NEPAL COLLEGE OF INFORMATION TECHNOLOGY

Level: Masters
Faculty: Computer Engineering, Computer Science
Subject: Object-oriented Software Engineering, Spring 2018

Time: 3 hours
Full marks: 75
Pass marks: 45

Candidates are required to give their answers in their own words as far as practicable.

ANSWER FOLLOWING QUESTIONS

1. Explain different scenario where waterfall model of software develop process is more suitable than prototyping model. **5**

2. Explain use of COCOMO-I for effort estimation of different sized software projects with appropriate numerical example. **10**

3. *An alarm clock shows the time of day. Using buttons, the user can set the hours and minutes fields individually, and choose between 12 and 24-hour display. It is possible to set one or two alarms. When an alarm fires, it will sound some noise. The user can turn it off, or choose to 'snooze'. If the user does not respond at all, the alarm will turn off itself after 2 minutes. 'Snoozing' means to turn off the sound, but the alarm will fire again after some minutes of delay. This 'snoozing time' is pre-adjustable.*

a) Identify functional requirements for the clock. **5**

b) Develop use case diagrams for the functional requirements. **5**

c) Develop a sequence diagram for setting one alarm. **5**

4. What roles ISO and CMMI standards play in achieving software quality? Explain. **5**

5. What components are tested during object-oriented testing? How does it differ from function-oriented testing? Explain. **5**

6. Explain different activities of software quality assurance. **10**

7. How components and interfaces are used to model sub-system design? Develop sub-system design from the case given in Q.3. **5+5**

8. Write short notes on: **5+5+5**

a. Architectural styles vs. design patterns

b. Design goals

c. Risk exposure