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**17/ENG03/061**

**CIVIL ENGINEERING**

Highlight ten civil engineering materials, their uses and properties (In a tabular form)

Answer

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| **civil engineering materials** | **uses** | **properties** |
| Timber | For heavy construction works like columns, trusses, piles.  For light construction works like doors, windows, flooring and roofing.  For temporary works in construction like scaffolding, centering, shoring and strutting, packing of materials. | Durability, Strength, Permeability, Hardness, Toughness, Elasticity, Workability. |
| Steel | To build high rise buildings.  To build industrial sheds  To build residential buildings  To build bridges  To build parking garages. | Toughness, Tensile strength, yield strength, elongation. Fatigue strength, corrosion, plasticity, malleability, creep. |
| Asphalt | Used for road construction. | Stability, Durability, Flexibility, Fatigue resistance, Skid resistance, Impermeability, Workability. |
| Aggregate | For mixing cement, bitumen, lime, gypsum or other adhesive to form concrete or mortar. | Grading, Durability, Absorption and surface moisture, Particle shape and surface texture. |
| Sand | We can use sand to filter water, it works like an abrasive.  Sand can be used as a road base which is a protective layer underneath all roads. | Should be completely inert.  Grains should not be sharp, strong and angular  There should be no organic matter. |
| Cement | It is used in mortar for plastering, masonry work, painting.  It is used for making joints for drains and pipes  It is used for water tightness of structure.  It is used in concrete for laying floors, roofs, beams, stairs etc. | Strength, Consistency, setting time, Bulk density, Loss of ignition. |