unit price. Although beneficial economically, it results in stock levels being higher than immediately needed.

**Production systems** also benefit from economies of scale - **large production batches** reduce the unit production cost of each item because production facilities can run

more smoothly with fewer stoppages and changeovers (e.g. furniture products). This may result in a build-up of more stock than immediately needed to satisfy demand.

Similarly, inventory levels may rise because of **economies of scale from transporting** large volumes of products (e.g. it may be cheaper for a clothing retailer to transport a large batch by ship from Bangladesh to the UK than many smaller batches by air).

### **Buffer against uncertainty in supply**

Inventory may be held to provide a buffer against **uncertainty in supply**, e.g. a medical equipment company may stockpile titanium because it believes there may be future problems in sourcing of this material. Inventories may be held to buffer against the variable time required to transport inventory from the source to the point of use or sale, e.g. imported steel products may take a long variable time to be transported from one country to another.

### **Buffer against uncertainty in demand**

Inventory may be held to provide a buffer against **uncertainty in demand**, e.g. cold weather products such as de-icers and snow shovels may be held in storage to meet demand when cold weather events occur. Finished products may be produced and stored over a long period to meet predicted demand in a future period e.g. children's toys are produced and held in inventory in anticipation of demand at Christmas period.