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Daffodil International University

Faculty of Science & Information Technology
Department of Computer Science and Engineering
Midterm Examination, Summer 2025
Course Code: CSE 333, Course Title: Software Engineering
Level: 3 Term: 3

Time: 1:5 Hrs. **Marks: 25**

Answer ALL Questions: ***[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]***

In a world striving for inclusivity, the need for specialized learning platforms to support autistic children became more apparent. A visionary team of educators and technologists recognized that many existing educational systems and tools did not cater to the unique needs of these children. Motivated by a deep desire to provide every child with the tools to succeed, they set out to develop the Inclusive Learning Hub (ILH). This platform promotes learning, socialization, and growth for children on the autism spectrum. The platform offers a variety of educational content across core subjects, including math, science, and social skills, each presented in a way that aligns with the learning styles of autistic children. The activities are educational but fun and interactive, designed to keep children engaged while learning at their own pace. What sets the ILH apart is its focus on sensory integration and social-emotional development. The platform provides sensory-friendly features, allowing children to customize their learning environment. Parents and educators can adjust settings like background color, sound levels, and content presentation to ensure a comfortable and practical learning experience. Additionally, the platform includes tools to support social learning, with interactive scenarios that help children practice social skills and emotional regulation. Parents and educators are given access to detailed progress tracking, enabling them to monitor milestones, achievements, and areas that may require additional attention. With robust security features in place and a strong commitment to user privacy, the Inclusive Learning Hub is not just a tool for learning; it's a community where children, parents, and educators come together to nurture the growth and well-being of every child on the autism spectrum.

1.	Identify and discuss the key software engineering principles and best practices that should be applied in designing the Inclusive Learning Hub (ILH). Considering the unique requirements of autistic children, which software development model (Waterfall, Agile, Spiral, etc.) would be most suitable for developing ILH? Justify your choice.	[5]	CO1
2.	Draw a Use Case Diagram for the ILH system, including key actors such as Children, Parents, Educators, and System Administrators.	[5]	CO2
3.	Illustrate the Use Case description for "Customize Learning Environment" and "Track Child Progress".	[5]	CO1
4.	Draw an activity diagram to track "Child Progress" and Sequence Diagram for "Adjust Learning Environment".	[5]	CO2
5.	Design a Graphical User Interface (GUI) for the child's dashboard in ILH. It should include: Progress tracker (stars, badges, or graphs).	[5]	CO2