**B.Sc. (Honours) Examination, 2019**
**Semester-IV**
**Computer Science**
**Course : CC-9**
**(Software Engineering)**

**Time : 3 Hours** **Full Marks : 40**

Questions are of value as indicated in the margin

Answer Question No.**1** and **any three** from the rest

1. Answer **any five** questions: 2×5=10
   a) What are the software project estimation techniques available?
   b) Why software companies should try to get ISO 9001 certification?
   c) How a Quality plan can be prepared for a Software Project?
   d) What is the role of ScrumMaster?
   e) State the entry Criteria for Formal Validation Testing.
   f) Why spiral model is called meta model?
   g) Explain the role of Software Project Manager.
2. a) What does SDLC stand for?
   b) Briefly describe all the steps of waterfall model.
   c) According to you which SDLC model is the best and why?
   d) Differentiate between waterfall model and prototype model. 1+4+2+3=10
3. a) What is modularization in software engineering?
   b) Explain coupling and cohesion.
   c) Discuss different levels of coupling. 2+(2+2)+4=10
4. a) What is the full form of COCOMO?
   b) What are the different classes of software according to Boehm? Give examples.
   c) A simple standalone software utility is to be developed in 'C' programming by a team of software experts for a computer running Linux and the overall size of this software is estimated to be 20,000 lines of code. Considering (a,b) = (2.4, 1.05) as multiplicative and exponential factor for the basic COCOMO effort estimation equation and (c, d) = (2.5, 0.38) as multiplicative and exponential factor for the basic COCOMO development time estimation equation, approximately how long does the software project take to complete? 1+4+5=10
5. a) Explain why the rapid delivery and deployment of new systems is often more important to businesses than the detailed functionality of these systems.
   b) To reduce costs and the environmental impact of commuting, your company decides to close a number of offices and to provide support for staff to work from home. However, the senior management who introduces the policy is unaware that software is developed using agile methods, which rely on close team working and pair programming, Discuss the difficulties that this new policy might cause and how you might get around these problems.
   c) When would you recommend against the use of an agile method for developing a software system? 2.5+(2+3)+2.5=10

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6. a) Discuss the advantages and disadvantages of Top-Down and Bottom-Up integration techniques.
   b) Briefly describe Alpha and Beta testing.
   c) Describe Concurrent Development-Validation testing model. (2+2)+(2+2)+2=10
7. a) What are the types of risks a software development project may encounter?
   b) How these risks can be identified?
   c) Suppose you have prepared a prioritized risk list for your software development project. Now, how you can handle these risks? 3+3+4=10
8. a) What are the important software quality attributes and why it is difficult to optimize multiple quality attributes?
   b) Explain why a high-quality software process should lead to high-quality software products. Discuss possible problems with this system of quality management.
   c) A colleague who is a very good programmer produces software with a low number of defects but consistently ignores organizational quality standards. How should his/her managers react to this behavior and why? (1+2)+3+4=10

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