NEPAL COLLEGE OF INFORMATION TECHNOLOGY

Level: Masters
Faculty: Computer Engineering, Computer Science
Subject: Object-oriented Software Engineering, Fall 2015

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. What role does software metric play for software project management? Explain elements of object-oriented metrics for software sizing. **5+10**

2. One of the main reasons behind adopting object-oriented software engineering approach rather than traditional software development approaches for software development is because of higher risks associated with traditional software development approaches. Justify this reason along with a suitable example. **15**

3. Addressing changes in customer requirements throughout the software development life cycle is a challenging task. Write your supporting view for how unified software development process helps in addressing changing customer requirements and make the software development process more agile. **15**

4. What roles do use-case and use-case diagrams play during software development process? Identify entity objects, boundary objects, control objects, use-cases and object interactions from the ARENA case study attached. Develop a UML sequence diagram for a workflow of your choice from the case study. **5+ 15+ 10**

Name	AnnounceTournament
Flow of events	1. The **LeagueOwner** requests the creation of a **tournament**. 2. The system checks if the LeagueOwner has exceeded the **number of tournaments** in the **league** or in the **arena**. If not, the system presents the LeagueOwner with a form. 3. The LeagueOwner specifies a **name**, **application start and end dates** during which Players can apply to the tournament, **start and end dates** for conducting the tournament, and a **maximum number of Players**. 4. The system asks the LeagueOwner whether an exclusive sponsorship should be sought and, if yes, presents a **list of Advertisers** who expressed the desire to be **exclusive sponsors**. 5. If the LeagueOwner decides to seek an exclusive sponsor, he selects a subset of the **names** of the **proposed sponsors**. 6. The system notifies the selected sponsors about the upcoming tournament and the **flat fee** for exclusive sponsorships. 7. The system communicates their **answers** to the LeagueOwner. 8. If there are interested sponsors, the LeagueOwner selects one of them. 9. The system records the **name** of the exclusive sponsor and charges the flat fee for sponsorships to the **Advertiser's account**. From now on, all **advertisement banners** associated with the tournament are provided by the exclusive sponsor only. 10. If no sponsors were selected (either because no Advertisers were interested or the LeagueOwner did not select any), the advertisement banners are selected at random and charged to each Advertiser's account on a per unit basis. 11. Once the sponsorship issues is closed, the system prompts the LeagueOwner with a **list of groups of Players, Spectators, and Advertisers** that could be interested in the new tournament. 12. The LeagueOwner selects which groups to notify. 13. The system creates a home page in the arena for the tournament. This page is used as an entry point to the tournament (e.g., to provide interested Players with a form to apply for the tournament, and to interest Spectators into watching **matches**). 14. At the application start date, the system notifies each interested user by sending them a link to the main tournament page. The Players can then apply for the tournament with the ApplyForTournament use case until the application end date.