Course Code:CS-328	Course Name: Software Engineering
Instructor Name: Farrukh Hasan, Romasha Khurshid, Sobia Iftikhar, Sandia Kumari	
Student Roll No:	Section:

Instructions:
- Return the question paper. Not returning will result in negative marking.
- Read each question completely before answering it. There are **6 questions and 2 pages**.
- All the answers must be solved according to the sequence number given in the paper, otherwise question will not be graded.
- Be specific, to the point and no assumption should be made which contradict with any statement given in the question paper.

Time: 60 minutes.   **Max Marks: 30 Points**

Question 1:   **[5 points]**
Build a Work Breakdown Structure (WBS) for the following project with **at least** 4 levels. Make sure that work products on the WBS are broken down to appropriate sizes. Include all the features described below. You may also add other features or work products that you feel would be relevant to the project.

Scenario
Suppose you are planning to develop a high graphic mission-based computer game, based on defeat of the enemy to pass the mission. It allows gamers to customize characters, choosing an enemy according to their desire. The game also allows you to change the in-game environment whether to day or night.
Firstly, you need to work on the art of the game, designing characters, adding in-game environments, modeling of game objects and player objects.
Game has various sounds including background music and action sounds. After Art, work can be done on the in-game sound engine. The game includes characters, weapons and vehicles which have their own sound in the game. Every sound is uniquely worked on till perfection and added to the sound engine to trigger that specific sound recording according to the gameplay. (ex. walking on snow will trigger a snow walk sound effect).
Work on animation can be started after the sound engine is done, including character animation, weapon animation and object animation.
Once the animations are done, programming of the game is started where the scripting is done so that the in-game character can move, look around and fight with enemies. Enemy uses a custom trained AI to fight back with the gamer. There are 4 types of weapons, each with their own unique damage level and special ability. Programming is required to correlate music with art to develop a ready to use high graphic game for gamers.

Question 2:   **[5 points]**
   a. What factors decide "Scale Up" Vs "Scale Out" in product development? Explain with example.
   b. To minimize mistakes during a requirements documentation, what one basic step needs to be done? Also how will we check those requirements?

Question 3:   **[5 points]**
Make use of scenario in question number 1 and list down five open ended questions and five close ended questions. For each question, also write what useful knowledge you expect the question/ answer to add to your understanding and requirements.

Question 4:   **[5 points]**
Take 5 tasks from your WBS done in question 01 and construct and fill the estimation forms for 3 team members. Assume that the estimation lasted for three rounds. Also write some assumptions to justify your estimation.

Question 5:   **[5 points]**
A fairly big retailer wants to create an online presence and wants to sell products online in addition to physical stores. So, the company's fairly confident that they need it because all other retailers in the market have it but they're just not sure about what features we should have for our brand, what kind of user experience we have to provide. And then the company wants to get something out there soon because other retailers have it and then stakeholders are really asking for some functionality out there to beat the competition. The retailer company wants the best developing team for their project who is welcoming to their customers so that customers feel like they are a part of the developing team. The developing team is also very much concerned about customer satisfaction and adopting best practice to improve their team collaboration.
In this situation, which process model should be used (Note: You need to identify specific process model, not just approach). Defend your answer by stating why that model would be most suitable?

Question 6:   **[5 points]**
A college wants to automate most of its processes in the next 5 years. They want to develop the system in-house with hired consultants when needed. College leadership set some policies for this automation on what to build and the IT department would need approval from college leadership. College leadership also wants comprehensive work plan policies before implementation to begin for this automation.
The automation will start with processes that impact the students, e.g. admissions, class registration, grading, learning management system etc., and then proceed to administrative tasks, and finally management tasks. Some of the key issues identified for this software are the privacy and security concerns. College wants to make sure that systems can't be hacked and only the right people have access to the info. To start with, the team working on this project consists of 5 developers, 3 QA and a Team Lead. Organization had signed a contract with a local company to provide additional resources as consultants.
In this situation, which process model should be used (Note: You need to identify specific process model, not just approach). Defend your answer by stating why that model would be most suitable?