رقم	المصطلح	التعريف المختصر المطابق
1.1	**Analysis**	The second phase of the SDLC, in which system requirements are studied and structured.
1.2	**Application software**	Computer software designed to support organizational functions or processes.
1.3	**Computer-aided software engineering (CASE) tools**	Software tools that provide automated support for some portion of the systems development process.
1.4	**Design**	The third phase of the SDLC, in which the description of the recommended solution is converted into specs.
1.5	**Implementation**	The fourth phase of the SDLC, in which the information system is coded, tested, installed, and supported.
1.6	**Information systems analysis and design**	The complex organizational process whereby computer-based information systems are developed and maintained.
1.7	**Inheritance**	The property that occurs when entity types or object classes are arranged in a hierarchy...
1.8	**Logical design**	Part of the design phase where system functions are described independently of any computer platform.
1.9	**Maintenance**	The final phase of the SDLC, in which an information system is systematically repaired and improved.
1.10	**Object**	A structure that encapsulates attributes and methods; abstraction of a real-world thing.
1.11	**Object class**	A logical grouping of objects that have similar attributes and behaviors (methods).
1.12	**Object-oriented analysis and design (OOAD)**	Systems development methodologies and techniques based on objects rather than data or processes.
1.13	**Physical design**	Part of the design phase where logical specs are transformed into technology-specific implementation.
1.14	**Planning**	The first phase of the SDLC, where needs are identified, analyzed, prioritized, and arranged.
1.15	**Rational Unified Process (RUP)**	An object-oriented methodology with four iterative phases: inception, elaboration, construction, transition.
1.16	**Systems analyst**	The organizational role most responsible for the analysis and design of information systems.
1.17	**Systems development life cycle (SDLC)**	The traditional methodology used to develop, maintain, and replace information systems.
1.18	**Systems development methodology**	A standard process followed in an organization to analyze, design, implement, and maintain systems.

#	Question (English)	Answer (English)	شرح بالعربي
1.19	What is information systems analysis and design?	It is the process of planning, analyzing, designing, and implementing information systems to support business functions.	يعني دي عملية تخطيط وتحليل وتصميم وتنفيذ أنظمة معلومات علشان تساعد المؤسسة في الشغل وتنظيم البيانات.
1.20	How has systems analysis and design changed over the past four decades?	It evolved from rigid, linear methods like Waterfall to flexible, user-centered approaches like Agile and object-oriented methods.	زمان كانوا بيستخدموا طرق تقليدية ، دلوقتي بقينا Waterfall زي Agile نستخدم طرق مرنة زي Object-Oriented علشان تناسب التغييرات وسرعة التطوير.
1.21	List and explain the different phases in the SDLC.	1. Planning2. Analysis3. Design4. Implementation5. Maintenance	1. تخطيط المشروع2. تحليل المتطلبات3. تصميم النظام4. تنفيذ وبناء النظام5. صيانة وتحديث النظام بعد ما يشتغل.
1.22	What are problems with traditional waterfall SDLC?	Rigid structure, hard to go back, late error discovery, not suitable for dynamic or unclear projects.	Waterfall مش مرن، صعب ترجع خطوة ورا، بتكتشف المشاكل متأخر، ومينفعش في المشاريع اللي فيها تغييرات كتير.
1.23	What are CASE tools?	CASE (Computer-Aided Software Engineering) tools help automate parts of systems development like diagramming, code generation, and documentation.	أدوات بتساعد في تطوير النظام بشكل أسرع، زي رسم الرسوم التوضيحية، توليد كود أوتوماتيك، وكتابة التوثيق.
1.24	Describe components of a CASE system.	- Diagramming tools- Documentation tools- Code generators- Analysis tools	أدوات لرسم النظام، توثيق الخطوات، توليد الكود، وتحليل الأخطاء. كلهم مهمين ومفيش واحد أهم من التاني لأنهم بيشتغلوا مع بعض كفريق.
1.25	How is CASE used in each SDLC phase?	CASE tools are used to support planning (modeling), analysis (diagrams), design (structure), implementation (code generation), and maintenance (debug)	بيشتغل في كل مرحلة: في CASE التخطيط بيرسم النماذج، في التحليل بيرسم الدياجرامز، في التصميم بينظم المكونات، في التنفيذ يولّد كود، وفي الصيانة يساعد في التصليح.
1.26	What are Agile Methodologies?	Agile is a flexible development method using short cycles (sprints), frequent feedback, and close collaboration with users.	Agile طريقة تطوير مرنة فيها مراحل قصيرة، ورجوع سريع لرأي العميل، وكل الفريق بيتعاون مع بعض دايمًا.
1.27	What is eXtreme Programming (XP)?	XP is an Agile method that emphasizes customer involvement, continuous testing, and frequent small releases.	XP نوع من Agile بيعتمد على مشاركة العميل بشكل مستمر، واختبار الكود طول الوقت، وتنزيل نسخ صغيرة كتير بسرعة.

#	Question (English)	Answer (English)	شرح بالعربي
1.28	When use Agile vs. Engineering-based approach?	Use Agile for dynamic, unclear, fast-changing projects. Use engineering-based when requirements are fixed and system is large and critical.	نستخدمه لو المشروع Agile بيتغير كتير ولسه الأفكار مش ثابتة، لكن لو المشروع كبير ومستقر ومتطلباته واضحة، نستخدم الطرق الهندسية التقليدية.
1.29	What is Object-Oriented Analysis and Design (OOAD)?	OOAD is a method using objects and classes to model real-world systems, focusing on data and behavior together.	أسلوب بنستخدم فيه الـ OOAD علشان classes والـ objects نصمم النظام بطريقة تشبه الحقيقة، بنربط البيانات بالتصرفات في كيان واحد.

رقم السؤال	المصطلح (Key Term)	التعريف (Definition)
2.1	**Cloud computing**	The provision of computing resources, including applications, over the Internet so customers do not have to invest in the computing infrastructure.
2.2	**Enterprise Resource Planning (ERP) systems**	A system that integrates individual traditional business functions into modules so that a single transaction occurs in a unified information system.
2.3	**Outsourcing**	The practice of turning over responsibility of some or all of an organization’s information systems applications and operations to an outside firm.
2.4	**Request for Proposal (RFP)**	A document provided to vendors to ask them to propose hardware and system software that will meet the requirements of your new system.
2.5	**Reuse**	The use of previously written software resources, especially objects and components, in new applications.

#	Question	Answer (English)	بالعربي
2.6	Describe and compare the various sources of software.	Sources include: 1. IT service firms 2. Packaged (off-the-shelf) software 3. ERP systems 4. Cloud-based solutions 5. Open source 6. In-house development	فيه كذا مكان تجيب منه السوفتوير: شركات بتطوره لك، برامج جاهزة، كمان ممكن ERP، تستخدم حاجات على الكلاود أو مفتوحة المصدر، أو تعمل النظام بنفسك.
2.7	How to choose among off-the-shelf options?	Use criteria like: - Vendor support & viability - Functionality - Cost - Flexibility - Documentation & performance	لما تيجي تختار برنامج جاهز، بص على: هل الشركة موثوقة؟ السعر كويس؟ النظام بيديك اللي انت عايزه؟ سهل التعديل؟ في شرح؟ الأداء كويس؟
2.8	What is an RFP and how is it used?	RFP = Request for Proposal. It's a document sent to vendors asking them to suggest systems that meet your needs. It helps compare options.	ده ورقة بتبعتها للشركات الـ RFP تقولهم فيها "أنا عايز نظام بالشكل ده"، وهم يردوا عليك بحلول، وانت تقارن بينهم وتختار الأنسب.
2.9	How can analysts verify vendor claims?	- Ask for demos - Contact other clients - Request pilot testing - Independent review sites	المحلل يتأكد إزاي؟ يشوف نسخة تجريبية – يسأل شركات تانية استخدمته – يعمل تجربة صغيرة عليه – يقرأ ريفيوهات من ناس محايدة.
2.10	What are ERP systems and their pros/cons?	**ERP** = integrated modules for business functions. ✓ Pros: Integration, consistency, flexibility ✗ Cons: Expensive, complex, hard to implement	ده نظام بيجمع كل الأقسام ERP (حسابات – شغل – موظفين) في نظام واحد. ميزة؟ كل حاجة متوصلة. العيوب؟ غالي – معقد – بياخد وقت.
2.11	What is reuse and its pros/cons?	Reuse = using existing components/code again. ✓ Pros: Saves time, cost, ensures quality ✗ Cons: May not fully fit, hard to adapt	يعني تستخدم كود أو Reuse مكونات اتعملت قبل كده. الميزة؟ بتوفر وقت وتكلفة وجودة أعلى. العيب؟ ممكن الحاجة ماتنفعكش 100%. أو تحتاج تعديل كبير.
2.12	Compare 4 reuse approaches.	1. **Ad hoc reuse** – informal and not planned 2. **Facilitated** – tools help reuse 3. **Managed** – with policies 4. **Designed** – planned reuse from the start	1. reuse: فيه 4 أنواع من 2. عشوائي (أي حاجة وخلاص) 3. الشركة فيه أدوات بتسهل عليك 4. بتحط قواعد لاعادة الاستخدام من أول يوم وانت مخطط تعيد استخدام المكونات.

الرقم	المصطلح	التعريف المختار
3.15	**Project manager**	A systems analyst with a diverse set of skills… responsible for initiating, planning, executing, and closing down a project.
3.9	**Project**	A planned undertaking of related activities to reach an objective that has a beginning and an end.
3.4	**Deliverable**	An end product of an SDLC phase.
3.5	**Feasibility study**	A study that determines if the proposed information system makes sense…
3.14	**Project management**	A controlled process of initiating, planning, executing, and closing down a project.
3.13	**Project initiation**	The first phase… to assess the size, scope, and complexity of the project and to establish procedures…
3.17	**Project workbook**	An online or hard-copy repository for all project correspondence…
3.16	**Project planning**	The second phase… that focuses on defining clear, discrete activities and the work needed…
3.20	**Work breakdown structure (WBS)**	The process of dividing the project into manageable tasks and logically ordering them…
3.6	**Gantt chart**	A graphical representation… showing each task as a horizontal bar…
3.7	**Network diagram**	A diagram that depicts project tasks and their interrelationships.
3.12	**Project execution**	The third phase… in which the plans created in the prior phases are put into action.
3.11	**Project closedown**	The final phase… that focuses on bringing a project to an end.
3.18	**Resources**	Any person, group of people, piece of equipment, or material used in accomplishing an activity.
3.3	**Critical path scheduling**	A scheduling technique whose order and duration of tasks directly affect the project completion.
3.2	**Critical path**	The shortest time in which a project can be completed.
3.19	**Slack time**	The amount of time that an activity can be delayed without delaying the entire project.
3.8	**PERT (Program Evaluation Review Technique)**	A technique that uses optimistic, pessimistic, and realistic time estimates…
3.1	**COCOMO**	An automated software estimation model… to estimate project costs.

الرقم	المصطلح	التعريف المختار
3.10	**Project charter**	A short document… that describes what the project will deliver and outlines the high-level work required.

No.	Question	Answer (English)	بالعربي
3.21a	Critical path scheduling, Gantt, network diagram, slack time	Critical path scheduling shows tasks affecting project duration; Gantt chart shows task timeline; network diagram shows dependencies; slack time is the delay allowed.	هو الطريق اللي Critical path ماينفعش أي مهمة تتأخر فيه، Gantt بيعرض المدة الزمنية لكل chart يربط Network diagram مهمة، هو وقت Slack المهام ببعض، السماحية للتأخير بدون تأثير.
3.21b	Project vs project management vs project manager	Project = temporary goal-based effort; Management = process to run project; Manager = person responsible.	المشروع حاجة مؤقتة ليها هدف، الإدارة هي تنظيم المشروع، والمدير هو اللي مسؤول عن كل ده.
3.21c	Initiation, planning, execution, closedown	Initiation = define scope; Planning = tasks/resources; Execution = do work; Closedown = wrap up.	التأسيس يحدد المشروع، التخطيط يوزع المهام، التنفيذ هو الشغل العملي، والإغلاق هو تسليم المشروع وإنهاءه.
3.21d	Workbook, resources, WBS	Workbook = documentation; Resources = people/equipment; WBS = breakdown of work.	بيجمع كل Workbook ال المستندات، الموارد هي الأشخاص بيقسم المشروع WBS والأدوات، لمهام صغيرة.
3.22	Why organizations undertake IS projects	To improve efficiency, meet regulations, gain competitive advantage, cut costs.	علشان يزودوا الإنتاجية، يلتزموا بالقوانين، يسبقوا المنافسين، ويوفروا في التكلفة.
3.23	Common skills of a project manager	Communication, leadership, planning, risk mgmt, negotiation, tech knowledge.	لازم يكون بيعرف يتكلم ويخطط ويحل مشاكل ويوزع الموارد. أهم مهارة هي التواصل لأنها بتحل أغلب المشاكل.
3.24	Activities during initiation	Feasibility study, define scope, prepare project charter, identify stakeholders.	بيشوف المشروع ينفع يتعمل ولا لأ، ويحدد محتواه، ويكتب المستند الأولي، ويشوف مين معاه.
3.25	Activities during planning	Define WBS, estimate time/cost, assign resources, draw Gantt chart, risk planning.	بيقسم المشروع، يحسب الوقت والفلوس، يوزع الشغل، يرسم الجداول، ويحسب المخاطر.
3.26	Activities during execution	Perform tasks, hold meetings, update status, manage issues, QA checks.	بينفذ المهام، يتابع الاجتماعات، يعدل في الخطط، ويختبر الجودة.
3.27	Team communication methods	Meetings (updates), email (summary), chat (quick reply), dashboard (overview).	بيستخدم الاجتماعات للتحديث، الإيميل للتوثيق، الشات للرد السريع، ولوحة القيادة للمتابعة اللحظية.

No.	Question	Answer (English)	بالعربي
3.28	Activities during closedown	Deliver final product, document lessons learned, release team/resources.	بيسلم الشغل، يوثق اللي حصل، ويسيب الفريق يروح لمشاريع تانية.
3.29	Critical path scheduling requirements	Defined tasks, known durations, clear dependencies.	لازم المهام تكون واضحة، ومرتبة، ومدتها معروفة.
3.30	Steps to make Gantt chart	List tasks, estimate durations, sequence, assign dates, draw bars.	تكتب المهام، تحسب الوقت، ترتبهم، ترسم كل واحدة في شكل شريط على الجدول الزمني.
3.31	Steps to make network diagram	List tasks, identify dependencies, draw nodes/arrows, calculate early/latest, find critical path.	تكتب المهام، توصلهم بأسهم حسب الترتيب، وتحسب أقل وأقصى وقت، وتشوف الcritical path.
3.32	When planning & management happen in SDLC	Planning = Planning Phase; Management = Throughout all SDLC.	التخطيط بيحصل في مرحلة التخطيط، والإدارة ماشية من أول المشروع لآخره.
3.33	Reasons for precedence between activities	Technical dependency, resource conflict, sequence logic.	في مهام لازم تخلص قبل غيرها علشان الاعتماد التقني، أو عشان نفس الشخص أو الأدوات مطلوبة في التانية، أو حسب منطق الترتيب.

Chapter 7: Data Flow Diagram & Decision Table Terminologies Matching

No.	Term	Definition
1	Data flow diagram (DFD)	A picture of the movement of data between external entities and the processes and data stores within a system.
2	Action stubs	The part of a decision table that lists the actions that result for a given set of conditions.
3	Balancing	The conservation of inputs and outputs to a DFD process when that process is decomposed to a lower level.
4	Level-0 diagram	A DFD that represents a system’s major processes, data flows, and data stores at a high level of detail.
5	Source/sink	The origin and/or destination of data; sometimes referred to as external entities.
6	Indifferent condition	In a decision table, a condition whose value does not affect which actions are taken for two or more rules.
7	Context diagram	An overview of an organizational system that shows the system boundary, external entities that interact with the system, and the major information flows between the entities and the system.

No.	Term	Definition
8	Primitive DFD	The lowest level of decomposition for a DFD.
9	DFD completeness	The extent to which all necessary components of a DFD have been included and fully described.
10	Decision table	A matrix representation of the logic of a decision; it specifies the possible conditions for the decision and the resulting actions.
11	DFD consistency	The extent to which information contained on one level of a set of nested DFDs is also included on other levels.
12	Level-n diagram	A DFD that is the result of n nested decompositions of a series of subprocesses from a process on a level-0 diagram.
13	Condition stubs	The part of a decision table that lists the conditions relevant to the decision.
14	Process	The work or actions performed on data so that they are transformed, stored, or distributed.
15	Data store	Data at rest, which may take the form of many different physical representations.
16	Gap analysis	The process of discovering discrepancies between two or more sets of DFDs or discrepancies within a single DFD.
17	Rules	The part of a decision table that specifies which actions are to be followed for a given set of conditions.
18	Functional decomposition	An iterative process of breaking the description of a system down into finer and finer detail, which creates a set of charts in which one process on a given chart is explained in greater detail on another chart.

السؤال	الإجابة بالإنجليزي	الشرح بالعربي
7.19 What is a DFD?	A DFD (Data Flow Diagram) is a graphical way to show how data moves in a system.	DFD يعني رسم بياني بيشرح ازاي البيانات بتتنقل جوه السيستم. بنرسمه علشان نفهم السيستم بطريقة بصريه.
7.20 Rules for good DFDs	Use standard shapes, name clearly, avoid messy lines.	استخدم رموز معروفة (دواير، سهام...)، سَمّي كل حاجه بوضوح، ومتخليش الخطوط متشابكة.
7.21 Decomposition & Balancing	Decomposition is breaking big process into smaller ones. Balancing means inputs/outputs stay same across levels.	Decomposition يعني نفكك العملية الكبيرة لصغيرة. Balancing يعني البيانات اللي داخلة وطالعة تفضل ثابتة في كل مستوى.
7.22 Naming DFD levels	Top is "Context", next is "Level-0", then "Level-1", etc.	Context Diagram أول حاجة اسمها ، وبعدها كل مستوى Level-0 وبعدها ، 2، وهكذا Level-1 يتسمى.

السؤال 🔢	الإجابة بالإنجليزي ✅	الشرح بالعربي
7.23 Why multiple DFDs?	To show more detail step-by-step without clutter.	علشان مانرسمش كل التفاصيل في مرة واحدة، بنقسم التفاصيل على مراحل.
7.24 DFDs as analysis tools	Help find problems like repeated work or missing info.	بنستخدمها علشان نكتشف العمليات المكررة أو الحاجات اللي ناقصة.
7.25 When to stop decomposition	Stop when each process is easy to implement.	نوقف لما كل عملية تبقى بسيطة وواضحة ومش محتاجة تتقسم تاني.
7.26 Source/Sink vs Process	If it just sends/receives data → source/sink. If it changes data → process.	لو الكيان بيستقبل أو يرسل بيانات بس → مصدر/مصب. لو بيعالج البيانات → عملية.
7.27 Context diagram rules	Only 1 process, show all external entities & their data flows.	لازم يكون في عملية واحدة بس، ونبين كل الكيانات الخارجية والبيانات اللي رايحة جاية.
7.28 Steps for decision table	1) List conditions/actions. 2) Make all combinations. 3) Assign actions. 4) Merge similar rules.	نكتب الشروط والأفعال، نركبهم مع بعض، نحط الفعل المناسب لكل حالة، ونجمع الحالات المتشابهة.
7.29 Limited entry	Each condition = only Yes/No or True/False.	كل شرط بيكون ليه اختيارين بس: صح/غلط أو نعم/لا.
7.30 Decision table formula	Number of rules = 2^n, where n = number of conditions.	عدد القواعد = 2 أس n، و n هي عدد الشروط اللي في الجدول.