NEPAL COLLEGE OF INFORMATION TECHNOLOGY

Level: Masters
Faculty: Computer Engineering, Computer Science
Subject: Object-oriented Software Engineering, Fall 2017

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. Differentiate organized complexity with un-organized complexity. How system's view enables organize the complexity? Explain. **5**

2. How empirical metrics such as Constructive Cost Model (COCOMO) II help estimate software size, effort, and time? Provide examples. **10**

3. *An OTP device is a one-time password generator device. It has a display, a button, and a beeper. Upon pressing the button by the user, the device generates a random number and displays on the display with a beep. The display is shows the number for 30 seconds. After 30 seconds, the display is cleared with a beep. The user needs to press the button again to generate another random number.*

For the given scenario, find out entity objects, boundary objects and control objects. Develop a sequence diagram and state machine diagram using RT-UML notation. **5+5+5**

4. Explain different types of reuse concepts that are used during system design and object design process. **10**

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

6. What activities are performed for model transformation during object-oriented implementation? Explain with suitable example. **10**

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

a. SCRUM
b. Non-functional requirements and design goals
c. Risk-matrix