**Questions and answers related to Boilers**

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| What is the function of the economizer?  Economizer economizes the power plant operation. |
| What are the functions of steam drum?  (a) steam separation, (b) steam-water circulation and (c) purifying steam. |
| What is the function of super-heater?  Super-heater is used to super heat the steam and get higher thermal Efficiency of the plant. |
| Why large boilers are top supported?  (a) avoid buckling of furnace walls, (b) allow thermal expansion and (c) reduce thermal loads. |
| Why steel structures (avoiding concrete) are used for boiler structures?  Steel structures are used are used for speeding - up the construction schedule and facilitate changes. |
| What is resonance?  When the natural frequency and the induced frequency matches Resonance takes place. |
| Why resonance should be avoided?  During resonance, high vibration and stress will occur. Hence, resonance Should be avoided. |
| What is the life of a power plant?  Life of the power plant is about 50 years. But, many components need Replacement and repair. |
| What is safety requirement for boiler, in India?  The Indian Boiler Regulations, 1950 (with amendments). |
| What are the materials used for boiler pressure parts?  Carbon steel, low alloy steel, medium alloy steel and stainless steel. |
| What are the materials  used for boiler structures?  Mild steel as per IS2062 is used. For fasteners, IS1367 is used. |
| What is the material used for boiler insulation?  Slag wool, mineral wool and glass wool are used. |
| What is the material used for boiler foundation?  Reinforced Cement Concrete (RCC) with a specification "M20" is used. |
| What are the types of bolted connections used for boiler structures?  Bearing type connection and Friction type connections are used. Bearing type is popularly used. |
| What is a shear key?  Shear key are flat plates welded at the bottom of the structure base plates to transfer shear forces. |

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| What are the types of chimneys?  Rcc chimney and steel chimney are used. |
| What are the types of steel chimneys?  Self supporting type and guyed chimney are used. |
| Why conical chimneys are preferred?  Conical chimneys are economical. |
| What is the corrosion allowance used for steel chimney?  Corrosion allowance = 3.0 mm (typical). |
| Which boiler code is governing in India?  The Indian Boiler Regulations, 1950 (with amendments)is governing in India. |
| Who is the authorized inspector in India?  The Chief Inspector of Boiler (CIB) is the authorized inspector for the Respective states. |
| Which body is empowered to amend The Indian Boiler Regulation?  The Central Boiler Board (CBB) is authorized to amend the IBR. |
| Why steel is used for boiler pressure parts?  The cost to weight ratio is favorable for steel. Hence, steel is used. |
| What is the purpose of refractory?  Refractory is provided where the flue gas temperature is high (above 800 Degree C). |
| What is the purpose of refractory retainers?  Retainers are embed within the refractory and they retain the refractory to the surfaces. |
| What are the steps in design?  Design, engineering, process analysis, stress analysis, detailing, drafting, Documentation and document approval. |
| What is DAS?  Data Acquisition System (DAS) is used record readings. |
| What is VLH?  Variable Load Hangers (CLH) are used for support, permiting limited Support load variation. |
| What is CLH?  Constant Load Hangers(CLH) are used for support,permitting small load variations. |
| Why water quality is control of in boilers?  Water quality is controlled to avoid corrosion of boiler parts. |
| Why paints are required?  Paints are required to protect the surface of boiler. |
| Why rockers are used for boiler hanger supports?  Rockers reduce the induced bending load. This leads to economic design. |