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1. How to differentiate thermodynamics and heat transfer?

You should focus on the basics of these two terms and then describe them. You can say, thermodynamics, which is a crucial branch of physics, works on equilibrium states and alters one equilibrium state to another. Heat transfer, on the other side, is a non-equilibrium process as it deals with systems that are not in thermal equilibrium.

2. Why are most of the gas containers cylindrical in shape?

Gas containers are made mostly cylindrical in shape to resist high pressure. The sphere ideally is the most efficient shape that resists high internal gas pressure but manufacturing that shape is quite expensive. Conversely, a cylinder with a domed top and bottom is cheaper and has sufficient potential to remain unaffected by the internal gas pressure. Pursuing online diploma courses or mechanical engineering certification courses will teach you more about this concept.

3. Explain the role of Nitrogen in welding

Nitrogen in welding is used to prevent porosity. It stops oxygen and air from entering the fused metal while welding. You can gain knowledge on this concept through mechanical engineering courses. So, this is another important question to be considered while preparing for mechanical engineering interview questions with answers and interview questions and answers for freshers in mechanical engineering

4. Which gases can be used in place of nitrogen in welding?

These kinds of basic mechanical engineering questions and answers by saying during welding, Argon, Helium, or Carbon Dioxide can be used in place of Nitrogen to prevent porosity.

5. What is a periscope? Give its real-life application.

Periscope typically refers to an optical instrument used for viewing objects which are above the level of sight. In the real world, a periscope is used in submarines in order to keep an eye on enemies or any other danger.

6. What is the reason for white smoke in two-stroke locomotive engines? This

happens when the engine is running out of fuel. This condition is harmful to the engine as it may result in overheating and eventually its failure.

7. Can motor oil be used in a hydraulic system?

Motor oil can be used in a hydraulic system, but we should avoid using it. This is mainly because motor oil has lower sulfur content, and contains tackifiers and other elements that are detrimental to seals and other hydraulic system components. Instead, we should use hydraulic fluids. So this basic interview questions for mechanical engineer fresher must be included in your mechanical engineer questions and answers list.

8. Why airplanes made up of thicker paper fly farther?

It happens because the thicker the paper, the greater its mass and potential energy. Potential energy converts into kinetic energy while moving and this large kinetic energy provides a larger lift to the airplane and a larger lift results in a large flight distance.

9. Explain the difference between the turbine and the pump?

While the turbine conveys the flow energy of the fluid to mechanical energy, the pump deals with transferring mechanical energy to the fluid.

10. Is there any mechanical advantage of using a double pulley?

Yes, a double pulley cuts our efforts, taking half the effort and moving the object double the distance. You can enhance your understanding of this concept through mechanical engineering courses.

11. What is a Turboprop engine?

A turboprop engine refers to a gas turbine engine that powers the propellers. It changes most of its thrust into rotational energy to power a propeller, making it more reliable and efficient for aircraft designs.

12. Name the different types of gate valves?

There are many types of gate valves, namely parallel disk gate valves, Single disk gate valves, and wedge gate valves.

13. Are the pneumatic system and the hydraulic system similar? Explain,how?

Yes, both systems are similar in the mode of action. Both the pneumatic system and the hydraulic system use pressure to act on a particular application. As the pneumatic system makes use of gases like air or nitrogen, the hydraulic system uses oil or water.

14. Can we see the pipes behind the wall?

Yes, we can do this by using radio waves.

15. Explain the difference between a rocket motion and a projectile motion?

A rocket motion has a rocket on it so it can accelerate its motion and resist forces like gravity. On the other hand, a projectile motion has no rocket on it. Thus, all of its momenta are given to the body when it gets launched. Throwing a piece of chalk across a room can be taken as an example of projectile motion.

16. Does stress produce strain or strain that produces stress?

It is a force that produces both of them. A strain is the measurement of the displacement of an object caused due to applied force whereas stress is the force per unit area. Hence, both are produced by the applied force.

17. What is an Orthographic drawing?

3D representation of any object. These drawings are made in such a way that if the page is folded accordingly, it would create three faces of the shape. The three faces include its plan view, front view, and its side view.

18. What is F.O.F. in piping design?

FOF stands for Face of Flange. It is used to determine the exact dimensions of the flange to avoid errors in measurement in the case of a vertical or horizontal pipeline.

19. What is extrusion?

The term Extrusion is defined as the process of elongating a metal bar by pulling it through a mandrel. This process gives shape to the metal bar. You can learn more about extrusion through mechanical engineering certification courses.

20. Give some examples of mechanisms in daily life?

Some common examples of mechanisms like a light switch and the working of a clock.

21. What are Newtonian fluids?

The fluids that possess a linear stress-strain relationship curve and pass through the origin are called Newtonian fluids. Such fluids do not change due to the action of forces upon them. You can learn more about this by enrolling in mechanical engineering courses.

22. What are the two conditions of perfect gas?

A perfect gas should satisfy the equation of state. And the specific heat of the gas should remain constant.

23. Why are galvanised pipes not used for steam lines?

Galvanised pipes are not used for steam lines because the high temperature and pressure of the steam tend to flake off the zinc coating on the pipe. The flaked coating may clog the orifices in the event leading to an explosion.

24. Why is tolerance analysis important for engineers?

Analysing tolerances helps engineers to reduce costs, avoid time-consuming iterations, and facilitate manufacturing. Every engineer optimises tolerance as it determines how reliable the final piece will be. You can learn this by enrolling in mechanical engineering courses.

25. What is mechanical refrigeration?

Mechanical Refrigerator is a process in which heat is removed from a particular location using an artificial heat-exchange system. Depending upon its application, refrigeration can be magnetic, cyclic, non-cyclic, or thermoelectric.

26. Why is the pneumatic system preferred over the hydraulic system? Because pneumatic systems are quite cheaper than hydraulic systems. Additionally, pneumatics move faster and do not leak oil in case of any leakage.

27. What is the basic difference between a pipe and a tube?

A pipe is measured based on its internal diameter whereas a tube is measured based on its external diameter. You must learn the basics of mechanical engineering for the interview. So, you should include this one of the mechanical engineer interview questions in your mechanical engineering questions list.

28. Give one drawback of supercritical boilers?

Supercritical boilers lack a heavy drum for the separation of steam from the mixture of water and

steam.

29. How can you differentiate between cast iron, mild steel, and high-carbon steel?

These three metals can be differentiated by the kind of spark they produce. Cast iron produces very thick and short flashes. Mild steel produces medium-sized dense sparks while high carbon steel gives thick long sparks. Learn more about these terms through mechanical engineering courses.

30. What are the major and minor head losses in a fluid flow system?

In the fluidflow system, the losses that occur in the pipes are termed major losses whereas head losses that occur due to bends and additional parts in the straight pipe system are termed minor losses.

31. Name the different types of compressors used in a gas turbine?

Three types of compressors are used in a gas turbine- Axial compressor, Centrifugal compressor, and Mixed Flow compressor.

32. Explain a process flow diagram?

A process flow diagram is a sketch to describe the primary flow course. It has symbols to identify vessels and other instruments. The illustration shows major equipment, plant streams, key central loops, and a general relationship between components used to complete a task.

33. What is the difference between total moisture and the inherent moisture of coal?

The total moisture of the coal means the total moisture of the sample while the air-dried sample is known as the inherent moisture of the coal.

34. Why is a thermostat used in the cooling system of engines?

A thermostat in the cooling system works to keep the engine cool at the optimum level. Doing so prevents a decrease in the efficiency of the system.

35. What is a universal coupling?

Universal coupling is a pair of hinges connected by a cross shaft used to connect two shafts with axes inclined to each other. For example, the drive shaft in a car connects to the rear axle via a universal coupling.

36. Which one has greater efficiency- A diesel engine or petrol engine with the

same compression ratio?

If the compression ratio is the same then the petrol engine has greater efficiency than the former one. This is because the Otto cycle rejects less heat than the diesel engine cycle.

37. What is the Otto cycle?

Otto cycle is an ideal thermodynamic combustion cycle that describes how heat engines turn gasoline into motion. This cycle works by converting chemical energy into thermal energy and then changing it into motion.

38. What are the different types of cooling towers?

There are two types of cooling towers - Natural draft and Mechanical/ forced or induced draft.

39. Describe the superheating process?

In the process of superheating, the temperature of the fluid is increased along with increasing its pressure.

40. What type of computer programs a mechanical engineer can use in his/her work?

You a mechanical engineer can use various tools and software like Mathcad, MATLAB, SolidWorks, Autodesk Inventor, and Finite Element Analysis (FEA).