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| **Group A (MCQs):** Already discussed in class, slides sent. |
| **Group B (Introduction, Requirements Phase, Structured Analysis Modeling Techniques):** Study Software Engineering – objectives and definitions (given in slides). Software Life Cycle – different phases, Lifecycle Models - Waterfall, Relaxed Waterfall, RAD, Prototyping, Incremental, Spiral, Agile Requirements are important. Question may come as “A schematic for a typical spiral model for software development lifecycle is to be drawn. What does each of the four quadrants in this model signify?”  Study the following (with examples), all these topics are covered in slides:   * Requirement Specifications (SRS) 🡪 definitions, why you need to prepare SRS? * Requirement validation * Functional and Non-functional Requirements * Representing Requirements as Use Cases with examples * Process Model using Context Diagrams (CD) * Data Flow Diagram (DFD) with examples * Data Dictionary * Decision Tree and Decision Table with examples * Data Model using Entity Relationship Diagram (ERD) with examples * Structured and Object oriented analysis   In slides, some discussions were there on SRS and software development, like, “Suppose you have been appointed as the analyst for a large software development project. Discuss the aspects of the software product you would document in the Software Requirement Specification (SRS) document. What would be the organization of your SRS document? How would you validate your SRS document?” or “It is easy for software engineers to develop software according to user requirements even if they are incomplete as software engineers can consider the user requirements of earlier developed software. Do you agree with this statement? Why or why not? Give reasons in support of your answer.” – write in your own words…  You have learned white box and black box testing. Now, can you link between SRS and black box? |
| **Group C (Design, OOAD):** Design principle of ‘***information hiding’, cohesion and coupling*** in the context of software design, question may come as “Is it true that whenever you increase the cohesion of your design, coupling in the design would automatically decrease.” -- For this type of questions, you have to justify your answer. Please study the following (covered in slides and text books):   * Comparison between Requirement Analysis and Design, Attributes of Good Design * ***Define Approaches – Functional and Object Oriented*** * ***Design Aspects – Top-Down and Bottom-Up*** * Structured Design – Module Design (or High Level Design), Detail Design (or Low Level Design) * Functional Decomposition – ***Abstraction, Cohesion, Coupling (Important…)***, Structure Chart, Structured English |
| **Group D (Coding and Testing):**  1. White box, black box testing (slides given)  2. Equivalence class partitions, boundary value analysis are part of black box testing, learn more about these, examples are given in slides.  3. Preparation of test data set is given in lab assignments on testing  4. Cyclomatic complexity, slides with heading "Creating Flow Graph", flow graph notations, independent paths, branch, statement, condition and path coverages etc...  5. Different testing methods as covered.  6. What is the idea of stub and drivers and how they are utilized in testing, unit or system or integration or regression or Customer Acceptance Testing. ***Please read text books along with slides. Testing is important...***. |
| **Group E (Maintenance, Software Estimation, Scheduling)**:  Software Estimation, Scheduling  -------------------------------------  *COCOMO (numerical examples given). How many software development projects are there. ‘Function Points’ (FP) and ‘Lines of Code’ (LOC) for estimating the size of a software application, Activity Network, Gantt Chart, Critical Path*.  Software Risk and Configuration Management  -----------------------------------------------  Focus on Configurable Items. Question may come on software revisions, versions....” What is the difference between a revision and a version? What do you understand by the terms change control and version control? Wny are these necessary? Explain how change and version control are achieved using a configuration management tool”  Software Maintenance  ----------------------------------------  The different types of maintenance that a software product / system / application might need... |