NAME –
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SUBJECT – SOFTWARE ENGINEERING
SEC –

Q 1 Elaborate on the fact that architecture is the vehicle for stakeholder communication.

Each stakeholder of a software system-customer, user, project manager, coder, tester, and so on-is concerned with different system characteristics that are affected by the architecture. For example, the user is concerned that the system is reliable and available when needed; the customer is concerned that the architecture can be implemented on schedule and to budget; the manager is worried (as well as about cost and schedule) that the architecture will allow teams to work largely independently, interacting in disciplined and controlled ways. The architect is worried about strategies to achieve all of those goals.

Architecture provides a common language in which different concerns can be expressed, negotiated, and resolved at a level that is intellectually manageable even for large, complex systems. Without such a language, it is difficult to understand large systems sufficiently to make the early decisions that influence both quality and usefulness.

The Architecture Defines Constraints on Implementation

An implementation exhibits an architecture if it conforms to the structural design decisions described by the architecture. This means that the implementation must be divided into the prescribed elements, the elements must interact with each other in the prescribed fashion, and each element must fulfil its responsibility to the others as dictated by the architecture.

Resource allocation decisions also constrain implementations. These decisions may be invisible to implementors working on individual elements. The constraints permit a separation of concerns that allows management decisions to make the best use of personnel and computational capacity. Element builders must be fluent in the specification of their individual elements but not in architectural trade-offs. Conversely, architects need not be experts in all aspects of algorithm design or the intricacies of the programming language, but they are the ones responsible for the architectural trade-offs.