1. a, d

2. Embedded systems where the software has to interface with hardware systems

3. g

4. It proposes that there can be a fundamental meta-process that can be instantiated to create different kinds of software processes. The meta-process is based on the idea of a universal framework that can underlie all software engineering methods, and be adapted and used for all types of systems and organizations.

5. a. In generic products, the organization that develops the software controls the software specification, whereas for custom products, the specification is developed and controlled by the organization that is buying the software.
   
b. The approach involves developing a generic product as a base, and then adapting it to suit the requirements of a particular customer. The adaptation of an ERP system for a particular company, for example, might involve incorporating information about the company’s business rules and processes, reports required, and so on.

6. a. “SWEBOK” is an acronym for “SoftWare Engineering Body Of Knowledge,” an all inclusive term that describes the sum of generally accepted knowledge within the profession of software engineering. Produced by the IEEE Computer Society, the goal is to further define software engineering as a profession.
   
b. iv

7. d, f, h

8. Most software contracts for custom systems are based around a specification, which sets out what has to be implemented by the developer for the customer. But this precludes interleaving specification and development as is the norm in agile development. Sommerville therefore concludes that a contract that pays for developer time rather than functionality is required. Note that the context here is agile development (Sommerville, p. 75), not software maintenance contracts (p.258).

9. e

10. g


12. a. The prototype objectives (established during the first stage of the process) should be used to derive a plan for evaluation.
b. Provision must be made for user training. Potential users also need time to become comfortable with a new system and to settle into a normal pattern of usage.

c. Prototype responsiveness: If the prototype is slow, the evaluators may adjust their way of working and avoid those system features that have slow response times. When provided with better response in the final system, they may use it in a different way.

13. false; true; true; false, false


15. The four agile development practices described as being the “most important” by Sommerville are: (1) User stories for specification, (2) Refactoring, (3) Test-first development, and (4) Pair programming. See pages 65-70 in the Sommerville text and the Chapter 3 Lecture notes for detailed descriptions.

16. true; false; false; false; false; true

17. Brownfield development is a term commonly used in the IT industry to describe problem spaces needing the development and deployment of new software systems in the immediate presence of existing (legacy) software applications/systems. This implies that any new software architecture must take into account and coexist with live software already in situ. Many of the system requirements are therefore concerned with this interaction and so don’t really lend themselves to flexibility and incremental development.

18. training time required to achieve (some measurable level of) competence in using a system; number of help frames provided by the system


21. a. An analyst becomes immersed in some working environment and takes note of the day-to-day tasks in which people are involved. This helps discover implicit system requirements that reflect the actual ways that people work, rather than the formal processes defined by the organization.

b. Focused ethnography combines ethnography with prototyping.

22. Requirements amalgamation occurs when several different requirements may be expressed together.

23. As an evolving program changes, its structure tends to become more complex. Extra resources must be devoted to preserving and simplifying the structure.

24. e
Histogram of Raw Scores

mean