Advanced Level FHIR Interview Questions and Answers (40 Questions)

Q1. What are FHIR Implementation Guides (IGs)?
A: IGs define how FHIR should be used in specific contexts by providing profiles, ValueSets, and workflows.
Q2. How do you create a custom profile in FHIR?
A: Using a StructureDefinition resource with constraints, bindings, and extensions applied to a base resource.
Q3. What tools are used for IG development?
A: IG Publisher, FHIR Shorthand (FSH), and SUSHI (a compiler for FSH).
Q4. What is FHIR Shorthand (FSH)?
A: A domain-specific language for defining FHIR artifacts concisely.
Q5. What is SUSHI?
A: A tool that converts FSH definitions into FHIR-compliant JSON files.
Q6. What is the purpose of the ImplementationGuide resource?
A: It holds metadata, profiles, and examples to publish a formal implementation guide.
Q7. Explain the difference between canonical and absolute URLs.
A: Canonical URLs identify conformance resources logically; absolute URLs include the full path (protocol + domain).
Q8. How does versioning apply to StructureDefinitions and ValueSets?
A: They support versioning via canonical URLs and version metadata for compatibility and tracking.
Q9. What is a terminology server in FHIR?
A: A server that provides terminology services like expansion, validation, and translation of code systems.
Q10. What is the difference between a FHIR server and a FHIR client?
A: The server hosts and manages resources; the client consumes and interacts with them.

Q11. How does FHIR support real-time data exchange?
A: Via the Subscription resource, WebSockets, and Pub/Sub mechanisms.
Q12. What is the role of OAuth2 in SMART on FHIR?
A: Provides secure, delegated access to patient data with token-based authorization.
Q13. How do you ensure conformance in FHIR?
A: By validating resources against profiles and using CapabilityStatements to declare supported features.
Q14. How does resource linking work with external systems?
A: Using URLs or identifiers that point to external references or APIs.
Q15. How do FHIR packages work in IG publishing?
A: They bundle all resources, profiles, and examples used in an Implementation Guide for sharing and reuse.
Q16. What is a custom operation in FHIR?
A: A user-defined function (like $match, $everything) defined using an OperationDefinition.
Q17. How do you use modifiers and prefixes in search queries?
A: Modifiers (e.g., :exact, :contains) and prefixes (lt, gt) refine search criteria.
Q18. What is a Clinical Reasoning module?
A: A group of FHIR resources used for clinical decision support and quality measurement.
Q19. How is quality reporting implemented in FHIR?
A: Using Measure and MeasureReport resources in combination with Clinical Quality Language (CQL).
Q20. What are Library and PlanDefinition resources?
A: Used in decision support; Library contains logic, and PlanDefinition defines workflows or clinical pathways.

Q21. What are the differences between CareTeam and CarePlan?
A: CareTeam defines the individuals involved in the care of a patient, while CarePlan outlines the specific activities and goals for patient care.
Q22. What is Clinical Quality Language (CQL) in FHIR?
A: CQL is a standard for expressing clinical logic used in FHIR resources like Measure and PlanDefinition.
Q23. What is the SubscriptionTopic resource in FHIR R5?
A: It defines the criteria and notification rules for subscriptions in the new PubSub model.
Q24. What is the use of GraphDefinition?
A: It defines a set of related resources and how they are linked, useful for navigation and data extraction.
Q25. What is a Resource.meta.security tag?
A: A tag
Q26. What is the Evidence resource used for in FHIR?
A: It captures research evidence data used in clinical decision-making or guidelines.
Q27. How is the EvidenceReport resource different from Composition?
A: EvidenceReport focuses on structured summaries of evidence (clinical trials, research), while Composition is for general clinical documents.
Q28. What is the VerificationResult resource?
A: Used to record the verification status of information (like credentialing of a provider or organization).
Q29. What is FHIRPath and how is it used?
A: FHIRPath is an expression language used to query and navigate elements in FHIR resources, often used in constraints and mappings.
Q30. How is the Parameters resource used in FHIR operations?
A: It allows input/output of named parameters when invoking custom operations on FHIR resources.

Q31. What is the purpose of StructureMap in FHIR?
A: It defines rules for transforming data from one structure (or resource) to another, often used in mappings between different systems.
Q32. What are the types of Subscription channels supported in FHIR?
A: REST Hook, WebSocket, Email, and FHIR Messaging (depending on the FHIR version).
Q33. How does AuditEvent differ from Provenance?
A: AuditEvent logs system-level events for security and auditing; Provenance tracks who created or modified a resource.
Q34. What are implementation patterns for enterprise-scale FHIR solutions?
A: Use of microservices, caching layers, external terminology services, asynchronous processing, and secure APIs.
Q35. How can FHIR be integrated with legacy HL7 v2 systems?
A: Via integration engines (like Mirth) that map HL7 v2 messages to FHIR resources and vice versa.
Q36. What is the purpose of the MeasureReport resource?
A: It captures the result of a Measure, typically for quality or performance reporting.
Q37. What is DataRequirement in FHIR?
A: Specifies what data is required by a system or module (e.g., for decision support or measure evaluation).
Q38. What are the privacy considerations for FHIR APIs?
A: Secure endpoints, OAuth2 scopes, logging, auditing, access control, and data minimization.
Q39. What are some challenges in scaling a FHIR server?
A: Handling large volumes of data, performance of search queries, security, data versioning, and maintaining referential integrity.
Q40. How can you test FHIR-based applications?
A: Using FHIR test servers (e.g., HAPI, Inferno), Postman, HL7 validator, custom test suites, and simulated datasets