4. Knowledge check

1. In general, software maintenance consists of:
   a) bug fixing, modifying software to work in a new environment and implementing new or changed requirements
   b) refactoring, reengineering and reverse engineering

2. What are true statements about reengineering and reverse engineering:
   a) reengineering and reverse engineering are synonyms and are basically the same
   b) reverse engineering is process, where you attempt to understand how existing software accomplishes a task with very little (if any) insight into exactly how it does so
   c) reengineering is a continuous process of improvement and evolution of system during its development stage
   d) neither above is true

3. Cost of software maintenance usually exceeds cost of software development:
   a) true
   b) false

4. It is often cheaper and less risky to maintain a legacy system than to develop a replacement system using modern technology:
   a) true
   b) false

5. Change management is:
   a) intended to ensure that system evolution is a managed process and that priority is given to the most urgent and cost-effective changes
   b) concerned with analyzing the costs and benefits of proposed changes, approving those changes that are worthwhile and tracking which components in the system have been changed
   c) all of above
   d) neither of above

6. Frequent building and test automation of the software:
   a) allows to catch errors early and minimizes deployment and maintenance costs
   b) increases development time and resources and should be avoided
   c) all of above
   d) neither of above

7. All building tools provide automated support for:
   a) compilation, linking and building of the source code
   b) dependency management and continuous integration
   c) all of above
   d) neither of above

8. Migration of project build by Ant to built by Maven:
   a) is easy task, because both tools are very compatible
   b) is tricky task, because Ant allows different project configurations, but Maven requires standardized project structure
   c) is impossible without fully rewriting entire project

d) neither of above is true

9. Dependability describes set of related non-functional system attributes:
   a) reliability and availability
   b) safety and security
   c) all of above
   d) neither of above

10.   What is true statement about availability and reliability:
    a) availability is probability of failure-free system operation over a specified time in a given environment for a given purpose
    b) reliability is probability of failure-free system operation over a specified time in a given environment for a given purpose
    c) reliability is probability that a system, at a point in time, will be operational and able to deliver the requested services
    d) neither of statements above is true

11.   What is true statement about security and safety:
    a) safety is a system property that reflects the system's ability to protect itself from accidental or deliberate external attack
    b) security is a property of a system that reflects the system's ability to operate, normally or abnormally, without danger of causing human injury or death and without damage to the system's environment
    c) all statements above are true
    d) neither statement above is true

12.   What is true about Free/Libre/Open Source (FLOSS) software:
    a) it allows to use software for any purpose without paying any royalty
    b) it limits usage only to private, non-commercial activities
    c) it requires that developers/distributors should distribute derivative works with the same software license
    d) neither of above is true

13.   What is true about GPL vs LGPL software licenses:
    a) both are called "copyleft" or "virulent" regarding to modified source code
    b) LGPL allows to embed/include unmodified libraries in proprietary/closed source project
    c) both statements above are true
    d) neither statement above is true

14.   BSD-like (e.g. 0, 2, 3 or 4 clause BSD, MIT, Apache and Artistic) licenses:
    a) don't require explicit "copyleft" requirements for derivative works
    b) can be packaged and re-released with different license, including closed source/proprietary software
    c) both statements above are true
    d) neither statement above is true

15.   When you take GPL software with CC-NC-SA content in your project, you:
    a) can mix, modify, package and redistribute it, because it is guaranteed by user freedoms of GPL software and Creative Commons content licenses
    b) can't mix and redistribute it as a whole, because both are "virulent" licenses, but NC clause of CC license is in conflict with GPL license

16.   While doing project scheduling, you try to:
   a) maximize concurrency of tasks, to make optimal use of workforce
   b) maximize dependency, to allow previous tasks to be completed
   c) all of above are true
   d) neither of above is true

17.   Which of the statements are true:
   a) required staff can't be computed by diving development time with scheduled time
   b) the more people work on the project, the less total effort is usually required
   c) while planning, you should make optimistic assumptions
   d) neither statement above is true

18.   Main responsibility of a team leader is to:
   a) get things done
   b) make everybody happy
   c) try to do both, but, depending on the circumstances, sacrifice one over other
   d) neither of above

19.   While planning team effort you should consider following of your team members:
   a) "hard skills" — technical knowledge, experience and ability of each team member to do her/his task
   b) "soft skills" — personality traits and preferences of each team member to be willing/interested in task given to her/him
   c) all of above
   d) neither of above

20.   While managing people, you should aim for:
   a) equal outcome — everybody should get the same share of responsibility, reward, career position, regardless of her/his gender, race, age or other differences
   b) equal opportunities — everyone should get the same opportunity for work, career, etc. knowing, that their choice and the end result will be different
   c) all of above
   d) neither of above

21.   If you write this knowledge check first time, add key 21 at the end of your results and write your name and surname, e.g.
   21 = Jānis Vītoliņš