

1. Technical questions:

Type of technical questions asked will be definition type and that too from basic. Your favorite subjects will be asked first and then they start questioning what they want you to answer. Some of the questions are...

1. Why we do not use same technology to start both SI/CI engine?
2. Which one is more efficient? A four stroke engine or a two stroke and why?
3. 4 Stroke engine is more efficient primarily Because of the presence of valves which precisely control the flow of charge into the chamber and exit the exhaust gases with proper timing which is hard to achieve by ports in a 2 stroke engine.
4. Why there is no differential in a train. What happens when a train takes a turn?
5. A cantilever beam is loaded a point on its ends what will be the effect in shear force?
6. Why vehicle does not move when its gear is applied though parked in slope area?
7. What is shear force in fluid particle?
8. How gear ratio helps in power variation?
9. What is the angle of twist in drill?
10. What is the difference between impact force and sudden force?
11. How to calculate the turbine efficiency?
12. Why centrifugal pump casing is called involutes casing?
13. What will happen if reciprocating compressor run in exactly opposite direction?
14. What is the effect of clearance volume in performance of air- compressor?
15. What is the advantages and disadvantages of critical speed of turbine?
16. What will happen if oil is mixed with boiler feed water?
17. What is difference between fan and blowers?
18. What are the protections required to protect turbine?
19. what is critical temperature?
20. Air is a bad conductor of heat. Why it becomes hot in summer?
21. How many stages in compressor in there in gas turbine?
22. Which is more efficient? A rear engine Volvo Bus or a Front engine Volvo

- Bus? (Engine Capacity is same for both) why?
23. What is difference between stress and pressure?
 24. What is Boiler HP?
 25. What is Auto Dosing?
 26. What happens when too much oil is injected in the working cylinder?
 27. How many manholes should be there on boiler? Why?
 28. What is used to check the amount & quality of fuel in two stroke IC engine?
 29. Work done in throttling process is given by which formula?
 30. Function of the strainer in IC engine?
 31. What is the difference between the air pre-heater & air blower?
 32. Why the compression ratio of the diesel engine should be high?
 33. A vertical plate and a horizontal plate are suspended in an open room. Both are heated to the same temperature. Which one will cool first? Why?
 34. What is the color of flame if the boiler is running?
 35. Which is the best lubricant-air, oil or water?
 36. Tell the octane number in Indian petrol?
 37. Difference between enthalpy & entropy?
 38. What is the difference between safety valve and relief valve?
 39. Explain cooling and its types?
 40. What is the working principal of air compressor?
 41. What is cryogenics and what are its fundamentals?
 42. What is the difference between a shaper machine and a planner machine?
 43. Why stress relieving of stainless steel is not proffered?
 44. What are the advantages of PID controllers compared with those of a PLC?
 45. Which two continents are mirror images of each other?
 46. Where half nut is used?
 47. What is the need for drafting?
 48. Turbo charger driven by.....? and what its speed
 49. Why...? Turbo charger used in DG....?
 50. The stage below saturation is called?
 51. Why is a condenser used in a Rankin cycle?

52. What is servo motor?
53. Can we use light duty vehicle axle into the heavy duty machinery axle? If no then why?
54. Stress strain diagram for fluid?
55. Where Manning formula used?
56. What is level of documentations for a ISO 9001 certified company?
57. What is back plate in centrifugal pumps and its purpose?
58. Why tyres are manufactured in black colour?
59. Whether ductile material can fail in brittle manner? When?
60. On what property u can distinguish material as brittle or ductile?
61. Name fuels used in nuclear power plant?
62. On what thermodynamic cycle nuclear power plant works?
63. How can you increase the efficiency of power plant without changing in effort?
64. What is purpose of governor in Diesel engine?
65. Why petrol engines have more power than diesel engines of same capacity?
66. What is the difference between Torque and Power (layman Idea)?
67. What will be the induced stress in the bar?
68. What is the Difference between Rated Speed and Economic Speed?
69. How to convert from HP to BHP or CC to Bhp please explain?????????
70. How the material no. 2062 will mild steel of density 7.85? What are the other codes?
71. Why petrol engine gives more power than diesel engine even though diesel engine has high compression ratio?
72. What is mean by Resistance welding?
73. Compare Brayton and Otto cycle.
74. Why we have to know the specific frequency of any equipment? does anybody know about specific frequency ?
75. What is pulverization?
76. What is the function of an isolator?
77. Why the back wheel of tractor is bigger than front wheel?

78. Flow will increase or decrease or remain same?
79. Why Mechanical seal used in Pumps?
80. The ratio of Emissive to absorption power of heat by a body is equal to heat emitted by a perfect black body. Who said the statement
81. What is colour of flame if the of Halide Torch detects a refrigerant leakage?
82. How can we remove paint from (painted over)plastic or nylon objects without damaging the object?
83. How to calculate or arrive the capacity of a mechanical press?
84. The property of a metal that is determined by the indentation on a metal surface
85. The amount of thickness of the metal sheet that can be welded by ultrasonic welding is?
86. The amount of carbon present in Cast Iron?
87. Numeric control is used for?
88. The amount of moisture that is to be present in wood to be called dry wood is?
89. The pattern material used in Investment casting Process is?
90. What is the use of offset follower in cam? Why and where we have to use this type of follower?
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92. State the difference between Forging & Fabrication?
93. What is flange rating?
94. What amount of heat energy loss in ESP?
95. What happen when diesel is injected in petrol engine?
96. What do you mean by property of system?
97. Why joule-Brayton cycle is not suitable for a reciprocating engine.
98. How does "turbulence" differ from swirl?
99. Is octane number beyond 100 is possible?
100. Explain the effect of fuel structure on knocking.
101. Discuss the advantages and disadvantages of LPG as a fuel in S.I. Engine?
102. What is the impact of using throttling device instead of expander in vapour

compression cycle?

103. What is moisture choking? Which refrigerants are more prone to it?

104. What is Montreal protocol and why CFCs are being phased out?

105. Why reverse Joule Brayton is used in aircraft refrigeration system?

106. Explain how solar-energy can used in refrigeration system?

107. Is wet bulb temperature a thermodynamic property?

108. What is the utility of comfort chart?

109. How would you decide whether a reciprocating compressor or centrifugal compression is to be used in a refrigerating system?

110. Why smoking is not allowed in air conditioned enclosure?

111. Why desert coolers become ineffective in raining season?

112. Why package units are being preferred over central air conditioning system?

113. What is MAPI.

114. What is capital budgetary?

115. What is group technology layout?

116. What is leveling & smoothing in production technology?

117. What is deference between method study & work measurement?

118. What you know about drilling?

119. How oil is produced? What is the size of well?

120. Pumps used in drilling procedure and why? Why not centrifugal pump?

What if we want high head and high discharge?

121. Difference between Pipeline and Piping ?

122. Use of CNG, LNG, LPG etc.

Additional questions subject wise:

Fluid Mechanics and Fluid Machinery

- What is the difference between impulse & reaction turbine.
- Explain unit speed, unit discharge unit power & specific speed.
- Explain NPSH, in which parameter it depends on.

- What is jet ratio?
- What is Deriaz turbine?
- Which turbine is good for tidal power plant?
- What is Navier-stroke equation.
- What are the significance of
- Mach number
- Weber number

Material Science

- What is quazi-crystal?
- What do you understand by a free cutting steel? What elements are usually added to make a steel free cutting, & how they make the steel free cutting?
- Explain various method of hardening of steel?
- What do you understand by the term “Arrest point” in connecting with heat treatment of plain carbon steel?
- What influence does grain size have on the mechanical properties of metals.
- Describe the difference between brittle and ductile fracture.
- What is the difference between natural & artificial aging?

Thermodynamics

- What is availability function for a closed system?
- If it is possible that entropy of a system can decrease during a given process?
- What is dead state in thermodynamics?
- What is exergy?
- What happens to triple point line when projected to P-T plane?
- What is compressibility factor and what is its value for Vander walls gases.
- What are initial conditions for formation of shock waves?
- What do you understand by choking in nozzle flows?

- Is it possible that pressure and velocity decreases simultaneously/
- Distinguish between “Available energy” & Availability?
- What is pure substances.
- What is critical point? What is the value of critical temperature, pressure & volume of water?
- What is sublimation curve, fusion curve & vaporization curve?
- What is Rayleigh Line & Fanno Line?
- What is normal shocks & when it occurs?
- What is High Grade Energy & Low Grade Energy?

Heat & Mass Transfer

- What is Newton’s Law of cooling.
- What is Recuperator & Regenerators?
- Whether fin can actually reduce heat transfer? is it possible? When?
- What is difference between Biot no. & Nusselt no?
- Which one is greater, thermal boundary layer or hydrodynamic boundary layer?
- What is film temperature in forced convection flow?
- What is fully developed region and where it is applicable?
- What is the critical radius of insulation, explain clearly in terms of thermal resistance and heat transfer rate?
- At what case do you recommend Fin?
- What is the difference between free convection & forced convection in what parameter forced & free convection depend.

Internal Combustion Engine

- What is the use of Carburetor in SI Engine, There is trend towards increases of injection system in Automobiles, Explain.
- Why Supercharging is not popular with SI Engines?
- What is performance number.
- Explain Knocking in SI Engine & Mention, the factor that tend to reduce Knocking?

- Explain the difference between Knocking in SI Engine & CI Engine?
- How does “Turbulence” differ from “Swirl”?
- Name some Antiknock additive and explain the Mechanism by which they reduce the knock?

Power Plant engineering

- What is slip ratio in thermal power plant?
- In Pendant super heater whether parallel flow or counter flow heat exchange between
- steam and flue gases.
- What happens to mass flow in case of supersaturated flow?
- Why clearance are provided in reciprocating compressor?
- Explain turbojet & Rocket Engine.
- What’s the advantage of compounding of steam turbine?
- What’s are boiler mounting & accessory.
- Draw the sketch of pulse jet engine. What are its main advantage & disadvantage?
- Explain working principal of scram jet engine, what is advantage over the ramjet?
- What are the advantage of nuclear power plants over thermal power plants.
- What is fast breeder reactor?
- What is circulation ratio and what is its range in power plant?
- One 2-row Curtis turbine is equivalent to how many reaction turbines for same value of
- blade velocity and angle of nozzle?
- What are thermal neutrons?
- What is breeding ratio?
- What is the application of jet and rocket technology? Which is used in missiles?

Strength of Materials

- What do you mean by equal strength in a beam?
- What is difference between pure shear and simple (normal) shear?
- Is it possible that decrease in area gives a decrease in stress?
- Whether shear stresses are always parallel to shear forces?
- By which experiment, you find it toughness of material.
- Distinguish between direct stress & bending stress.
- What do you mean by Torsional rigidity & lateral rigidity?
- Define “slenderness ratio”. How it is used in long and short column?

Machine Design

- What are rolling contact bearing?
- What are the anti friction bearings?
- What is stress concentration factor?
- What is the bolt of uniform strength?
- What is the difference Static Load carrying capacity & Dynamic Load carrying capacity?
- Why we are not using the unit joule for torque instead of N-m.
- What is Low cycle fatigue failure and High cycle fatigue failure? What are considerations of these while designing a machine?
- What is mechanical advantage?
- How trains take turns though there is no differential gear?
- Do you know epicyclical gear box? What is the practical application of epicyclical gear box?
- What is tooth profile? Which one is better?

Theory of Machines

- What is Keneddy theorem?
- Do we need a screw with efficiency less than 50%?
- What is backlash?
- What is damping ratio?
- Define Resonance.

- Define critical speed or whirling speed or whipping speed.
- What is machine? Giving example, Differentiate between a machine & structure.
- What is Mechanical advantage.

Refrigeration and Air-conditioning

- What is utility of comfort chart?
- What is wet compression?
- To maximize COP what should be the condition of vapour at suction to compression?
- What is the range of NBP (normal boiling point) in case of most refrigerants?
- Why COP of CO₂ gas is less and still why it is used in transport refrigeration?
- What are the most crucial parts in reciprocating compressors?
- How compressors are selected based on type of refrigerant?
- What is correlation between wet bulb temperatures and adiabatic saturation temperature?
- Why isothermal compressor is Desirable?
- What is desirable property of ideal refrigerant?
- Define effective temperature & what is the optimum design condition for comfort for summer A/C?

Production Engineering

- Why arc is slowly extinguished in case of arc welding?
- Which inert gas is commonly used for thin work piece and which inert gas for thick work piece?
- What is friction welding?
- What is difference between brazing & braze welding?
- Why hole basis system is adopted in manufacturing?
- What is 3-2-1 principle?
- Where diamond pin locator is used?

- How presses are rated?
- What is spring back?
- What is difference between fillet and corner radius?
- What are overhead costs?
- Why depreciation is to be taken into account in industrial management?
- Why breakeven point is important in any industry?
- What is sine bar?
- What is marginal cost and marginal revenue?
- What is shear and where it is provided in case of punching and blanking?
- What is angle of bite?
- What is extrusion ratio?
- What is gutter and where it is used?
- Which process is used for making nuclear reactor fuel rods?
- What is difference between Amorphous and crystalline solids?
- What are the various method of inspection of casting for internal & external defects?
- Why are allowances provided for in the production of patterns? What do they depend on?
- What is the deference between soldering & brazing?
- What is meant by solid-state welding explain.
- What is cold welding?
- Describe the principal behind resistance welding processes.
- What function should a lubricant perform in manufacturing process?
- Explain the difference between punching & blanking.
- Explain the difference between discontinuous chips and segment chips.
- Explain the different type of tool wear.
- What is difference between oblique & orthogonal cutting.
- What are the main difference between jig and fixture?
- What is AOQ
- What is LTPD
- What is Producer risk

- What is Consumer's risk
- What is JIT approaches?
- What is group technology? What are its main advantages?
- Define the term "production & productivity.
- What is the significance of ISO 9000 series & 1400 series.
- What is artificial intelligence?
- Which welding process does not required any filler material?
- What is tack weld?
- Which process used for cutting thicker plates?
- Where drooping characteristics of power source is required in arc welding?

2. HR questions:

1. Tell me about yourself?
2. What is your hometown famous for?
3. Tell about your achievements in life.
4. Your strengths and weakness
5. Are you a team player?
6. Tell me about your ability to work under pressure.
7. How would you know you will be successful on this job?
8. Describe your management style.
9. Global warming
10. Chief justice of India
11. Vice President of India
12. CEO of Apple, when did he die?
13. Gas scenario
14. RBI policy
15. Corporate Governance
16. Corporate Laws
17. Cast system is boon or bane ?

18. What's the difference in the modus operandi of Amir Khan's "Satyameva jayate" and Anna Hazares movement?
19. What will u do on your part to remove corruption? If you travel in a train without confirmed ticket will u bribe the TT for a seat?
20. What do u mean by optimistic. Is it always good to be optimistic or it helps sometimes to be pessimist?
21. What is difference between confidence and over confidence?
22. What is the difference between hard work and smart work?
23. What are your goals?
24. What motivates you to do a good job?
25. What makes you angry?
26. Give an example of your creativity
27. Describe ideal company, job, and location?
28. What are your hobbies?
29. Inspiration in your life and why?
30. What was the toughest decision you ever had to make?
31. Define success? and how do you measure up to your definition
32. About present job (if employed)
33. Why did you resign from your previous job?
34. Why have you been unemployed so long?
35. What was the toughest challenge you have ever faced?
36. What would you say to your boss if he is crazy about an idea, but you think it stinks?
37. Why should I hire you?
38. Explain how you would be an asset to this organisation.
39. If we give you a job will you leave IIT B or your organisation?
40. What changes would you make if you came on board?