What is Work Breakdown Structure?

A Work Breakdown Structure (WBS) is a **deliverable-oriented hierarchical division of the project work** to be executed by team to accomplish the objectives and produce the required deliverables (outputs).

The WBS is the Work Breakdown Structure. It is a **hierarchical representation of the elements (tasks) that comprise a project**. Creating a Work Breakdown Structure does just as the name implies, **breaking down the work into smaller chunks** that everyone can chew. A project seems very overwhelming at first, and the WBS helps stop these feelings. A quick glance at the WBS allows everyone on the
project team to see what has been done, and what needs to be done. The WBS is a very important part of project management for this very reason.

It is prepared during the **planning phase** of project management. On the basis of WBS, **effective project planning, execution, controlling, monitoring & reporting can be done**. All the work contained within the WBS is to be identified, estimated, scheduled, and budgeted.
Work Breakdown Structure Diagram

The Work Breakdown Structure (WBS) is developed to establish a common understanding of project scope. It is a hierarchical description of the work that must be done to complete the deliverables of a project. Each descending level in the WBS represents an increasingly detailed description of the project deliverables.

The first two levels of the WBS (the root node and Level 2) define a set of planned outcomes that collectively and exclusively represent 100% of the project scope. At each subsequent level, the children of a parent
node collectively and exclusively represent 100% of the scope of their parent node.

Essentially, using a work breakdown structure enables you to take a top-down look at your project and break it into the tasks and subtasks that will get you to completion. It’s a simple, yet methodical, way of organizing and understanding your project scope in smaller, manageable components.

Creating a work breakdown structure for any plan or set of tasks helps you get granular about the work that needs to be done on any given project. If you estimate your projects based on units—whether it’s weeks, days, or hours—using a work breakdown structure will help you understand very quickly if your estimate will exceed the intended budget or deadline.
Quality of a Work Breakdown Structures

A well-designed WBS describes planned outcomes instead of planned actions. Deliverables or Outcomes are the desired ends of the project, such as a product, result, or service, and can be predicted accurately. Actions, on the other hand, may be difficult to predict accurately. A well-designed WBS makes it easy to assign elements of the WBS to any project activity.

A good WBS should exhibit the following characteristics:

- **Definable**—can be described and easily understood by project participants.
- **Manageable**—a meaningful unit of work where specific responsibility and authority can be assigned to a responsible individual.
- **Estimable**—duration can be estimated in time required to complete, and cost can be estimated in resources required to complete.
- **Independent**—minimum interface with or dependence on other ongoing elements (i.e., assignable to a single control account, and clearly distinguishable from other work packages).
- **Integratable**—integrates with other project work elements and with higher level cost estimates and schedules to include the entire project.
- **Measurable**—can be used to measure progress; has start and completion dates and measurable interim milestones.
- **Adaptable**—sufficiently flexible so the addition/elimination of work scope can be readily accommodated in the WBS framework.
Different Forms of Work Breakdown Structure
There are three typical ways in structuring works with a Work Breakdown Structure (WBS). These include
- Phase-based structures
- Deliverable-based structures
- Responsibility-based structures

Phase-based structures
Define and structure project activities based on the project phases.
**Deliverable-based structures**
Define and structure project activities based on the deliverables or outputs agreed to deliver.
Responsibility-based structure
Define and structure project activities based on the organization units that will work on the project & have responsibilities to be fulfilled.
Categories of WBS

- Resource Breakdown Structure,
- Risk Breakdown Structure and
- Organization Breakdown Structure (OBS) or Organization Chart.

Resource Breakdown Structure

Resource Breakdown Structure (RBS) is a project management tool that provides a hierarchical decomposition of resources, either structured by resource category, types or by IT/business function that has resource needs.

Here is a Resource Breakdown Structure example:
Risk Breakdown Structure
The existence of risk causes negative impact on project schedule, costs and quality. In project management, **Project Manager is responsible for managing risks and to ensure that the project will be delivered on time** and up to the standard user expected. One of the popular risk management tools is the Risk Breakdown Structure.

Risk breakdown Structure is the **hierarchical decomposition of risks**, starting from the **root node element** that represents the project, and going down to the various risk categories, and then finer level risks.

Besides presenting project risks in a Risk Breakdown Structure, it is possible to combine the **use of Color Legend** in representing the impact of risk. Take a look at the Risk Breakdown Structure example below, a legend of Impact with five items has been setup, representing the five levels of impacts that risks may have on the project with five distinct color code.

Here is a Risk Breakdown Structure example:
Organizational Breakdown Structure

Organizational Breakdown Structure, or sometimes known as Organization Chart, is a widely used project management tool for representing project organization. It typically begins with the project sponsor, and with all key stakeholders included. In presenting the organization structure, consider the organization or group that is requesting the project and the level of their sponsorship and authority. Here is an Organizational Breakdown Structure example:

```
Project Sponsor
  ├── Change Control Board
  │     ├── Project Manager
  │     │     ├── Quality Manager
  │     │     ├── Test Lead
  │     │     └── Test Engineer
  │     └── Steering Committee
  │         ├── University Education Committee
  │         │     ├── Implementation Lead
  │         │     └── Technical Lead
  │         └── Configuration Lead
  │             ├── Application Support Lead
  │             └── Software Engineer
  └── Student Representative
       └── User Representative
```
A Work Breakdown Structure (WBS) is a hierarchical decomposition of a project into manageable chunks. **It is graphical and shows all the project parts in an organised chart.** Unlike a Gantt chart, **it does not show the tasks organised in sequence over time.** WBS is used at the start of a project to define the scope, estimate costs, allocate resources, manage risk and create schedules. **A good WBS looks like an Organisation chart or Tree diagram,** with all parts connected and no redundancy.

A Gantt chart is created from the Work Breakdown Structure and is a bar chart that tracks tasks across time. It shows the **start and finish date of each task** and their relationship to each other. A tracking Gantt chart can be used to show progress over time, using a percentage completed for each task and whether ahead or behind against today's date.

To create a WBS first there is need to identify the main deliverables of the project. Start breaking down the deliverables into smaller chunks of work and creating branches. Continue breaking down tasks until reach a point where they are manageable. As a general rule of thumb, most people consider manageable as two weeks work.

To create a Gantt chart from your WBS, update the branches, so they become a task list. Rearrange the branches, removing some tasks and adding others. Add the duration (usually in days) and a start date to each task. Link tasks together so they are in a logical order. Review the dependencies; what tasks are dependent on another being completed?
Qn In which of the following stages of project life cycle, Work Breakdown structure is prepared?

- a) Initiation
- b) Planning
- c) Execution
- d) Monitoring

Qn Which of the following defines the Work Breakdown Structure (WBS)?

- a) deliverable-oriented hierarchical division of the project work
- b) Cost estimation-based division of work
- c) Target based hierarchical division of project
- d) Activity based division of targets for individuals
Qn Work Breakdown Structure (WBS) becomes basis for the following stages of project management

a) Initiation, Planning, Execution
b) Initiation, Planning, Execution, Monitoring
c) Initiation, Planning, Execution, Monitoring, Controlling
d) Planning, Execution, Monitoring, Controlling

Qn Organisational breakdown structure starts with

a) Project Manager
b) Team Leader
c) Project Sponsor
d) CEO

Qn Use of color legends is done in which of the following types of WBS?

a) Organisational WBS
b) Risk WBS
c) Resource WBS
d) Authority WBS

Qn What is work package?

a) Lowest level element in WBS
b) Top level element in WBS
c) Subdivision of parts in WBS
d) Cost part of WBS
Qn WBS can be best represented on

a) Bar diagram
b) Gantt Chart
c) Milestone chart
d) Run chart