1a) The Waterfall model.

It is the appropriate approach to use. Perhaps with formal transformations between the different development stages. The waterfall model is very stable and easy to identify.

b) A website for a local library. Requirements are vague and are likely to change in the future.

c) An order processing system with q website for a local business whereby requirements are unlikely to change in the near future is the waterfall method to be the most traditional software development method is the rigid linear model that consists of sequential phases (requirements, designs implantation, verification maintenance) focusing on distinct goals.

2) The waterfall model has a lot of strengths as well as weaknesses. The strengths are;

* Before the next phase of the development, each phase must be completed.
* Suited for smaller projects where requirements are well defined.
* It is simple and easy to understand and use
* It is easy to manage due to the rigidity of the model as each stage has specific deliverables and a review process.

Phases in this model are processed and completed one at a time and the phases do not overlap.

On the other hand, the disadvantages are;

* Error can be fixed only during the phase.
* It is not desirable for complex projects where requirements change frequently.
* Unlike the agile, this methodology does not allow for discovery, iteration and refinement whist developing the product instead new requirements must be written.
* As it is static, this methodology is not suitable for projects where clients or business requirements may change during development.