**Assessment of your knowledge**

(a) Answer the following questions to assess your command on terminology, facts, concepts, and

theories learned in this chapter:

1. What properties should you consider when designing your tissue engineering scaffold?

2. What do you need to consider when choosing a degradable polymer for your scaffold?

3. What are the four terms presented as the 4F concept?

4. What is the relationship between molecular weight loss and mass loss of a hydrolytically degradable scaffold with time?

5. What does nonantigenic, noncarcinogenic, nontoxic, and nonteratogenic mean with respect to tissue engineered constructs?

6. What is nanoporosity with respect to scaffold design?

7. Name four examples of manufacturing technologies that result in classical scaffolds.

8. Name two measurement technologies that can allow you to quantify scaffold porosity.

9. Draw a schematic of the main components required for solution electrospinning.

10. What are the advantages and disadvantages of using melt electrospinning instead of solution electrospinning?

11. How is melt electrowriting different from melt electrospinning?

12. What is the difference between additive manufacturing and rapid prototyping?

13. Name three ways that an. STL file can be generated for additive manufacturing.

14. Name five examples of additive manufacturing technologies for making scaffolds.

15. What is the difference between DLP and DLS/CLIP?

16. Name the additive manufacturing technology that results in the best resolved scaffolds.

17. What is the gold standard polymer used for melt electrowriting?

18. Name two types of materials that are used for powder-based 3D printing.

19. Name two scaffold-guided regeneration strategies that have resulted in clinical implantation.

20. What was one of the first scaffold technologies clinically translated?

(b) Answer the following questions to assess your ability to apply the concepts and theories learned

in this chapter in real life, clinical, and scientific situations:

1. What is the difference between a scaffold pore and scaffold porosity, and expand on the different types of pores that can be found?

2. Describe the porosity and mechanical property relationship and how this can change with time.

3. Describe how solution electrospinning works to result in small diameter fibers.

4. How does the collector shape affect the types of fibers that are solution electrospun? Give examples.

5. Describe the difference between subtractive manufacturing and additive manufacturing.

6. Explain the steps in how an object is additively manufactured.

7. Describe how digital light processing (DLP) works.

8. Design and describe a hybrid manufacturing approach that combines different technologies.

9. Why has the field of tissue engineering and regenerative medicine been limited in the clinical translation of its products?

10. Describe the concept of the “Valley of Death,” with respect to clinical translation.