



TEST QUESTIONS TO ACCOMPANY:

Designing Sustainable Packaging by Scott Boylston

This series of test questions created for use with your students provides multiple choice, short answer and essay/discussion questions based on the text and arranged by chapter. There is a separate answer key available.

INTRODUCTION

1. The 'triple bottom line' accounts for which of the following considerations when operating a business:
 - a. social
 - b. political
 - c. cultural
 - d. environmental
 - e. economic
 - f. ethical
 - g. all of the above

2. Secondary use of packaging is intended as a means of:
 - a. preventing inferior materials from entering the waste stream
 - b. providing consumers with gimmicks to enhance sales
 - c. helping the new and innovative material cycles function more efficiently
 - d. reducing the cost of packaging
 - e. none of the above
 - f. all of the above

3. A comprehensive or 'comp' is:
 - a. a digital prototype
 - b. an individually crafted simulation of the proposed production piece
 - c. a computer generated foam prototype
 - d. none of the above

4. Give two advantages of digital prototyping.

5. Give three advantages of building a three-dimensional comp.

Essay/discussion questions

1. Why do you think package designers in the past have failed to consider a 'second life' for their creations? How and why is this now changing?

2. What is a physical prototype and why are they necessary?

SECTION 1: RE:FOCUS**1 PACKAGE DESIGN AND COMMERCE: A FOUNDATION ON WHICH TO BUILD**

1. The first question a package designer should ask when presented with an assignment is:
 - a. what sort of packaging is required?
 - b. what are the technical specifications?
 - c. is a package even necessary?
 - d. how can the packaging enhance the product?
 - e. none of the above

2. List the three key stages in the first 'segment' of a package designer's research.

3. The second 'segment' of research should begin with instituting a feedback mechanism that allows the designer to determine whether or not:
 - a. to make a prototype
 - b. the design is eliciting responses from the target audience
 - c. to test the packaging's durability
 - d. none of the above

4. Which of the following DO NOT influence the 'visceral connection' between a consumer and packaging:
 - a. texture and polish of the surface
 - b. cost
 - c. distribution of weight
 - d. colour scheme
 - e. proportions in relation to the human hand

5. 'Shelf visibility' is the amount of _____ that a package provides. 'Shelf appeal' addresses the connection a package makes with a _____. 'Shelf communication' refers to the accuracy between product _____ and actual product _____.

6. Package designers need to take into account which of the following in the life cycle of the package they are proposing:
 - a. transportation
 - b. storage
 - c. display
 - d. place within brand hierarchy
 - e. end-use
 - f. disposal
 - g. all of the above

7. Packaging is redesigned on average every:
 - a. 5 years
 - b. 1 year
 - c. 10 years
 - d. 2 years

8. What is the most frequently-used material for secondary packaging:
- shrinkwrap plastic
 - paperboard
 - cardboard
 - all of the above
 - none of the above
9. A properly executed lifecycle analysis (LCA) of a package's hidden costs is essential when assessing the degree of _____ attributed to its entire lifespan.
10. List 5 'upstream costs' and 5 'downstream costs' in an LCA.
11. The primary environmental problem within the lifecycle of packaging is:
- water pollution
 - social distress
 - air pollution
 - energy consumption
 - none of the above

Essay/discussion questions

- Why do you think 'focus groups' might be less effective than 'behavioural studies'? What other methods have researchers used to track consumers' responses to packaging?
- Explain the difference between 'primary packaging' and 'secondary packaging'.
- Why is more sustainability in package design and production needed? Give examples of the environmental and social problems associated with packaging.

2 PACKAGE DESIGN AND SUSTAINABILITY: CONSTRUCTING A FUTURE

- Define 'sustainability' and list the 4 factors which impact on sustainability in package design.
- Stewardship means which of the following:
 - safeguarding the environments local to extraction of materials
 - cutting down trees
 - devastating third world economies
 - protecting the workforces local to extraction of materials
 - all of the above
 - none of the above
- List 6 types of renewable energy.

4. PCW stands for:
- a. pre-consumer waste
 - b. post-consumer waste
 - c. post-compostability waste
 - d. none of the above
5. PCF requires that the product contain at least what percentage of PCW:
- a. 30%
 - b. 10%
 - c. 50%
 - d. none of the above
6. ECF uses which chemical rather than elemental chlorine:
- a. hydrofluoric acid
 - b. hydrochloric acid
 - c. chlorine dioxide
 - d. none of the above
7. List 4 sustainable advantages of using soy ink over petroleum-based inks.
8. VOCs are _____ that vaporize and enter the air under normal atmospheric conditions. Their vapours contribute to a range of _____ including smog, ozone and greenhouse gases. Those particles that remain in solid form pollute _____, and many are _____.
9. Soy-based inks generally contain what percentage of VOCs:
- a. 10 to 15%
 - b. 25 to 40%
 - c. 1 to 10%
 - d. none of the above
10. How has CTP and DTP technology significantly reduced VOC release and energy use?
11. Plastics are not amenable to repeated recycling unlike paper and paperboard which can be reconstituted approximately how many times before losing adequate fibre strength:
- a. 10
 - b. 3
 - c. 15
 - d. 7
 - e. none of the above

12. Packaging that reuses recycled plastic can help improve sustainability in which two significant ways:

- a. reducing the need for extracting new raw materials
- b. increasing the price of the product making it less attractive
- c. encouraging reclamation of existing waste plastic
- d. reducing the amount of plastic required for the packaging

13. The production of biopolymers is less environmentally harmful than traditional plastics. What is the biopolymer PLA derived from:

- a. coconut oil
- b. corn
- c. soy beans
- d. petroleum
- e. none of the above

14. For every reduction in toxic materials within the upstream cycle a _____ reduction results in the downstream residue.

15. The biological loop includes all biodegradable material. The technological loop DOES NOT include which of the following.

- a. biodegradable waste products
- b. nonbiodegradable synthetics
- c. biodegradable materials
- d. nonbiodegradable hazardous materials

16. List the three party certification organizations and outline briefly who 'runs' each one.

17. The three general categories for the secondary function of packaging are:

- a. reuse by design
- b. reuse by innovation
- c. reuse by price
- d. reuse by default
- e. reuse by material
- f. reuse by prescription

Essay/discussion questions

1. How does using certified pulp sources in packaging help sustainability? Explain the role of the FSC and PFEC in supporting sustainable forestry.

2. Discuss the significance of energy consumption in the packaging process. Consider the importance of rightsizing, lightweighting, using renewable energy and 'offsetting' carbon emissions in reducing the energy required to produce packaging.

3 SUSTAINABILITY IN THE PROFESSIONAL REALM

1. The Sustainable Packaging Coalition was created expressly to do what? Outline 3 of its criteria for sustainable packaging.

2. List the four principles of Natural Capitalism proposed by the Rocky Mountain Institute.

3. What is the primary objective of The Natural Step which was founded in Sweden in 1988?

4. EUROOPEN stands for The European Organization for _____ and the _____.

5. The European Shopping Baskets Programme is designed to do which of the following:
 - a. study the shopping habits of consumers in the US
 - b. assess the 50 most commonly used products in the EU
 - c. provide a means of defining efficient packaging
 - d. assess the 100 most commonly used products in the EU
 - e. none of the above

6. Who developed the MERGE system and what does it do?

7. Approximately what percentage of PMS colours should be avoided to prevent heavy metals from entering into a packaging project?
 - a. 25%
 - b. 10%
 - c. 20%
 - d. 5%
 - e. none of the above

8. Give an example of a material which is renewable/recyclable/compostable. Outline what products this material can be used for.

Essay/discussion questions

1. Describe the changes which have taken place in packaging for the music industry since the early 1990s. How might a change to more sustainable products in one industry inform positive change in another?